Healthcare Policy
The Faculty of Humanities and Health Sciences

The Development and Testing of Consensus Recommendations for Collaborative Practice in the Malaysian Mental Health System

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This thesis is presented for the Degree of
Doctor of Philosophy
of
Curtin University

July 2021

DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated March 2014. The proposed research study received human research ethics approval from the Ethics approval was given by the Ministry of Health Medical Research Ethics Committee, approval number NMRR-13-308-14792, with reciprocal approval from the Human Research Ethics Committee at Curtin Sarawak.

SUPERVISORS

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ACKNOWLEDGEMENTS

I would like to thank my supervisors for their input into this project. I would not have done this project if I had not met Prof. Sue Fyfe ten years ago, who encouraged me to start the project and has been an endless source of support since then. My supervisors have spent many hours with me over the years on Skype calls, thinking in depth about every aspect of this project, without which I would have stopped long ago. I would also like to thank my husband and children for their patience while I finished this project.

This project was a participatory action research project, which was not possible to do alone. I would like to thank and acknowledge the contribution of the following people, who allowed this project to happen.

- Dr Norhayati Nordin –previous director of the hospital, who helped to get funding for the first stage of the project. Helped set up the collaborative practice committee.
- Dr Ahmad Qabil Bin Khalib – director of the hospital, who supported the committee and the implementation of new programs.
- Ms Chew Abdullah: Universiti Malaysia Sabah. Psychologist who helped in the development of instruments to measure collaborative decision-making.
- Dr Tan Bih Yuan: Universiti Malaysia Sabah. Psychologist who helped in the development of instruments to measure collaborative decision-making.
- Dr Loo Jiann Lin – co-trainer for most of the training sessions. Conducted the focus groups for the ward staff.
- Ms Sandi James: Universiti Malaysia Sabah. Psychologist who taught me many of the techniques in the Ultra Brief Intervention Course and was involved in training.
- Dr Nicholas Pang - Co-trainer for the training sessions and helped in organising the Ultra Brief Intervention Course.
- Mr Julius Kinsui – helped set up the collaborative practice committee and arranged data collection from the ward staff.
- Mr Awang Faisal Bin Awang Borhanuddin – Linguist and research assistant, who helped during the qualitative phase to produce models from the qualitative research and in instrument translation and development.
- Matron Lee Sang Choon – Matron at the hospital who was instrumental in setting up the primary nurse program.
- Dr Emmanuel Joseph Pareira, specialist at Hospital Mesra Bukit Padang – who gave advice during the project and helped with implementing changes.
- Dr Wah Kheng Yee, specialist at Hospital Mesra Bukit Padang – who also gave advice during the project particularly on implementing changes.
- Datuk AP Dr Mohd. Yusof Bin Ibrahim: Universiti Malaysia Sabah. Chaired first meeting of the collaborative practice committee, which was a big help in building momentum.
- Dr Chua Sze Huang, Hospital Mesra Bukit Padang. Helped in setting up the committee and implementing some of the changes in the hospital.
- Prof Dr Ahmad Faris Abdullah: Helped and advised in setting up the project initially.
- Dr Abdul Kadir Abu Bakar: Helped to find members for the Delphi committee.

- Assis Kamu and Ho Chong Mun - mathematicians, who helped to check that the longitudinal confirmatory factor analysis was done correctly.
- Research assistants: Patimah Adjala Bt Rosli, Halimatul Gustia Bt Marasal, Nurul Izza Binti Md Nordin, Yaniermaida Bt Takim, Nurul Amira Bt Mohd Zaid, Kalsia Binti Matrin and Marliza Yugam, who were involved in data collection.
- All of the members of the collaborative practice and Delphi committees: Adam Abdullah, Ahmad Qabil Bin Khalib, Segeran Ramodran, Atiqah Chew Abdullah, Brenagempli Anak Jampong, Cassie Ellena Chew, Cornelius John, Emmanuel Joseph Pereira, Lee Shea Wah, Ng Boon Seng, Norhayati Nordin, Razifah Adbul Rahman, Shahlini Selvarajoo, Sughashini Subramaniam, Ebba Gondilou, Geo Allen George, Julius Jalani, Lee Sang Choon, Mary Malanjun, Matron Nurzelah Abdullah, Ong Kok Loong @ Mohd Benyamin Abdullah, Rewajoh Lahai, Zaidin Endut, Rommy B. Ramlee, Nurmina Nawali, Sharifah Aini Yusoff, Sidik Singkak, Kulnah Ambor, Masnah Ajis, Umi Izzatti Saedon, Tang Poh Yee, Siti Hazrah, Nurul Nadia Ismail, Marhani Midin, Low Lee Lan, Abdul Kadir Abu Bakar, Anita Abu Bakar, Ang Kim Teng, Amalina Abdullah, Ahmad Rostam Md Zin, Abdul Rasyid Sulaiman, Shazwani Rhosky binti Fadzir, Wan Zakirah bt. Wan Zakaria.
- The internal reviewers and examiners of this thesis.
- The reviewers of the papers and journal editors who helped improve the papers that are published in this thesis.
- I would like to thank the Director General of Health, Malaysia, for permission to publish this work and all the other publications related to this project.

USE OF TENSES AND PRONOUNS

In this thesis I have used the active tense where possible, in line with the advice from the American Psychological Association. I use the pronoun ‘I’ to refer to myself as the writer of the report. I also use ‘we’ as a pronoun, since much of the work done and decisions taken were made with others, in line with a participatory action research approach.

FUNDING

This project was supported by a grant from the National Institute of Health NMRR-13-30814792.

PEER REVIEWED PUBLICATIONS RELATED TO THIS PHD

The following have been published or presented since enrolment and are related to the topic of the PhD. Some of these publications have been reprinted in the thesis since they explain an important part of the project. All the publications which have been provided were originally published under a creative commons licence, which allows reprinting.

Reactions to symptoms of mental disorder and help seeking in Sabah, Malaysia. International Journal of Social Psychiatry, Volume 64:1, 49-55 (2018). *Wendy Diana Shoesmith, Awang Faisal Bin Awang Borhanuddin, Pauline Yong Pau Lin, Ahmad Faris Abdullah, Norhayati Nordin, Beena Giridharan, Dawn Forman, Sue Fyfe.* This is a paper describing the pathway for care for patients with psychotic illness.

Validation and Adaptation of the Malay version of the Maslach Burnout Inventory. Proceedings of One Curtin International Postgraduate Conference (OCPC), Miri, Sarawak, Malaysia. (November 26-28, 2018). Published in IOP Conf. Series: Materials Science and Engineering, 495 (2019). *Wendy Diana Shoesmith, Kinsui Julius Jalani, Atiqah Chew Abdullah, Loo Jiann Lin, Tan Bih Yuan, Norhayati Nordin, Beena Giridharan, Sue Fyfe, Dawn Forman.* (Included in the thesis)

Barriers and enablers to collaboration in the mental health system in Sabah, Malaysia: towards a theory of collaboration. British Journal of Psychiatry Open (2020) 6(1):1-10. *Wendy Shoesmith, Awang Faisal Bin Awang Borhanuddin, Emmanuel Joseph Pereira, Norhayati Nordin, Beena Giridharan, Dawn Forman and Sue Fyfe.* (Included in the thesis)

Leadership Resilience in Collaborative Practice Projects in Mental Healthcare in Sabah, Malaysia. Book chapter in: Sustainability and Interprofessional Collaboration. Publisher Palmgrove Macmillan (2020). *Wendy Shoesmith, LJ Lin, Sue Fyfe.* This is a book chapter, which was a part of phase one of this project. We conducted qualitative interviews with three leaders who were running successful collaborative practice projects in Sabah to better understand what led to their success.

Creation of consensus recommendations for collaborative practice in the Malaysian psychiatric system: a modified Delphi study. International Journal of Mental Health Systems. (2020), 14:1-14. *Wendy Shoesmith, Chua Sze Hung, Beena Giridharan, Dawn Forman, Sue Fyfe.* (Included in the thesis)

Development of a scale to measure shared problem-solving and decision-making in mental healthcare Wendy. Patient Education and Counseling. Shoesmith, (2022). *Wendy Diana Abdullah, A. C., Tan, B. Y., Kamu, A., Ho, C. M., Giridharan, B., Forman, D., & Fyfe, S.* This paper was accepted for publication after the thesis was examined. Content from this paper is included with the permission of the publishers.

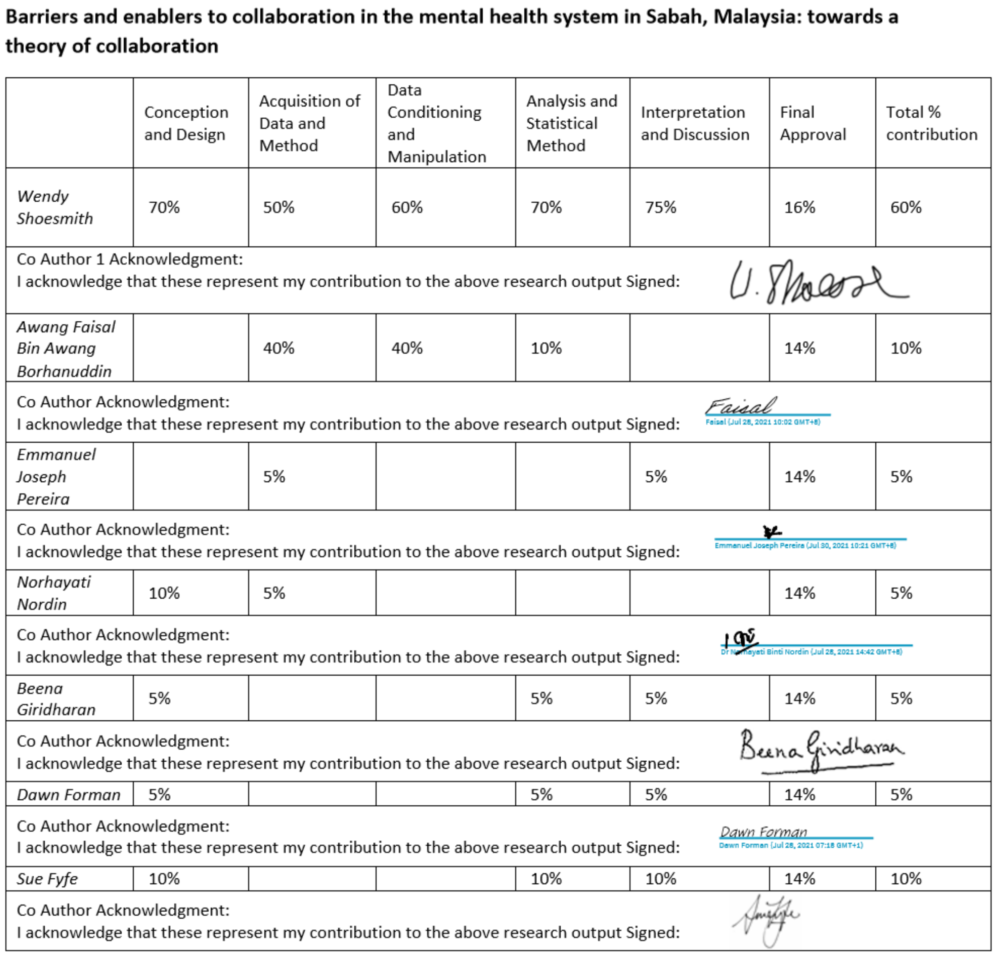
Awards

Best paper award. 2018 at the One Curtin International Postgraduate Conference (OCPC), Miri, Sarawak, Malaysia.

Best paper award. 2017 at 29th World Congress of the International Association for Suicide Prevention (IASP) and the 21st Malaysian Conference of Psychological Medicine (MCPM).

First place oral presenter. 2017 at 3rd Scientific Research Conference on Health and Medical Sciences, Universiti Malaysia Sabah.

ATTRIBUTION STATEMENTS FOR PUBLISHED PAPERS



Barriers and enablers to collaboration in the mental health system in Sabah, Malaysia: towards a theory of collaboration

	Conception and Design	Acquisition of Data and Method	Data Conditioning and Manipulation	Analysis and Statistical Method	Interpretation and Discussion	Final Approval	Total % contribution
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Validation and Adaptation of the Malay version of the Maslach Burnout Inventory

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Creation of consensus recommendations for collaborative practice in the Malaysian psychiatric system: a modified Delphi study

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ABSTRACT

Introduction: Collaborative practice can be described as a process whereby multiple care providers, including professionals, families, communities, and the patient, work synergistically to provide care for the patient. It has been shown to improve outcomes in mental healthcare. This project aimed to develop and test a model of collaborative practice specifically for the Malaysian mental health system. This project was based in a psychiatric hospital in Sabah, Malaysia and built on research from a previous qualitative study and a theory of collaboration developed from this study. Methods: The study used action research methodology and was divided into three phases. During Phase 1, scales to measure collaborative practice and its outcomes were translated and validated. During phase 2, a 'Collaborative Practice Committee' was formed in the hospital, which met a total of ten times between 2016 and 2018. The committee produced a set of recommendations to improve collaborative practice in Malaysia, based on a theory of change. These recommendations were sent to a nationwide Delphi committee to allow them to be generalised to a wider setting. These committees included staff from various professional groups, patients and carers. During Phase 3, some of the recommendations were implemented in the hospital. Realist evaluation methods were used to assess the feasibility and effectiveness of programs, using both quantitative and qualitative methods. Results: Several scales were translated and validated and a new scale to measure shared problem-solving and decision-making was developed. The Delphi committee reached consensus on the recommendations within three rounds. Programs implemented included several skills training programs; a clinic notebook, to improve collaboration in the outpatient department; and a primary nurse program to improve planning and engagement prior to discharge. A skills training program known as the ultra-brief psychological intervention (UBPI) course was developed to improve collaboration between healthcare staff and patients. Over the four years of the study there were increases in collaboration and teamwork, a reduction in burnout and an increase in the sense of competence in staff. Qualitative findings showed that these improvements were partly due to the programs that were introduced. Staff described increased involvement in decision-making and proactivity by non-medical staff. There were changes in the way staff communicated with patients such as asking more open questions and using validation. These changes were mainly attributed to the skills training programs. There was a reduction in the perception of hierarchy, which staff attributed to deliberate attempts by the hospital management to reduce the culture of blame. Programs aiming to improve continuity of care were either not implemented or quickly discontinued due to staff spending longer with patients, conflicting goals, patients' expectations increasing, loss of flexibility and fear of letting people down. Conclusions: This study showed that the modified Delphi process was feasible in this setting and allowed a more diverse group of people to be involved in forming recommendations, including patients and carers. The changes in the system during the study allowed the mechanisms of the original collaborative practice theory to be studied in a dynamic system. Improved autonomy and skills training had the greatest impact on the system. The mechanisms found in the realist evaluation were in accordance with the previously published collaboration theory, self-determination theory and game theory.

Chapter 1. INTRODUCTION AND CONTEXT OF THE STUDY

Section 1.1 COLLABORATION

Collaboration has been shown to improve the quality of healthcare delivery, whether this is between different professions [1–6], between different agencies [7–12] or between healthcare services and patients, families and communities [13–20]. Bleich (1995) defined collaboration as "when the goals and aims of every party are focused on a common cause or need, the vision of what is desired is clear, care systems support clinical practice, and there is an even power base and incentive for each person to participate fully in achieving the outcome"[21]. Kinnaman and Bleich (2004) described a hierarchy, with four different ways of people working together: toleration, coordination, cooperation and collaboration, with different ways of working together needed for different problems, depending on the level of complexity of the problem[8]. Toleration and cooperation involve the two or more parties working together, mainly using pre-agreed protocols and are best used for less complex problems, with well-known solutions and little disagreement on the best course of action. More complex problems are best solved with coordination and collaboration. Collaboration is the most resource intensive way of working and is best used for highly complex situations, where there is no obvious solution and lower levels of agreement. This is frequently the case when patients have complex health and social care needs. Collaboration means more than just working side by side. If people are working collaboratively then the sum of the parts is more than the total. There is synergy.

Systems that provide for health and social needs can be considered complex adaptive systems, which are more like living organisms than industrial machines [22]. People with severe mental health problems are often surrounded by a complex system of healthcare practitioners, family carers and religious and traditional healers. As healthcare systems develop, the system becomes more complex, as increasing numbers of healthcare practitioners from different professions become involved with the same patient[22]. This complex system has the potential to bring improved quality of care for the patient if a team is working collaboratively. There is also a potential for the patient to experience a confusing array of disjointed treatments from a system that fails to communicate. Improving performance in a complex adaptive system involves concentrating on the interactions between individual agents, as well as the individual performance of the agents themselves [23].

1.1.1 Collaborative Practice

Collaborative practice has been defined by the WHO as "when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care"[24]. The term "collaborative practice" or "collaborative care" is used in the literature to describe a heterogeneous group of organisational interventions, which could include any of the following:

1. **Collaboration between professions, such as between doctors, nurses and therapists in a multi-professional team.** Interprofessional working is part of collaborative practice. It involves

healthcare workers from two or more professions collaborating to provide care for a patient. In developed healthcare systems, mental healthcare is becoming increasingly team based. Mental healthcare teams normally consist of psychiatrists, mental health nurses, clinical psychologists, social workers, occupational therapists, other therapists, and support staff. Each profession brings a different perspective, so that the understanding of the patient and their subsequent care is more than if any group were working alone. Collaboration between professionals has been shown to improve several outcomes, including length of admission and mortality[2–4,25]. Interprofessional practice is widely used in developed mental health systems, particularly in community mental health teams, which have been shown to reduce admissions and improve satisfaction, employment and reduce homelessness [26–28].

2. **Collaboration between two different areas of the healthcare system**, such as between primary care and psychiatric services. This is one of the most widely researched types of collaboration in mental health. A Cochrane review of 79 different randomised controlled trials found this kind of collaborative practice to significantly improve outcomes in depression and anxiety. Most of these interventions involved a primary care physician working together with a psychiatric nurse or psychiatrist [29].
3. **Collaboration between different agencies involved in the care of the patient**, such as between health and social care agencies. The evidence that this kind of collaboration is effective is weaker and a Cochrane review found only 11 experimental and quasi-experimental studies that met their inclusion criteria. Six of these were in the area of mental health. Many of the trials with positive results were of high risk of bias[30]. The lack of experimental evidence is likely to be because this kind of intervention is complex and cannot be standardised.
4. **Collaboration between professionals and the patient**. The concept of collaborative practice also includes the patient as a caregiver and partner in their own care. Many mental health interventions are based around self-help and collaboration with the patient is essential. Collaboration with the patient includes shared decision-making. Studies have shown that patients want to be involved in decision-making[31] and doctors trained in shared decision-making are seen as more trustworthy and competent[32] and have more satisfied patients[15]. The evidence on the effectiveness of interventions to improve shared decision-making between the healthcare professional and patient is still relatively weak. A Cochrane systematic review on shared decision-making in mental health found only two RCTs and quasi-experimental studies. Both interventions improved doctor facilitation in decision-making and did not increase consultation times. One study showed improvement in satisfaction[33]. Related to this is the concept of therapeutic alliance, which is originally from the field of psychotherapy, but can be applied in other areas. This is one of the strongest predictors of outcome in mental healthcare and is reviewed in more depth in section 2.3.3.
5. **Collaboration between professionals and carers.** Many carers of people with mental health problems feel excluded from the decision-making process. In one Canadian study, more than 80% of patients and relatives reported no communication between hospital staff and relatives regarding discharge. More than 90% of patients and relatives wanted relatives to be involved in some aspects of discharge planning and when they were not involved they were less satisfied[34]. Two Canadian cross sectional studies showed collaboration between families and professionals to be the most important predictor of carer satisfaction with services[35,36].
6. **Collaboration between the formal healthcare system and other community members** that provide care for people with mental health problems. An example of this can be seen in

Indonesia, where traditional healers are recognised as an integral part of the healthcare system[37]. In addition village volunteers, called “Kaders” are trained to provide basic health needs, including mental health care needs[38].

Collaborative practice is used in a wide range of disciplines, and is particularly useful for chronic illnesses, where the patient needs to be a partner in their own care and several health professions are often involved[39,40]. There is currently little research on collaborative practice in Malaysia or other lower-and-middle income countries. Finding ways of improving collaborative practice in the Malaysian mental health system may be useful in other lower-and-middle income countries as well as in other disciplines, such as in diabetes care.

Section 1.2 DESCRIPTION OF PERSONAL MOTIVATION FOR THE PROJECT

My first experience with true collaborative practice was when I was working in an early intervention for psychosis team in Cambridge, UK between 2005 and 2007. At that time, the early intervention for psychosis movement was just starting and was revolutionising the way people with psychotic illness were treated and services were organised. The team was multiprofessional, energetic and cohesive. Everyone listened to everyone else, and staff, patients and families all learned from each other. Expertise and experience were recognised and there was no obvious hierarchy of professions. As a junior doctor, I was supervised and managed by nurses, psychologists, and people from other professional groups, which meant that the breadth of learning was much greater. There was always a buzz in the environment and high energy levels, which made going to work fun. When things were stressful the team supported each other, and staff appeared to identify more strongly with the team than with their professional group. Patients with psychotic illness were genuine partners in their care and very few patients were treated coercively. Medication doses were generally much lower than in other services. Patients and families were extensively educated on how to manage the illness, with every patient and family receiving psychological interventions. The improvements in patient outcomes with this approach were clear to me, in comparison to the normal community mental health team approach that I had previously been exposed to. This has now been backed up by research evidence, showing better outcomes in these kind of services for first episode psychosis[41]. The experience profoundly shifted my beliefs about how psychiatry should be done.

On coming to Malaysia in 2007, I believed very strongly in the way of practicing that I had experienced for the previous 2 years. Together with another specialist in the hospital, we attempted to set up a service for first episode psychosis. The service lasted for about six months, until the other specialist was transferred. It was not possible to run the service without the multiprofessional team. We were able to replicate some of the services, for example making relapse plans with the patients, but I knew that the services that the patients were receiving were not adequate to help the patients recover as well as they could. The biggest part of the problem was the lack of resources. The human resources were less than 5% of what was available in the UK. For example, in 2008 there were no services at all in the hospital for psychology and counselling. The other part of the problem was with collaborative practice. Staff were working in isolation or mainly with members of their own professional group alone. As well as this, there was usually little collaboration between healthcare staff and patients, so patients were often not partners in their own care. The law encouraged this, with patients admitted at that time under an old colonial law called the ‘Lunacy Act’, where it was not possible to be admitted to hospital voluntarily and the only route to admission was to be certified as a ‘lunatic’.

Over the next few years, the staffing levels increased, but there did not appear to be much change in the way people worked and in some ways patient care became more disjointed. I felt that the lack of resources was exacerbated by the lack of collaborative practice. For example, staff spent a lot of time in ward rounds and large meetings, but many were only able to participate in a very minimal way. This wasted time for the staff and reduced growth, as well as reducing the ability to plan patient care. The staff only learned from their own professional group, rather than there being broad learning across professional groups, so skills were not transferred. When patients were not partners in their own care, it reduced the quality of decision-making, increased disability and reduced trust, which I also felt led to greater resource use in the long term. The service model that had significantly improved care for patients with psychotic illness in Britain was not going to work in this context. I wondered, however, if there were some elements of the collaborative way of working which could be implemented in Sabah.

Section 1.3 CONTEXT

The setting for the study was Sabah, which is one of the two Malaysian states on the island of Borneo. Sabah federated with Peninsular Malaysia in 1963, after British independence, and the culture is distinct from Peninsular culture. The estimated 3.8 million people of Sabah are spread through a large geographical area, nearly 60% of Peninsular Malaysia. The geographical barriers, such as large rivers, mountain ranges and rainforests, mean that there a many distinct cultural groups, who are linguistically and culturally different from each other. It is estimated that there are more than 50 ethnic groups in Sabah, which include the Kadazandusun, the Bajau and the Murut, the Malays and ethnic Chinese people[42]. Sabah has the highest poverty rate in Malaysia, although this has rapidly declined from 19.2% in 2009, to 1.6% in 2019[43]. The state has partial autonomy from Peninsular Malaysia, for example controlling its own immigration. Government health services are run through the centralised Ministry of Health, based in Peninsular Malaysia. Despite the geographical remoteness of Sabah, access to primary healthcare is generally good and more than 90% of people live less than 5km from a primary healthcare clinic[43].

1.3.1 The Malaysian Psychiatric system

Mental disorders affect around one in ten people in Malaysia, with about half of Malaysians experiencing mental health problems during their lifetime[44]. Mental disorders are the leading cause of disability in the World, contributing around one third of years lost to disability[45]. Most mental disorders worldwide are untreated[46] and one study in Kota Kinabalu, Malaysia found that less than 10% of primary care patients with mental disorders were diagnosed or treated[47]. Another study has found that it takes an average of 28 months for patients with psychotic disorders, such as schizophrenia, to receive treatment in Malaysia[48].

The formal Mental Healthcare system in Malaysia is currently underdeveloped, with chronic shortages of resources, particularly in Sabah[49]. At the point of the study starting in 2013, there were only 10 psychiatrists and approximately 15 trained psychiatric nurses working in the Ministry of

Health Hospitals in Sabah, which meant there were only 0.3 psychiatrists and 0.4 trained psychiatric nurses per 100,000 people. This is close to the average staffing level of a lower income country[50], despite the fact that Malaysia is an upper middle income country. In 2021 that number has grown to 22 psychiatrists. There was a single clinical psychologist working in the Ministry of Health in Sabah in 2013 and this number has not increased. There was previously a counsellor working in the hospital as well, but they have now been withdrawn, which means that there is no access to formal psychological therapy for most patients.

A system of traditional care runs in parallel to the formal healthcare system. In Malaysia, people who are mentally distressed seek help from a wide range of sources. Symptoms of mental ill health are frequently normalised as "stress"[51,52] or are considered to be spiritual in origin[53,54]. Patients use self-help strategies to deal with symptoms they regard as normal. When these do not work, they seek help from family and friends. Most patients will seek help from a religious and traditional healer before seeking help from formal healthcare services[53,55,56]. Simultaneously seeking help from both formal healthcare services and traditional healers is common.

1.3.2 What does collaborative practice mean in the context of the Malaysian healthcare system?

Most of the literature on collaborative practice focuses on collaboration between professionals, with very little high-quality evidence in the other categories. In lower-and-middle income countries, only a small proportion of the care provided to people with mental disorders is provided by healthcare professionals[57–59]. Social care agencies are weaker than in higher income countries, and most patients do not have contact with social workers. The majority of the care is provided by the family, with other community members, such as the village head, supporting them in this role. The concept of collaborative practice needs to be much broader in lower-and-middle income countries and include all of types of collaboration mentioned above. The World Psychiatric Association recently recommended that to improve community mental health services in South East Asia: "Collaborative networks are needed among stakeholders to avoid fragmentation and must include service-users/families, hospitals, community health workers, NGOs, and traditional healers"[60].

Qualitative research project

This PhD project follows on from a qualitative research project conducted in the same hospital in 2013[61,62]. We interviewed a total of 134 people in 27 individual interviews and 26 focus groups, from across the system, including 20 patients, 11 family members, 66 mental health staff, 10 primary care and district hospital staff, and 27 people from the community (religious leaders, village leaders, school counsellors, traditional healers, and people from NGOs). We used grounded theory methods to analyse the data.

Two core categories emerged from the data: '*Reactions to symptoms*', and '*Collaboration'.* The '*Reactions to symptoms*' category is described in the paper 'Reactions to symptoms of mental disorder and help seeking in Sabah, Malaysia,' which was published in 2017 in the International Journal of Social Psychiatry[62]. The '*Collaboration'* category is described in the paper 'Barriers and enablers to collaboration in the mental health system in Sabah, Malaysia: towards a theory of collaboration'[61], which was originally published in the British Journal of Psychiatry Open and is reproduced in Appendix A. This paper describes a theory of collaboration, which included a definition of collaboration. Three components define collaboration: (a) collaborative behaviours; (b) motivation towards a common goal or value; and (c) autonomy. Since these components are mutually reinforcing, they are also enablers. Three other components enable collaboration: (d) relatedness (for example trusting, understanding and caring about the other); (e) resources (including competence, time, physical resources); and (f) motivation to collaborate. Further elaboration of this theory is given in 2.2.4 and in Appendix A.

I have summarised some of the findings of both papers, which help to illustrate the context of the study.

Collaboration inside the hospital

Many staff had a good understanding of what collaborative practice was, but they reported that it was not happening as they believed it should. Some collaborative behaviours were notably rare or absent, including shared decision-making between healthcare staff and patients, shared care-planning and learning from other professional groups. However, staff collaborated better with members of their own professional group, particularly if they were the same grade. Some of the main barriers to collaboration are described below.

Hierarchical relationships

Most people interviewed reported hierarchical, top-down relationships. In general, subjects perceived doctors to be at the top of the hierarchy and patients at the bottom. Patients, carers, and non-medical staff said that they are often not involved in decision making, even when it would be helpful for them to be involved. This sometimes led to frustration and a feeling that the decisions made were not always the best decision. Many people reported that they did not express opinions to people higher up in the hierarchy. Some were afraid of the doctor being angry, or felt it was not their place. Staff, patients, and carers described how doctors asked for information from them, but not opinions. Some patients and staff described feeling intimidated, which led to difficulty expressing opinions in ward rounds. Most staff, including the doctors, wanted the system to become less hierarchical. Some described how the hierarchical system impaired patient care and created a barrier to collaboration. Staff also reported that they felt blamed when things went wrong. Some staff felt that centrally set regulations and targets were preventing the system from changing and were bad for collaboration and patient care.

Continuity of care

Most patients and carers reported that there was little continuity of care and no consistent relationship between them and any member of hospital staff. They reported that they saw a different doctor every time. Patients and carers did not describe relationships with specific members of ward staff or nursing staff in the outpatient department. The exception was the patients and carers under the CMHT, who described a therapeutic relationship with the staff that visited them. Staff reported that the lack of consistent relationships was a barrier to collaborative care.

Resources

Many staff in the psychiatric hospital, district hospitals and primary care expressed frustration at the lack of resources to treat patients properly. They felt there was not enough time for collaboration, and this was having a significant effect on patient care as well as increasing stress levels. There were very few allied health staff, for example there was only one clinical psychologist, and this meant it was hard to consider perspectives other than the biomedical perspective. Some staff described skills deficits as being the major barrier, particularly communication and team skills.

Collaboration outside of the hospital

Contact between the hospital and the other people that help our patients was limited, although many staff believed that it would be helpful. Some of the people that help our patients are listed below. Further elaboration of this is given in Shoesmith et al. (2017)[62].

Families

Nearly all people interviewed said that the family was the most important helping relationship. The family were expected to play a paternalistic role by the hospital and patients were often assumed to be unable to make their own decisions, even when well. Many families interviewed did not feel supported by the hospital, particularly when they visited the wards.

Primary care and district hospitals

The primary care staff interviewed described strong collaborative relationships with community members, which were useful in treating patients with mental disorders. They felt unsupported by the psychiatric hospital and said there was little collaboration, for example they were frequently not aware that a patient had been admitted to hospital. The psychiatric hospital doctors were collaborating with district hospitals in some ways (for example specialists visiting the hospital for clinic every few months), but most district hospital staff felt poorly equipped to deal with patients with mental disorders.

School and college counsellors

School and college counsellors described treating young people with mental disorders. They described sometimes fulfilling an unofficial case manager role for the psychiatric hospital patients with serious mental disorders, such as schizophrenia. They were also conducting therapies, such as CBT and sometimes supervising medication. They reported that there is little communication between them and the hospital. Some wanted greater collaboration, for example they were willing to attend care planning meetings for students under their care, but they were never invited.

Alternative and religious authorities

Most alternative and religious authorities reported that they would like to work more closely with mental health services, but there was little collaboration at the time. Alternative and religious practitioners described the diagnostic process by which they the decide whether a patient has a mental illness or a spiritual diagnosis. Some of them advised patients to seek mental healthcare if a spiritual diagnosis is unlikely. Some patients also reported that they were advised to seek mental healthcare from an alternative or religious practitioner.

Patients and families described how they made the decision about whether to seek spiritual or psychiatric help. Most described a collaborative decision, involving several family and community members. Some described a process of ruling out spiritual explanations before seeking mental health care. Many patients came to the mental health care system as the last resort, after everything else had been tried. Some people interviewed said that they did not expect to receive treatment at the hospital and thought the hospital was just a place where people are locked up. Spiritual labels appeared to be less stigmatising than the label of mental disorder. Spiritual problems were normally seen as curable, whereas the label of mental disorder was seen as permanent.

Village leaders

Village leaders described helping people with mental disorders and their families, including helping them find work and helping them integrate into society. They were sometimes involved in decisions about where to seek help. They did not describe collaboration with the mental healthcare system.

Section 1.4 RESEARCH OBJECTIVES

Since this project was designed to bring change, I chose action research as the methodology. In action research the research objectives are normally flexible, since it only becomes clear what needs to be measured after the project has already started and it is known what interventions will be done. Ideally research participants should have input into this.

Research objectives at the beginning of the project are listed below, but changes were made as the research progressed, in line with an action research approach:

1. To measure collaborative practice and its outcomes in the Malaysian healthcare setting.
2. To build on and quantify the qualitative evidence to describe the system of care surrounding patients with severe and enduring mental disorders and the way that the elements in this system collaborate with each other.
3. To test whether participants in decision-making are more likely to engage in collaborative decision-making if their needs are met (according to self-determination theory).
4. To develop a model of collaborative practice for mental healthcare for use in Malaysia, which will be acceptable to patients and all parties involved in their care and will be used to create a set of guidelines, procedures and recommendations.
5. To determine the feasibility of implementing the model of collaborative practice in the Sabah Healthcare system and whether it is acceptable to staff, patients and carers.
6. To determine whether the model of collaborative practice improves the following outcomes: rate of readmission before three months, clinic defaulter rate, patient and carer quality of life, patient and carer satisfaction with services, carer experiences of care, patient involvement in decision-making, staff satisfaction with work, staff burnout and team-working and collaboration.

The final objectives are listed below. After starting the research, it became clear that the method of evaluation described in objective 6 of the original list was not appropriate, since very few of the changes implemented related to outpatients. A decision was taken to focus instead on the mechanisms of action of the programs implemented and why some of them were feasible and some were not in this context. The staff outcomes mentioned in objective 6 were measured, but not the patient outcomes. These changes were communicated to the ethics committee. Objective 3 in the original list was broadened, to look at mechanisms in general and became objective 6 in the list below. The changes to other objectives were relatively minor.

Final objectives:

1. To measure collaborative practice and its outcomes in the Malaysian healthcare setting.
2. To build on the qualitative evidence to describe the system of care surrounding patients with severe and enduring mental disorders and the way that the elements in this system collaborate with each other.
3. To develop a set of collaborative practice recommendations for mental healthcare in Malaysia, using consensus methods.
4. To determine the feasibility of implementing the collaborative practice recommendations in the Sabah Healthcare system.

5. To determine whether there was change in the following outcomes in the hospital during the project period: staff burnout, staff psychological needs, and staff team-working and collaboration.
6. To determine the mechanisms which lead to change in collaborative practice and outcomes for patients and staff.

Section 1.5 SUMMARY

Collaborative practice can be described as a process whereby multiple care providers, including professionals, families, communities and the patient, work synergistically to provide care for the patient. This has been shown to improve several outcomes including: reduced total costs, length of hospital stay, hospital admissions, stress levels among staff, and mortality rates. A model of collaborative practice specifically for Malaysia was needed, since a model from another country with a very different culture and healthcare system is unlikely to be effective. The setting for this study was the mental health system in the Malaysian state of Sabah, focussing on the patients and staff of the 308 bedded state psychiatric hospital. Prior to the PhD study, qualitative research had been conducted to better understand the systems of care which surround patients and a new theory of collaboration suitable to the setting was developed. There were three components which constituted collaboration and also enabled it: (a) collaborative behaviours; (b) motivation towards a common goal or value; and (c) autonomy. There were three other components which enabled collaboration: (d) relatedness (for example trusting, understanding and caring about the other); (e) resources (including competence, time, physical resources); and (f) motivation to collaborate. The main barriers to collaboration in this context were low levels of resources (e.g. few staff trained in mental health, low staffing levels); a hierarchical system leading to low autonomy; low relatedness (e.g. patients seeing a different doctor every visit); not having common goals; and low motivation to collaborate due to individual staff deciding that attempting to collaborate will lead to greater costs than benefits. This project aimed to develop and test the feasibility of a model of collaborative practice suitable for this setting.

Section 1.6 OVERVIEW OF THE THESIS

This thesis has the following structure:

Chapter 1	Introduction The topic of collaborative practice and the Malaysian mental health system are introduced. This chapter includes a published paper introducing the program theory, which introduces the context and considers the barriers and enablers to collaboration in this setting.
Chapter 2	Literature review This literature review chapter aims to discuss the theoretical frameworks that the project will use. I then discuss some systems of collaborative practice used in mental health and consider how collaborative practice and its' outcomes can be measured.
Chapter 3	Methods This chapter discusses the methods used in all three phases of the project, starting with the overall methodology, research philosophy and consideration of my positioning as a researcher. The process of scale validation is described and the methods that led to the creation of a new scale are summarised (phase 1). The methods used to create new collaborative practice guidelines using a hospital based collaborative practice committee and a Delphi committee are then described (phase 2). Lastly the chapter describes the methods of implementation and realist approach to evaluation (phase 3).
Chapter 4	Phase 1: Scale Validation and Development This chapter describes the results of the scale validation used to measure collaborative practice and its outcomes.
Chapter 5	Phase 2: Development of the recommendations - Results and discussion This chapter describes and discusses the process in creating the guidelines for collaborative practice that were created by the collaborative practice committee and the Delphi committee.
Chapter 6	Phase 3: Implementation and evaluation - Results and discussion This chapter describes and discusses the programs that were eventually implemented in the hospital. Realist evaluation methods are used to describe the mechanisms through which programs led to various outcomes and what contextual factors triggered these mechanisms.
Chapter 7	Conclusions This chapter considers all of the parts of the project together and highlights novel findings, limitations of the research and future directions from this research.

Chapter 2. REVIEW OF THE LITERATURE

In this chapter I discuss the theoretical framework that the project uses and some of the systems of collaborative practice used in mental health. I then consider how collaborative practice and it's outcomes can be measured.

Section 2.1 THEORETICAL FRAMEWORK FOR THE STUDY

There are several types of theory which are important to this project. Here I use some of the terminology from Blamey (2007)[63] to describe different levels of theory.

- Research paradigm – this is a worldview, rather than a theory, since it normally cannot be proved or disproved. Systems theory is reviewed here, which is more of an overarching paradigm than a single theory.
- Substantive theories – these are higher level theories, which are not attached to a particular context. Substantive theories described in this section are self-determination theory and game theory.
- Program theories – a program theory is a theory about the underlying mechanisms by which a program works. These types of theory can help in generalising what was learned in one context to other contexts. The theory published in Shoesmith *et al.* (2020) (in the introductory chapter) was the program theory for this project[61]. This is summarised in section 2.2.4.
- Implementation theories. These are theories about the steps that need to be taken to bring about a desired change in a particular situation. The theory of change in Section 5.2 combines elements of implementation theory and program theory.

2.1.1 Research paradigm: systems theory

Systems theory is a set of different theories, (including general systems theory and complexity theory) which describes behaviour in systems. A system is a set of interrelated elements, where change in one element leads to changes in other elements[64]. This means that any element in a system cannot be seen in isolation, and if we make any changes to a system, we have to look at the effect of the changes across the system. Changes that lead to positive changes in one area of a system may lead to negative changes in other areas. This contrasts to a reductionist or mechanistic approach, where elements are seen in isolation. Reductionist approaches are used in some management practices such as scientific management[65] and work well in simple systems, but not well in complex systems. Many approaches to science also have a reductionist approach, normally manipulating one variable to assess the effect on a small number of other variables within a small part of a system. Action research is different, in that it accepts that everything in a system is interconnected and does not restrict enquiry to small, isolated components of a system[66]. The decision to initially study several different parts of the system simultaneously (patients, carers, different professional groups, other people who help patients outside the hospital), rather than studying only one component, was driven by systems theory.

Complexity theory

Complexity theory is a branch of systems theory, which is mainly interested in systems known as 'complex adaptive systems' (CAS). These are systems of highly interdependent elements (known as agents), which follow their own internal rules but do not always act in predictable ways. In these systems, order is created from the pattern of interactions between the agents, a property known as emergence. CAS are able to self-organise and adapt to a changing environment and leadership is a function of the system, rather than any individual within the system. CAS have multiple feedback loops, which mean they normally follow non-linear dynamics, so a small change in initial conditions can lead to large changes later[67]. The internal rules that agents follow are known as schema. The agents scan the local environment and can adapt their schema to increase their fitness within that environment[68].

Living organisms, brains, societies, and some parts of organisations can all be considered CAS. An example is fish schooling, where each fish follows simple rules such as: keep a set distance from the nearest fish, keep the same velocity as the nearest fish and move towards the centre of mass of the school. These simple rules lead to complex emergent behaviour of the whole school and the exact movements of the school are not predictable from understanding the rules of single fish. In a human system the agents are people and the schema correspond to an individual's values, thoughts, beliefs, emotions, skills, and characteristic ways of behaving. Schema form depending on their personality, personal history, organisational culture and the way that other people around them behave. Complex systems often contain smaller subsystems and hierarchies, where agents have similar schemas[69]. For example, the hospital is made up of many subsystems (e.g. wards, professional groups), which have their own culture but also interact with and affect other subsystems.

The systems that respond to mental disorders (e.g. the family, the village, the health care system) can be considered to be complex adaptive systems [22,70]. The emergence of psychological and behavioural symptoms in a member of any society normally creates a reaction in the systems that surrounds them, which has been previously described in Shoesmith *et al.* (2017)[62]. The reaction is dependent on the schema of the individuals within each system, for example knowledge and beliefs about mental illness and skills in managing it. The reaction that is created can have a significant effect on outcome of the problem. For example, critical or hostile reactions from the healthcare system[71] or family members[72], stigmatising reactions or receiving medical treatment late all lead to less favourable outcomes in psychoses[73–75]. The mental healthcare staff interact with the patient and subsystems surrounding them, which affects their schemas and ultimately affect the outcome of the illness.

Complex adaptive systems create novel solutions and adaptations when they are in a transition space between complete order and complete disorder, known as the 'edge of chaos'[76]. There is evidence that CAS self-organise into this state, where adaptability is highest[67]. In a healthcare system this zone is the area where there is some uncertainty and the solution is not obvious, but not so much disorder that there is chaos[22,67]. If mental health systems have overly rigid procedures and standard operating procedures, they are not able to adapt appropriately to the clients' needs or adapt if there is a change in conditions. Creating change in a CAS needs to build on the self-organising capability of the system, for example by creating a shared vision and values, cultivating a learning culture, enhancing communication and feedback, while making explicit a few boundary rules that all agents follow[67,69]. Part of the function of the action researcher is to enhance the self-organising capability of the system, acting as a catalyst to allow solutions to emerge from the interaction of the different individuals in the system[66].

Section 2.2 SUBSTANTIVE THEORIES

2.2.1 Search for potential theoretical frameworks

Following the qualitative research, a review of the literature was conducted to find theories relevant to the findings as part of the process of expanding the theory of collaboration described in the introduction, in line with the grounded theory methodology of this part of the research[77]. Papers describing theories of collaboration were sampled purposively from a variety of fields. After this search, self-determination theory[78] and game theory[79] were felt to be most relevant. Self-determination theory and game theory are described in depth below. Other theoretical frameworks considered at this time are listed in the appendix in Appendix A.

2.2.2 Self-determination theory

While analysing the qualitative data, an attempt was made to create a model of the factors that lead to the decision to engage in collaboration. Motivation was clearly important, and our model distinguished between two types of motivation: motivation towards common goals and values and motivation to collaborate, described further in section 2.2.4.

This led to a literature search of what factors lead to motivation in general. The most relevant theory of motivation was *Self-Determination Theory (SDT)*. This is a theory of human motivation which describes three basic psychological needs: autonomy, feelings of competence and relatedness [78]. Humans are motivated by the drive to satisfy these needs. This theory started in educational research, where these components were shown to be important for learning but is now widely used in the healthcare setting[80].

Autonomy

In the context of SDT, when someone is freely acting in accordance with their own values or goals, then they are acting autonomously[81]. Autonomy is not the same as independence, since we can freely choose to be dependent on others and this can be fully in line with our values. It is also not the same as individualism. If we subscribe to collective values and are acting in line with them when we behave in a collective way, then we are still acting autonomously[81]. This is why people can be collaborating, but still be autonomous, if the common goals or values of the collaboration are also their own goals or values. Higher autonomy in healthcare settings leads to greater engagement in treatment and competence in managing the illness, which leads to better outcomes[82,83]. Work environments where staff have greater autonomy have greater work satisfaction, internal motivation, less absenteeism and lower levels of turnover[84–86].

Competence

Competence can be defined as the 'capacity of an organism to interact effectively with its environment'[87]. Most organisms have a strong drive to explore their environment and learn about it, and this makes them more adaptable. Young children also have a strong drive to explore and learn if they feel safe. In good educational environments the child receives regular helpful feedback that makes them aware of their growing competence, which increases the motivation of the child to learn[88,89]. Most of us seek activities that are optimally challenging, which we experience as being interesting or fun, particularly if we have freely chosen these activities[90]. When we see our competence increase, we feel positive emotions such as excitement or elation. Sometimes we enter a state of 'flow', which is where we become fully absorbed in a task and experience immense satisfaction from doing it[91]. The converse is also true in that when we perceive our skills as being inadequate or the activity as lacking in challenge then motivation reduces and we are likely to experience either anxiety or boredom[92].

The sense of competence is important in mental healthcare, where competence is frequently undermined, for example by coercive treatment of a patient or by harsh treatment of a member of staff by someone higher in the hierarchy. Perceived competence in managing both physical and mental health problems has been shown to improve treatment outcomes, and perceived competence of the patient increases when healthcare providers create an autonomy supportive environment[82,83].

Relatedness

Baumeister and Leary (1995) described the need for relatedness as a "pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships"[93]. They described two important criteria for meeting this drive: firstly, that there should be frequent and affectively pleasant interactions with a few people, with most interactions free from unpleasant emotions or conflict. Secondly there must be a perception of an ongoing interpersonal bond with these people, with a belief that the other person cares about them and likes them[93].

Motivation in SDT

In SDT motivation can be intrinsic or externally derived. Intrinsic motivation is when the motivational drive is experienced as coming from ourselves. It is the most powerful form of motivation and is inherently satisfying. If we are acting on external rewards or punishments, then we are externally regulated (rather than self-regulated) and this is less satisfying. SDT describes a spectrum of behavioural regulation states between being externally regulated and being internally motivated, depending on how much we have internalised the regulation: external regulation (motivated by rewards and punishments), introjection (motivated by avoidance of guilt and shame), identified (motivated by feeling the activity is important), integrated (motivated by believing the activity is part of who they are) and intrinsic (motivated by interest and enjoyment)[94]. This spectrum is important in healthcare, particularly when trying to help people to make behavioural changes to improve their health. Autonomy supportive healthcare environments, where staff use special skills to increase the internalisation of motivation, have better outcomes[80].

Values are organising principles in life, which drive our motivations and influence which actions we choose. For example, a student who values 'friendship' more highly may choose a different course of action in class to someone who prioritises 'learning'. What we value at a particular time is determined partly by our motivational state, for example while we are feeling afraid, then 'security' will have a higher value than 'learning'. According to SDT many of the qualities that we value are derivatives of the psychological needs: autonomy, relatedness and competence[95]. For example, freedom, choice and influence are derivatives of the autonomy need; love, connectedness, affiliation, friendship and loyalty are all derivatives of the relatedness need; and growth, learning and curiosity are all derivatives of the competence need. Values can also be intrinsic and extrinsic. Intrinsic values tend to satisfy basic needs, for example connectedness, affiliation, growth and autonomy. Extrinsic values focus on attaining external rewards or praise, for example being wealthy, attractive or famous. Actions which are in line with intrinsic values give a greater sense of autonomy and are usually more satisfying. When we are acting on intrinsic values we are intrinsically motivated[95]..

Collaborative practice and self-determination theory

From the qualitative research, it appeared that the factors which motivate people to collaborate are the same as the things that motivate people in general. The preliminary qualitative research suggested that low levels of these factors in both patients and staff may be impacting on collaboration in the mental health system. The power in the system was found to be unevenly distributed, with the doctors having relatively more power which impairs the autonomy of nursing staff, patients and relatives. Higher level staff also felt powerless, in that they expressed it is difficult to change anything due to externally imposed targets and lack of resources. When neither party has the autonomy to make decisions, then collaborative decision-making becomes almost impossible. Nursing staff, patients and relatives felt relatively incompetent compared to the doctors. Relatedness was impaired, in that patients and relatives saw a different doctor every time they came to the clinic, and many felt that they did not develop supportive relationships with nursing staff. Working with another party has the potential to either increase or reduce the likelihood of basic needs being met. One party may make the other feel competent, autonomous and accepted or alternatively make them feel incompetent, powerless and rejected. An intervention based around SDT would attempt to enhance basic psychological needs of both patients and staff.

2.2.3 Game theory

Game theory concerns the decisions about how two or more people (known as players) decide to cooperate with each other or not. The most well-known example of this is the ‘prisoners dilemma’. In this classical scenario two prisoners are told that they will be given less time in jail if they defect and provide evidence against the other prisoner. If neither prisoner defects, then both prisoners will serve only one year in jail. If both prisoners defect, they will both go to jail for five years. If one defects, but the other does not, then the one who does not defect will go to jail for six years and the one who does defects will not go to jail at all. The decision to be taken by the prisoners can be shown in grid form:

		Prisoner 2	
		C	D
Prisoner 1	C	1,1	6,0
	D	0,6	5,5

C - Collaborate with other prisoner, D - Defect from other prisoner

Figure 2-1 - Decision table for Prisoner's dilemma problem

An important concept in game theory is the Nash equilibrium[96]. This is the best move that a player can make, if they know the other player’s move. In the prisoners’ dilemma example above, the best move for both players is to defect, whatever the other player does. This is counterintuitive, since it would appear on the surface that cooperating with each other has the best outcomes for both. The results change if there is a continuous relationship between the players, since acting collaboratively with the other player builds trust and makes them more likely to behave collaboratively in the future[97].

Cooperative games are games where the best outcomes are generated by cooperating with another player, typified by the 'Stag hunt' game. In this game two hunters can either collaborate to hunt a stag (a large reward) or work independently to hunt a rabbit (a much smaller reward). The best outcome is achieved if both players choose to hunt the stag. This option is known as the Pareto optimal outcome, which is the best overall outcome for the group. If one hunter chooses to hunt a rabbit and the other chooses to hunt a stag, the stag hunter will get nothing. Choosing to hunt the rabbit is therefore less risky but not Pareto optimal.

		Hunter 2	
		S	R
Hunter 1	S	5,5	0,1
	R	1,0	1,1

S – choose to hunt the stag, R – choose to hunt the rabbit

Figure 2-2 - Decision table for Stag Hunt dilemma problem

In this game there are two Nash equilibria – SS and RR. SS is the equilibrium which maximises the benefit and RR is the equilibrium which minimises the risk. Stag-hunt games are useful analogies to many situations which require cooperation or collaboration[98]. There is a benefit in this game to knowing and trusting the other hunter, and in experimental scenarios the payoff is greatest when the players have developed trust between the players[99,100].

In traditional game theory there is an assumption that all players are 'rational actors', that they will always act in their own self-interest for whatever cost or benefit is represented by the numbers in the grid. This assumption is almost always wrong, since people will also act in line with their values, such as 'fairness', even if that means a lower payout[101,102]. There is also now increasing recognition of the role of emotions in decision-making. The emotion adds information which can be useful in decision-making (e.g. the emotion of anxiety may be aroused because the other person is giving signals that they are not acting cooperatively). In addition, the experiencing of positive and negative emotions are benefits and costs in themselves[103].

The qualitative results can be seen from the perspective of a 'Stag hunt' game, since it explained why many staff appeared to be aware of the benefits of collaboration but were not collaborating. When a doctor and a nurse are deciding whether to act collaboratively, both are theoretically aware that collaborating will lead to a better outcome for the patient – a shared goal that both want. Both are aware that the job will be more enjoyable and less frustrating if they collaborate. If the doctor collaborates, but the nurse does not collaborate, it will lead to frustration and wasted time for the doctor. This occurs when the doctor asks the nurse their opinion, and the nurse gives nothing back. If the nurse collaborates and the doctor does not collaborate, this could result in the nurse being 'scolded' or blamed for a bad decision. An example is the nurses who would not tell the doctors that they are making a bad decision. The system is in a 'Nash equilibrium' whereby neither party is collaborating, since both parties believe that the other party will not collaborate. This is a worse outcome for both, since both parties are frustrated, but neither party can move because they are in the equilibrium.

2.2.4 The program theory

The program theory for this project was originally published in Shoesmith *et al.* (2020)[61] (reproduced in Appendix A), but is summarised here. The program theory contains elements of self-determination theory and game theory. The theory defines collaboration as three components occurring simultaneously: autonomy, motivation towards a common goal or value and collaborative behaviours. If any of these components are missing, then the situation is not collaborative. These components are also enablers since an increase in any of them increases the others. Three other components make collaboration more likely: motivation to collaborate, relatedness and resources, as shown in Figure 2-1.

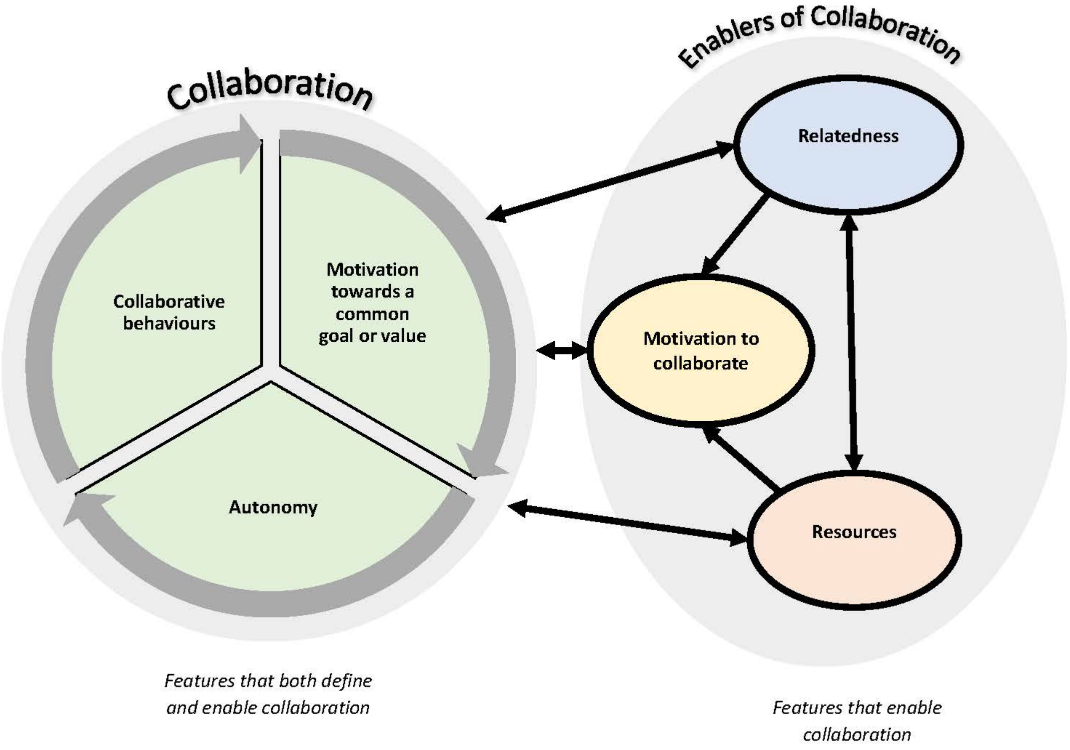


Figure 2-3 - Model previously published in the paper Shoesmith et al. (2020)

Components of collaboration

Collaborative behaviours

The theory defined the following as collaborative behaviours:

- Asking for and offering help
- Accepting and valuing others' contributions
- Learning from each other
- Sharing information
- Shared problem-solving, decision-making, and planning
- Sharing responsibility and accountability
- Sharing experiences, and rewards and frustrations

- Sharing activities and resources
- Creating and respecting boundaries
- Creating goals and a common vision.

Autonomy

Autonomy is defined in a similar way to self-determination theory. If autonomy in any party is not present, then the situation is not collaborative, it is cooperation or compliance. If all parties are acting autonomously, this implies that all parties have identified, integrated or intrinsic motivations for the goals or values of the collaboration.

Motivation towards common goals or values

If people are collaborating, they are aiming for the same goal or value. Goals and values are different, in that goals are endpoints which are normally measurable (e.g. the patient getting a job), whereas values are a general direction (e.g. patient autonomy). For people to be motivated they needed to have sufficient motivation to reach a common goal or move towards a common value. Both the magnitude and the direction of this motivation matters[104]. Some staff were very motivated, but towards different values/goals (e.g. one is motivated towards patient safety, and another is motivated towards patient recovery). Some staff had a low level of motivation toward any goal, for example due to burnout. Mental health conditions also affect the overall level of motivation, for example the lack of motivation felt in depression or the negative symptoms of schizophrenia.

Enablers of collaboration

Motivation to collaborate

The second type of motivation was motivation to collaborate. Staff may be motivated towards similar goals or values but believe that collaborating with someone else will not help them get there or have more costs than benefits. Many staff understood the benefits of collaboration, but they were not motivated to collaborate because they felt the costs were greater than the benefits. The decision to collaborate for individual staff members was a trade-off between the motivation to provide the best possible care for patients and the potential risks of collaboration.

Relatedness

This is defined in a similar way to self-determination theory and included themes related to care, support and trust in a relationship.

Resources

This consisted of several different components

- Competencies (knowledge and skills) of staff, patients, families, other people involved in helping patients. These included collaborative competencies, general mental-health competences, specialised competencies (e.g. competencies belonging to one professional group) and situation specific competencies (e.g. knowledge about an individual patient).
- Time.
- Physical resources.
- Opportunities (e.g. training opportunities, job opportunities for patients).
- Collaborative spaces (e.g. meetings, social media groups).

Section 2.3 COLLABORATIVE PRACTICE MODELS USED IN MENTAL HEALTHCARE

This project initially aimed to create a model of community-based collaborative practice. These models are common in other settings, for example community mental health teams, assertive outreach teams, and collaborations between primary and secondary care. This review of the literature was carried out for the benefit of the collaborative practice committee, to get a better idea of collaborative practice systems that work in other contexts.

2.3.1 Teams and teamwork

A team based structure is considered to be one of the key components of a high performance organization[105,106]. Dividing an organization into teams has been shown in meta-analyses to improve service quality and efficiency[107] (effect size $d=0.15$ for healthcare teams) and has a positive effect on staff attitudes and morale[106,107] ($d=0.4$ for healthcare teams[107]). Other studies have shown that dividing into teams increases the ability of the organization to innovate, learn and adapt to new circumstances[108,109]. In healthcare, organizing staff into teams has been shown to reduce hospitalization[110,111], patient visits[110] and expenditure[110,111] and improve the quality of services[112], patient satisfaction[109,112], staff motivation[109,112] and innovation[109]. In a study of hospitals in the UK, the percentage of staff working in teams was shown to be one of the strongest indicators of standardized mortality rates in hospitals[113]. The composition of teams has also been shown to be important, with a greater diversity of professions[109,114] and greater specialization of team members[114] related to team performance. A large meta-analysis has shown that training in teamwork leads to improved patient outcomes in healthcare (effect size $d = 0.39$), including reduced hospital stay, patient satisfaction and reduced death rates in hospitals[115]. In mental health, meta-analyses of community mental health teams vs non-team based approaches have shown that a team based approach significantly reduces admissions, and patient satisfaction compared to non-team based approaches and may also reduce suicide[26,27]. The way that the team functions is also important. For example, the ratio of negative to positive statements during meetings and the number of connections in the team are both related to a team performance[116].

2.3.2 Case management and community mental health teams.

Case management is a concept similar to collaborative practice, which is being increasingly used for chronic disease. Most models of collaborative practice for mental health are described in the literature as case management models. The Case Management Association of America defines it as: "*a collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an individual's and family's comprehensive health needs through communication and available resources to promote quality, cost-effective outcomes*". Some of the main components of case management, common to most models, are: i) continuity of care; ii) planning of care; iii) regular review of the care plan. It was important to review case management because the lack of these three components were some of the main barriers to collaborative practice[61]. Although it is possible to practice case management without any collaborative practice, it is very difficult to practice collaborative practice without these three components of case management.

Models of case management can be roughly divided into individual based approaches and team-based approaches. In individual based approaches each patient is allocated one case manager, who is often part of a loosely integrated community mental health team. In team-based approaches each patient is allocated a whole team to manage their care. In team based approaches, the teams are much more integrated, typically there is a short daily meeting to discuss all the patients and every team member knows and takes responsibility for every patient[117]. This can be compared to individual case management approaches, where the team typically meet only once per week to discuss new referrals and refer to each other. Team-based approaches are typified by the Assertive Community Treatment (ACT) model[118], but other types of team use elements of this approach, for example crisis intervention teams[119] and early intervention for psychosis teams[41]. Important questions for this project are firstly whether any form of case management leads to better outcomes and secondly whether the more integrated team-based approach to case management is superior to individual based approaches. We also need to consider whether any model of case management would be suitable for the Malaysian setting.

Evidence for different types of case management

There are now more than 100 trials of various forms of case management and several systematic reviews, which have significantly changed mental health policy and practice around the world [120–123]. One of the most influential reviews on this topic were Marshall's Cochrane Library meta-analyses, starting in 1996 [124,125]. Marshall conducted two meta- analyses on 'standard case management' (where an individual manages the patient) and on ACT (where a team manages the patient). In their review on standard case management, their most significant finding was that standard case management approximately doubled admissions, compared to 'standard care' (which was not well defined)[126]. It also led to more people remaining in contact with services, with one extra person remaining in contact with services for every 15 people treated. There was no clear effect on imprisonment, symptoms, social functioning and quality of life. Marshall published a second systematic review on ACT in 2005 [127]. His conclusions for ACT were much more positive, that it nearly halved hospital admissions, doubled the number of people staying in contact with services, reduced homelessness, and increased patient satisfaction and employment. The conclusions drawn at the time were that assertive outreach was effective and standard case management ineffective[125]. This conclusion significantly changed services provision in the UK, where resources were withdrawn from community mental health teams offering an individual case management approach and put into ACT based services, offering a team based case management approach[128].

A second systematic review published in 2005 by Ziguras[129], agreed with the conclusion that standard case management increased number of admissions, whereas ACT approaches reduced admissions. However, they also found that the total admission time was reduced with standard case management, since the admissions were shorter. Presumably, patients were admitted when they were less severely unwell, which meant that they could recover more quickly. They found that both standard and ACT were superior to standard care in reducing family burden, family and client satisfaction, total cost of care, symptoms, contact with services, and social functioning. ACT and standard case management were equally effective in reducing symptoms and improving contact with services, social functioning and patient satisfaction. It was notable that this systematic review included many more studies- 44 vs 10 in the 2005 Marshall review. The major difference was that the Marshall review had excluded matched group trials, which meant that their sample sizes were too small to see differences between groups.

Burns systematic meta-regression analysis in 2007 [130] attempted to explain why trials of intensive case management (case management with a low caseload) produced such inconsistent results around hospital admission. They found that if the baseline hospital use was high, then intensive case management reduced hospital admissions. If baseline bed use was low, then intensive case management does not change hospital use. They also found that the fidelity to the ACT model led to a greater reduction in hospital use. Since fidelity to ACT includes a number of separate factors, they separated the factors into 'staffing factors', (e.g. ratio of staff to patient, psychiatrist on the team, team size); and 'organisational factors' which was mainly a measure of how much teamwork there was (e.g. regular meetings, shared caseloads). They found that only organisational factors had an impact on hospital use, which implies that teamwork is more important than staff levels. However, a more recent systematic review in 2017 suggests that it may be only baseline hospital use that matters[131].

What form of case management would work in Malaysia?

Most of the studies have been conducted in higher income countries with Western cultures. Malaysia and many other non-Western societies are different to the countries are different to where most of these studies were conducted for a number of reasons. Firstly, Malaysia did not have a history of extensive institutionalisation, which means that the problems which arose from deinstitutionalisation in countries such as the UK, never developed and there was no push to develop community mental health services. Secondly, the higher prevalence of infectious diseases and short-term conditions means that these problems are prioritised instead. Thirdly, most patients live with their families. This is not generally seen as a failure of independent living or adult functioning, as it sometimes is in Western societies. Fourthly, many non-Western societies have a different organisational structure, particularly in rural areas, where families have often lived in the same village for many generations and many people in the village are related to each other. Villages have roles such as 'head of village' which do not exist in Western societies and carry out some of the role similar to social workers in Western societies. For some patients, the care coordination work that is done by brokerage type case managers in Western societies is provided by the family and village community. Fifthly, a considerable proportion of mental healthcare is provided by religious authorities and alternative healers [55,132].

All of these factors mean that the formal mental healthcare system is much less. Comparison of staffing per 1,000,000 population with higher income countries shows that Malaysia has around 5% of the formal mental health workforce of many higher income countries[133]. The case management model never developed to a significant extent, so that most patients now see a different doctor on each visit to the psychiatric outpatient department and primary care. In addition to this, primary care physicians do not play a role in care coordination. This means that there are very few supportive relationships between healthcare providers and staff. In most studies, the 'treatment as usual' that is used for the control group in developed countries, is providing much more extensive care with greater continuity of care, than what is currently provided in Malaysia.

There are now more studies coming from lower-and-middle income countries (LAMICs), where the results may be more directly applicable to Malaysia. Many of these trials show much larger effect sizes than similar trials in more developed settings, which is likely to be due to the large differences in 'standard care'. For example a study in South Africa showed a difference in risk of readmission three times greater for the control group, compared to the intervention group after three years[134].

In this trial the 'standard care' given in the control arm consisted of a case load per case manager of 1:250 with 1-3 monthly office- based contact. This is likely to be more comparable to the Malaysian health service than the control arm in European trials. A study in Iran, using family members and recent psychology graduates as case managers, showed admission rates halving[135]. A recent study in China also showed impressive results, with admission rates and relapse rates less than 20% of the rates in the standard care group[136]. In the Chinese study, standard care consisted of free medication and a clinic visit and home visit every three months, which is only slightly more than most patients in the Malaysian system get. It is important to note that in these trials the number of staff was also much higher in the intervention group than the control group, so these trials were not looking at service organisation alone.

Newer models of care

Newer models of care include the FACT (flexible ACT) model[137], which is used in the Netherlands and has been introduced in some areas in Britain. This model is where both low and high need patients are cared for in the same team. The level of care can be increased or reduced, depending on the patient's needs at a particular time. Patients with lower care needs receive a standard case management approach, whereas patients with higher needs receive an ACT approach. Initial results suggest improvements in bed use, symptoms and quality of life, with approximately 5-10% of patients discharge per year to primary care[138]. A UK historical control study was conducted when ACT teams were disbanded and absorbed into generic community mental health teams. This showed a reduction in bed use when patients moved from the ACT approach to the CMHT with FACT approach, despite a reduction in contacts with mental health workers[139]. A similar effect was seen in patients who moved from a traditional CMHT to a CMHT with a FACT approach[140]. However, there was no control group, so results need to be interpreted with caution. There have been criticisms of this model[141], but no randomised control trials on this model have yet taken place, so it is too early to draw strong conclusions on effectiveness.

One of the most promising new models of care is the resource group ACT model, which is significant for our purposes since it includes all psychiatric patients across the spectrum of care. In this approach each patient has an individual team, which includes them, their physician, a case coordinator and 3-4 other people that the patient chooses[142]. A meta-analysis of six RCTs and 11 observational studies showed that there was improvements in symptoms, functioning and wellbeing, with a large overall effect (Cohen's *d*= 0.87)[143]. 'Standard care' was not well defined, and the studies occurred in different countries in continental Europe so may have been different between trials. This form of case management may be preferable in the Malaysian context, since people outside of the formal mental health system can be part of the team.

2.3.3 Partnership between patients and healthcare staff

Mental health has a well-developed literature looking at the importance of partnership between patients and healthcare staff. The therapeutic alliance, or working alliance, is a measure of the collaborative relationship between a healthcare provider and a client. The concept originated from psychotherapy, and it has consistently been found to be one of the most important factors predicting outcome. Two meta-analyses have found a moderate effect size of approximately $r = 0.25$ [144,145]. However, most of the patients in these psychotherapy studies are likely to have common mental disorders (e.g. anxiety and depression) and personality disorders. This group is different to the patients at the hospital where our study is based, where most of the patients have psychotic illnesses.

There have been a number of studies showing that the therapeutic alliance effects outcomes in severe mental disorders, although the evidence is not as strong as it is with psychotherapy and there have not yet been any meta analyses for this population [146]. Evidence that therapeutic alliance is an important factor in outcome from mental disorder comes from cross-sectional studies, mixed methods and qualitative studies, longitudinal studies and from randomized control trials designed to investigate the effectiveness of another intervention. The largest cross-sectional study was conducted by McCabe across six European countries, as the baseline for an RCT [147]. They showed that therapeutic alliance was related to medication adherence in schizophrenia, with each unit increase in patient rated alliance increasing the odds ratio for good compliance by 65.9%[147]. However purely quantitative cross-sectional studies do not give any indication of the direction of causation, and it is possible that patients who are better functioning are more capable of forming a therapeutic alliance.

Mixed methods[148] and longitudinal approaches[149,150] have helped to clarify that the causal direction is that better therapeutic alliance leads to better outcomes. Longitudinal studies include studies include the study by Frank and Gunderson, which showed that therapeutic alliance at 6 months predicted retention in treatment, compliance with medication and treatment outcomes after two years and that this alliance took approximately six months to develop [149]. A stepwise regression analysis looking at the factors which predicted outcome in case management services found that a working therapeutic alliance one month after study initiation predicted community functioning in the community after a year[150]. Neale showed that case manager rated alliance was correlated to community living skills, symptom severity, and global functioning after two years, with moderate effect sizes[151]. However, in this study the therapeutic alliance was measured at the same time as outcome (after two years), and was not measured at baseline, so it is hard to know the causal direction.

It is not possible to conduct randomised controlled trials looking specifically at therapeutic alliance, but several RCTS have measured therapeutic alliance in control and intervention groups while investigating another intervention. Solomon conducted a randomized control trial to examine differences between two types of individual case management (named consumer and non-consumer case management)[152]. The therapeutic alliance predicted quality of life, symptoms, attitude to compliance and patient satisfaction with services, but there were no differences between the two types of case management in these measures. Svensson conducted a randomised control trial investigating cognitive behavioural therapy (CBT) in schizophrenia. They showed that patient reported therapeutic alliance in the initial phase of treatment strongly predicted the patient's symptoms measured through SCL-90 (r=0.84) and patient's target symptoms (r=0.41) after 10 weeks of treatment. They also found that the therapeutic alliance reported by the therapist in the initial phase therapist strongly predicted functioning at 10 weeks (r=0.42) [153]. Goldsmith used data from a well conducted multi-centre randomized control trial for two psychological treatments for early psychosis[154]. They showed that the causal direction was that therapeutic alliance predicted outcome for both intervention groups, in that attending more sessions had a positive effect on symptoms if the alliance was good but had a negative effect if the alliance was bad. There was no difference between the two treatment groups in these measures[154]. A common theme throughout the randomized control studies is that therapeutic alliance is a better predictor of outcome than the therapeutic intervention that is under study. Several of them have shown little or no difference in any measures between groups, but have shown a significant effect of therapeutic alliance, which is often medium to large for measures of symptoms and functioning.

It appears that therapeutic alliance is the most important active ingredient in psychotherapy of any kind, including the supportive therapy conducted by mental health professionals in severe mental disorders. In the Malaysian healthcare system, where patients do not form specific relationships with healthcare practitioners, it is likely that therapeutic alliance is low. This is likely to be having a moderate to large negative effect on outcomes. A model of care for Malaysia is likely to improve outcomes if therapeutic alliance can be improved. This will require a system where patients can form relationships with specific members of staff.

Section 2.4 COLLABORATIVE PRACTICE MODELS FROM LOWER-AND-MIDDLE INCOME COUNTRIES

Some examples of systems of care which incorporate collaborative practice are described here. Since there is currently little research on collaborative practice in LAMICs, I have included some examples from outside the field of mental healthcare.

Collaborative practice is an important component of the Chronic Care Model[39,40], which was developed as a way of managing chronic illnesses in primary care. The model includes working collaboratively with patients to manage their own health, clear clinical decision-making guidelines, care coordination, clinical information systems, and collaboration with community groups. This has been shown to improve outcomes in several mental health conditions[155] and other chronic diseases as well as reducing cost[156]. Studies conducted in Peninsular Malaysia have shown significant improvement in diabetic control[157] and hypertension[158], using components of the Chronic Care Model. In Guyana introduction of the Chronic Care Model in diabetic foot care led to a 68% reduction in foot amputations[159].

In Brazil a model of collaborative care was introduced in the 1990s. Traditional outpatient clinics, which consisted of medical practitioners of various disciplines, were gradually converted to smaller ‘Family Health Strategy’ teams of healthcare professionals (consisting of one doctor, one nurse, one nursing technician and six community health workers), covering a population of approximately 3500 people. Community mental health teams developed relationships with approximately nine of these primary care teams, to manage people with mental disorders collaboratively[160]. Meta-analysis shows that this system of primary care reduced infant and child mortality, hospitalisation rates and child malnutrition, as well as improving detection of congenital syphilis and leprosy and increasing vaccination[161,162].

The Programme for Improving Mental Health Care (PRIME) is a system of care for people with mental health and neurological problems, which was developed collaboratively by research institutions in six LAMICs. Collaborative practice was an important component of this program, which included the allocation of non-specialist case managers who provided manualised counselling and follow up for mental health problems[163]. Case managers were supervised by trained mental health workers, including a clinical psychologist, who were available through phone calls as needed[163]. This led to several improvements in various sites, for example improvements in the detection and outcome of depression in South Africa[164] and improvements in food security for people with severe mental disorders in Ethiopia[165].

Common issues described across many of these contexts are similar to our findings in the Sabah healthcare system: fragmented systems, lack of resources, low levels of trained staff, hierarchical systems, a large treatment gap and demoralised staff[164]. A common feature of these studies is a switch from large doctor-led outpatient departments to small teams of staff working in communities. These teams are frequently staffed by non-specialised workers from the community, who are supervised by qualified staff. These studies demonstrate that the introduction of more collaborative systems of care can lead to improvements in multiple outcomes, often at very little cost[166].

Section 2.5 MEASUREMENT OF COLLABORATION AND CONCEPTS RELATED TO THIS

The program theory determined the choice of instruments used in the quantitative component of the research (see 2.2.4). Instruments were required that could measure both the basic psychological needs of staff and collaboration. Instruments were also required that could measure the factors that were hoped would improve with better collaboration: patient and carer satisfaction, patient and carer quality of life and burnout and staff burnout.

2.5.1 Instruments to measure basic psychological needs

Self-determination theorists have produced scales to measure these concepts both in the workplace (for staff) and in the clinic (for patients):

Work related Basic Need Satisfaction scale [167]

This is a scale built on basic need satisfaction theory[78]. This is an 18-item scale, which was developed by reducing a larger item pool using exploratory factor analysis. Confirmatory factor analysis showed good model fit and psychometric properties in four different samples in Holland [167]. Average Cronbach's alpha for the three subscales: autonomy, competence, and relatedness, were .81, .85, and .82, respectively. This scale had not yet been translated into Bahasa Malaysia and required validation.

Healthcare climate questionnaire[168]

This 15-item patient scale assesses whether the healthcare environment is supportive of autonomy. It has a high internal consistency, with Cronbach's Alpha more than 0.8 in most studies[169] and has been correlated with patient satisfaction and quality of life[170], weight loss[168] and depression and glycaemic control in diabetic patients[171]. A 6-item version of this questionnaire has also been validated[172].

2.5.2 Instruments to measure collaboration

Collaboration is a broad concept to measure and there are multiple scales which have been designed to do this. These instruments measure a number of different concepts:

- Attitudes towards collaboration or interprofessional learning

    - This aligns with 'motivation to collaborate' from the program theory
    - e.g. University of West of England Interprofessional learning scale [173], attitudes towards Healthcare teams scale [174,175].
    - Leeds Attitude to Concordance scale measures attitudes to forming collaborative partnerships with patients[176].
- Competencies in collaboration
    - Assessed by others, e.g. Interprofessional Capability Framework[177].
    - Self-assessed, e.g. University of West of England Communication and Teamwork Scale[173]
- Team environment and perception of collaborative culture
    - e.g. Safety Attitudes Questionnaire Teamwork Climate scale[178], University of West of England Interprofessional Interaction Scale[173], Hospital Survey on Patient Safety Culture[179]
- Collaborative behaviours – (almost all scales relate to shared decision-making).
    - Perception of shared decision-making e.g. Collaboration and Satisfaction About Care Decisions (CSACD)[180], collaboRATE scale[181]
    - Specific behaviours of shared decision-making e.g. SDM-9[182]

We wanted to measure collaboration from each of these different perspectives. A number of reviews have been conducted on instruments to measure collaboration[183–186] Despite there being more than 60 scales available, it was difficult to find scales suitable for the Malaysian context. This was mainly due to the use of concepts or jargon which is not familiar or misunderstood by staff here (e.g. 'interprofessional'). The review articles were used to identify scales with adequate psychometric testing and promising scales were examined in more detail to assess whether the items would be translatable and appropriate for staff in this context. None of the scales had been previously translated into Bahasa Malaysia. The SDM-9 scale was being translated into Bahasa Malaysia at the time of the study, by another group.

Attitudes towards collaboration

Leeds Attitude to Concordance Scale [187,188]

This is a 12-item scale which measures the willingness of healthcare providers and patients to engage in shared decision-making. It was developed by reducing a large pool of items using item analysis and has been used by psychiatric patients, with a Cronbach's alpha of 0.82 [188].

Attitudes towards Healthcare Teams Scale[174].

This measures attitudes towards team-working and was developed by reducing a large pool of items developed from focus groups. This scale was later modified to measure the interprofessional approach, rather than teamwork [189]. The 11 item quality of care scale has a Cronbach's alpha of 0.82 [189] and the 6 item physician centrality scale has a Cronbach's alpha of 0.75 [174].

Competencies in collaboration

This was the area where there was most difficulty in finding suitable instruments, since in most cases jargon was used, and knowledge of the competencies was needed to assess whether or not they were held.

University of West of England scale[173].

This is a 28 item scale, which was originally designed for healthcare students, but has been adapted for use in post qualification professionals [190]. Only one of the subscales: the *Communication and Teamwork Scale* (9 items) was planned to be used. This scale is a self-assessment of team skills. This scale has not previously been translated to Bahasa Malaysia.

Team environment

Hospital Survey on Patient Safety Culture [179]

This scale was developed to measure the perception of hospital staff of a *patient safety culture*. It was tested on more than 50000 staff in 331 hospitals across America. Three of the scales were relevant to the concept of collaboration: Communication openness (Cronbach's alpha = .73), Teamwork across units (Cronbach's alpha = .79), Teamwork within units (Cronbach's alpha = .83). This scale had been translated into Bahasa Malaysia (correspondence from scale developers), but there were not yet any Bahasa Malaysia validation studies at the time of study initiation.

Collaborative behaviours

Perceptions of shared decision-making

Collaboration and Satisfaction About Care Decisions (CSACD)[180]

This scale measures the perception of healthcare staff about nurse-physician collaboration associated with specific patient care decisions. It consists of six items measuring decision-making behaviours and three items measuring the perception of collaboration and satisfaction that an appropriate decision was made. Cronbach's Alpha for the six decision-making behaviours was 0.93 in the validity study[180]. It was developed in an intensive care unit setting and has been shown to be related to patient outcome [191]. This scale had not been translated.

CollaboRATE scale[181].

This is a 3-item scale that measures perception of shared decision-making in the doctor-patient consultation. This was developed through cognitive interviewing of patients and has been validated using simulated patient encounters [192]. This questionnaire will require translation and validation. A carer version is also available and will be used for carers. This scale had not been translated.

Specific components of collaborative decision-making

Although there are already several scales that measure shared decision-making in healthcare consultations, none appeared to be appropriate for the setting of our study. Most of these scales measure decision-making between doctors and patients only[181,182,193,194], whereas in this setting there were normally family members involved as well and sometimes people outside of this, such as community and religious leaders[62]. Some of these people were not physically present in the consultation, but their opinion was very important, for example in the decision in take medication. These scales also assume that there is only one healthcare practitioner involved in the decision-making and that the doctor was leading the process. For example, they assumed that the doctor was the one who initiated the process of decision-making and created the options.

2.5.3 Instruments used to measure outcomes

Staff scales

One of the most important staff outcomes is burnout. High burnout in staff has been shown to be related to a number of negative outcomes, including increased errors and lower quality of care provided[195,196]; increased sick leave and intention to change jobs[197]; lower quality of life[198]; and high costs due to turnover[199]. The construct was first described by Freudenberger (1973)[200] in staff who worked in public clinics in New York. It is usually described as having three dimensions[201]: exhaustion; depersonalisation or cynicism (the development of an indifferent or distant attitude to work); and a loss of self-efficacy with regards to work. The conceptual opposite to burnout is engagement, with dimensions of vigour (which was originally thought to be the opposite to exhaustion[202], but is probably on a different but related dimension[203]) and dedication (the opposite of cynicism[203]). Low levels of basic psychological needs have been shown to be part of the mechanism of burnout and high levels lead to greater engagement[204].

Maslach burnout inventory [201]

This is a widely used measure of staff burnout, which has 22 items and three subscales: emotional exhaustion, personal accomplishment and depersonalization. It was developed after initial exploratory interviews lead to the concept of a ‘burnout syndrome’. An initial 47 items were reduced to 25 after factor analysis. It has been translated into Bahasa Malaysia and has been shown to have Cronbach’s alpha>.8 for all subscales and good agreement between Bahasa Malaysia and English versions from the same rater [205]. Since cut-offs for high, medium and low burnout have not been found in a Malaysian population, the North American cut-offs were used [206] (emotional exhaustion > 26, depersonalisation > 9, personal accomplishment < 34).

Patient and carer scales

Client satisfaction questionnaire (CSQ-8)[207]

This is one of the most well used measures of patient satisfaction in mental health services. It has eight items and is well validated with Cronbach’s alpha more than 0.8 in most studies[208], it correlates well with other measures of satisfaction[209] and is not confounded with life satisfaction[210] (Roberts, Pascoe, & Attkisson, 1983). It has been translated into Bahasa Malaysia, and used in Malaysia previously[211] (Ping & Jaladin, 2013), but is not yet validated.

Personal wellbeing index[212]

This is a seven question, well validated, unidimensional scale, which was developed by an international research collaboration [212] and has been tested in numerous countries, including in Asia. Cronbach’s alpha is between 0.7 and 0.85.

Experiences of caregiving inventory (ECI)[213]

This is a carefully developed scale based on the stress vulnerability and coping model [214]. Qualitative interviews produced 133 items, which were reduced by principal components analysis to 66, on a sample of 600. There are 11 domains, which include both positive and negative experiences of caregiving and experiences of services. The negative scales of the ECI have been shown to be one of the best predictors of psychological wellbeing in carers [215]. It has been validated in several languages, and previously used in Malaysia [216].

Section 2.6 SUMMARY

In this chapter I reviewed some of the evidence that collaborative practice is helpful and considered some existing models of collaborative practice used in other settings, particularly the evidence for various forms of case management used in community mental health teams. I then discussed the theoretical framework that this project will use. The project uses an overarching systems theory paradigm, with the substantive theories of self-determination theory and game theory contributing to the previously published program theory. I then considered how important concepts within the theoretical framework can be measured. These include the elements of self-determination theory: autonomy, relatedness and competence; concepts relating to collaboration: perceptions of collaboration and teamworking, competencies in collaboration, the team environment and specific collaborative behaviours; and lastly the expected outcomes, including burnout in staff, patient and carer satisfaction and quality of life.

Chapter 3. METHODS

Section 3.1 METHODOLOGY

The overall approach is action research, which used mixed methods and realist approach to evaluation.

3.1.1 Participatory action research

This project uses action research, a methodology which aims to produce change in a system and study the effect of this change[217]. In participatory action research, this change is done together with a community, with members of the community participating to design the intervention and as researchers. In this type of research, the relationship between the researcher and the research participants is different, in that the researcher conducts research *with* the participants, rather than *on* the participants. The action research process involves cycles of planning, acting, developing and reflecting[218]. Action research methodology does not normally start with hypotheses, but with themes. The themes and methods are not specific in the beginning, since the subjects of the research also need to have input into these as the research develops [219]. Ideally the research questions, hypotheses and interventions come directly from the community, using community knowledge. This methodology was chosen because the intention of this project is to produce change to increase the quality of care and to involve the staff in the healthcare system in the research

3.1.2 Realist evaluation

Realist evaluation answers the questions “what works?” “in what context?” and “how?” [220] and can use both qualitative and quantitative research. It looks specifically at contexts (C), mechanisms (M) and outcomes (O), which shows how a specific mechanism is triggered by a specific context, which leads to a specific outcome. Realist evaluation uses a ‘realist’ philosophy of science, which means acknowledging that reality exists, while simultaneously acknowledging that it is experienced differently by different people and can never be fully known. Realist evaluation can be embedded within action research[221]. It can also be embedded within theory of change evaluations. Whereas theory of change models is more related to the steps that need to be taken to meet the objectives (the implementation theory), realist evaluation is more related to the mechanisms through which the program works (the program theory). Both of these aspects can be complementary to each other[222]. The acknowledgement of mechanisms being affected by contexts also fits well into a systems paradigm[223].

3.1.3 Philosophy: pragmatism and realism

I initially approached this project with a pragmatic approach. Pragmatism encompasses a set of beliefs that place the emphasis on ‘what works’ rather than how well a theory represents an underlying reality[224]. This worldview is what I mainly use as a medical practitioner, in that knowing if a particular treatment is effective is always more important than theories about how it works. Pragmatism is also the philosophy behind action research[66], and includes the view that action and theory cannot be separated[66]. This suited my intention to conduct a project that aimed for system improvement.

I also felt that it was important in this project to look at underlying mechanisms. In designing interventions, it was helpful to consider the mechanisms of action of what was proposed and in evaluating it was helpful to also think in these terms. Realism is the philosophy behind realist evaluation. Realist researchers uses a 'generative' view of reality, which means that they are interested in mechanisms that operate beyond what we can see. These mechanisms include the thoughts, feelings and resulting behaviours of the recipients of a particular program that result in the program being effective or ineffective. Realists acknowledge that these mechanisms are context dependent and will operate in some contexts but not in others[225]. Realism asserts that there is an underlying reality, meaning that these mechanisms are real and not just constructs of the people describing them. However realism accepts that our view of the underlying reality is incomplete and we can never know what it is completely[226]. There are many different perspectives and perceptions of reality and together these can give us an idea about the underlying reality.

Pragmatism and realism are compatible in most practical aspects. Realism and most branches of pragmatism acknowledge an underlying reality, of which we have an imperfect and fallible knowledge[224,226]. In addition, both philosophies are concerned with action and what works in specific contexts.

Section 3.2 REFLECTIONS

In action research there is an acceptance that the researcher cannot be an impartial objective observer. Instead, the researcher needs to be aware of their own motivations and positioning within the community that they are researching and how they may affect the process[227]. My motivations for doing this project are described in the introductory section. Below I describe some aspects of my identity and personal circumstances, which I believe were important in the conduct of this project.

I am white British and a University lecturer, who is married to a Malaysian and has been in Malaysia for the last 14 years. I was working in the target hospital as a psychiatrist during the project doing clinics once per week, on-call work and sometimes attending meetings and ward rounds. Although I had been working there as a psychiatrist longer than anyone else in the hospital, I still felt that I was an outsider. I am employed by the University, not by the hospital. This meant that I was part of the system that I was researching, but also an outsider, not a full member of the hospital staff. The outsider status was an advantage in some ways. Some people find it easier to trust an outsider, which may have helped with some of the qualitative interviews. However, I think some found it more difficult to talk to a foreigner who was not a member of hospital staff. In addition, although I speak Bahasa Malaysia, I am not always able to understand everything that is said, particularly if it is said quickly or people use local slang. Many people feel that they need to speak English in front of me, which I think makes them feel stressed if they do not feel confident speaking English and can reduce communication. Being a psychiatrist was both a positive and a negative. Psychiatrists were the group with the most power in the hospital and this may have blinded me to some aspects of the power structures. It may also have led some staff to not express what they think.

I was good friends with some of the staff at the hospital during the time of the project. I felt strongly about some of the aspects of the project, especially continuity of care for patients and felt frustration when we were unable to implement this. This occasionally led to heated debates with colleagues outside of the meeting times. I am a Christian, which was helpful in this project, since it meant that I shared a large part of the worldview of many of the participants, who mainly had strong religious beliefs. It also allowed me to stay motivated through some very difficult times. I am a mother of two children, one of whom has epilepsy. During the final two years of the project, he became very ill and was hospitalised on several occasions. During March 2020 he had several seizures on one day and this led to problems with language. Going through this had a significant effect on the project, in that it delayed the project, but also increased my conviction that collaborative practice is essential for quality healthcare.

To increase reflexivity, I used journaling throughout the process. I also discussed the project regularly with my external supervisors and colleagues in Malaysia. During the process of qualitative data analysis, I used memoing. I sent sections of this research report to colleagues to ask their opinions about whether any biases were present and to ensure the tone of the reporting was appropriate.

Section 3.3 OVERVIEW OF WHOLE PROJECT

This study has several phases and starts with an exploratory study of the existing system (Phase 1). Part of Phase 1 was done prior to the doctorate and is described in Shoesmith *et al.* (2020)[61] and Shoesmith *et al.* (2017)[62]. The quantitative phase of Phase 1 was still to be completed. In phase 2 a set of recommendations were produced using consensus methods. During Phase 3 some of the recommendations were implemented. A realist evaluation was carried out to better understand the mechanisms and context behind what worked and what did not work.

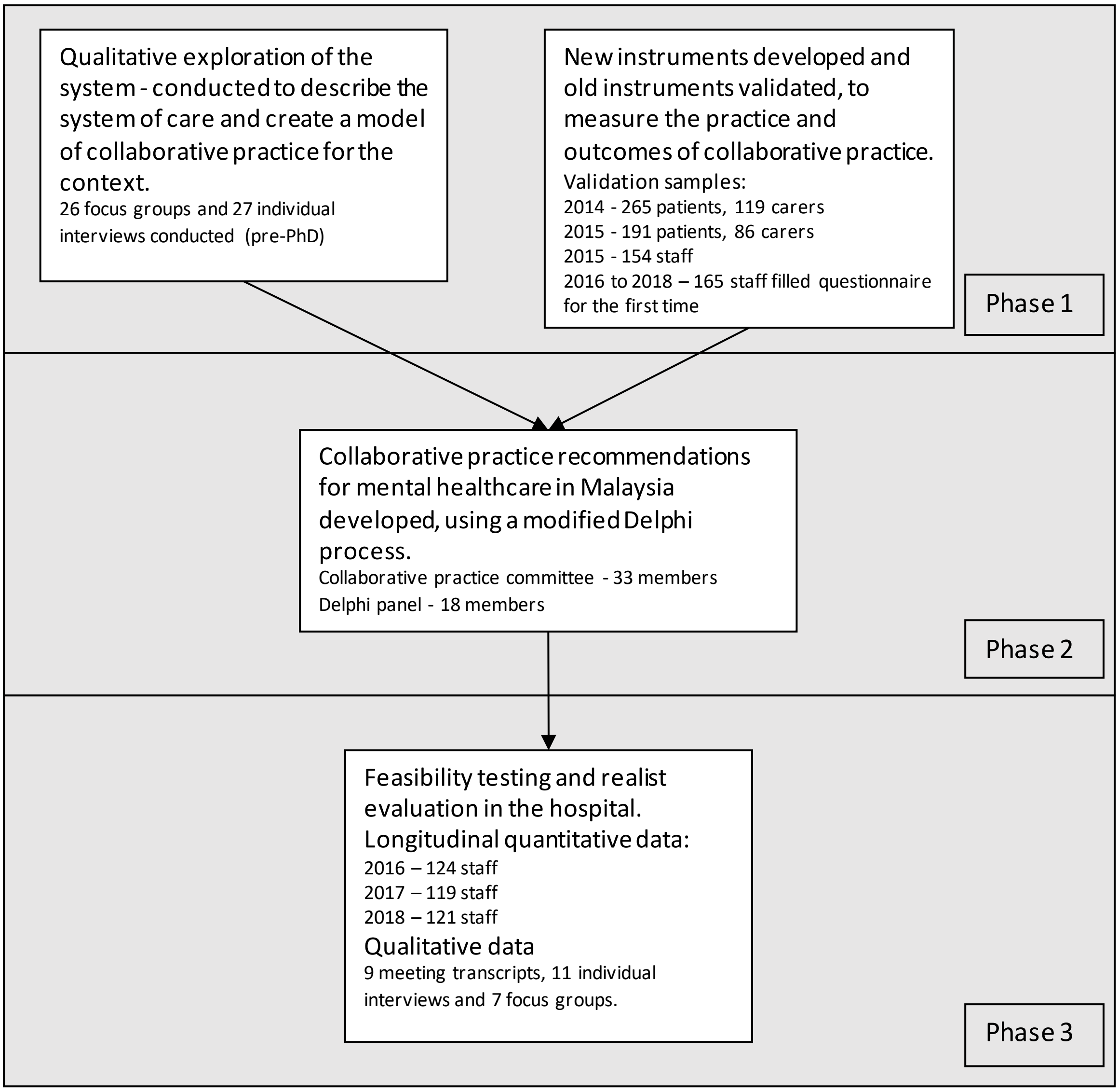


Figure 3-1 - Flowchart of whole project

Section 3.4 PHASE 1: SCALE DEVELOPMENT AND VALIDATION.

Scales were either translated or developed, pilot tested and then validated on patient or staff samples. Patient and carer samples were collected on two occasions, in 2014 and 2015. Staff samples were collected longitudinally every year between 2015 and 2018. The first sample of staff data, collected in 2015 and a second sample consisting of the first data point for each staff member between 2016 and 2018 were used for scale validation in staff. The reason for using the first data point only for the second sample is because the validation tests required independent data points. The process used for validation of scales is described in section 3.4.1, the data collection process is described in 3.4.2, and the process of developing new scales is describe in section 3.4.3. The Maslach Burnout Inventory validation process was different and is described in a published paper, which is reprinted in Appendix B.

3.4.1 Translation and validation process

There were no scales to measure collaboration and its outcomes that had previously been validated in this context. Table 3-1 summarises which scales needed translating and validating prior to use in the study.

Table 3-1 - Summary of translation and validation studies conducted as a part of this project

Scale	Previous translation or validation	Translation and validation done in this study
Shared problem-solving and decision-making scale	Newly developed scale.	Developed and validated.
Maslach Burnout Inventory[201]	Previously translated. No validity study in healthcare staff.	Some items retranslated after field testing. Validated.
Hospital Survey on Patient Safety Culture: Teamwork within units, Teamwork between units and communication openness scales[179]	Previously translated, but not validated in Bahasa Malaysia.	Translated and backtranslated, since previously translated scale was only available later. Items from both versions compared and translation which was easiest to understand chosen. Pilot tested. Validation of scales
Leeds attitude to concordance[187,188]	Not translated or validated.	Translated, backtranslated, pilot tested and validated.
Collaboration and Satisfaction About Care Decisions[180]	Not translated or validated.	Translated, backtranslated, pilot tested and validated.
Attitudes towards healthcare teams scale[174]	Not translated or validated.	Translated, backtranslated and pilot tested.
University of West of England scale: communication and teamwork subscale[173]	Not translated or validated.	Translated, backtranslated and pilot tested.
Client satisfaction questionnaire[207]	Previously translated, but not validated in Bahasa Malaysia.	Pilot tested and validated.
Personal wellbeing index[212]	Previously translated, but not validated in Bahasa Malaysia	Pilot tested and validated.
Healthcare climate questionnaire[168]	Not translated or validated.	Translated, backtranslated, pilot tested and validated.
Experiences of caregiving inventory[213]	Not translated or validated.	Translated, backtranslated and pilot tested.
CollaboRATE[181]	Not translated or validated.	Translated, backtranslated and pilot tested.

For scales that had been previously developed and validated in other languages or contexts, the following steps were followed:

- Translation of the scale into Bahasa Malaysia by bilingual people familiar with the scale construct (after asking permission from the scale owner). Backtranslation of the scale by a professional translator, who was not familiar with the scale. Comparison of the backtranslation with the original. Retranslation of any items with discrepancy.
- Pilot testing of the scale on the target group (hospital staff, patients, or carers), followed by a discussion on how the respondent understood the various items. If respondents had difficulty understanding items, or misinterpreted items, they were retranslated, or dropped. If the scale took a long time to complete, had many items that were hard to understand, or retranslation did not lead to better understanding, the scale was not used in the study.

- Use of the scale in the first sample. For patients and carers this was the sample collected in 2014. For staff this was the sample collected in 2015. The reliability and validity of the scale was assessed using the following methods.
  - There was a discussion with the research assistants about any items which patient and carers found difficult. This happened during a discussion at the end of each day of data collection.
  - The scale statistics were examined, including the distribution, central tendency and spread were assessed and described using parametric statistics when the data were close to normal.
  - The internal consistency was examined through the calculation of Cronbach's Alpha, where a value of more than 0.7 was considered to have adequate internal consistency.
  - Principal component analysis of the scale was conducted using the first set of data, if there was no previously published structure. Promax rotation was used if the subscales were expected to correlate. Solutions were considered based on the Eigenvalues being above one, the scree plot and which solution made theoretical sense[228]. If the scale had a previously published unidimensional structure, then Rasch analysis was used to assess consistency with a unidimensional Rasch measurement scale (as described below). Items that performed poorly were removed, where scale developers allowed this.
  - Confirmatory factor analysis (CFA) of multidimensional scales was conducted in the first set of data, if there was a previously published factor structure, or if the factor structure from principal component analysis was not clear. The factor structure was confirmed using the second set of data, if the first set was used to explore the factor structure. SPSS AMOS vs27 was used. Model fit was considered adequate if the Comparative Fit Index (CFI), Normed Fit Index (NFI) and Tucker Lewis index (TLI) were above 0.9 and the Root Mean Square Error of Approximation (RMSEA) was below 0.8. If the RMSEA was higher, the model was still considered if the other values were high, since RMSEA can be unreliable with samples less than 200[229,230].
  - Rasch analysis of each scale or subscale was used to confirm conformity to the Rasch model. This means that the scale is unidimensional, measurement intervals are equal across the scale and the scale is invariant across different groups. The partial credit model, was used and the analysis conducted using jMetrik software vs 3.1.2[231]. The category thresholds were examined, and some categories collapsed if low use of some categories was leading to the category thresholds being disordered. Good fit was considered to be infit (weighted mean square) and outfit (unweighted mean square) between 0.8 and 1.2 [232]. Tests for differential item functioning were conducted between different groups. For the patient and carer group, tests were conducted between patients and carers, gender and educational level up to primary level vs secondary level and above. For staff tests were conducted between sexes, staff who had done post-basic training in mental healthcare and between professional groups (healthcare assistants vs nurses and medical assistants). A Bonferroni correction was used to correct for the number of tests.
  - Consideration of convergent and divergent validity was done, by examining the pattern of correlations of the scale[233].
  - For patients and carers, an attempt was made to measure concurrent validity of the new shared problem-solving and decision-making scale, by pairing patient and carer data, if

both filled the questionnaire. Doctors were also asked to fill in questionnaires where patients agreed. However, there were not enough paired samples for this to be measured accurately.

- Items were retranslated or scales modified if they did not perform well in the first sample, after discussion with the scale authors or owners.
- Use of the scale on a second independent sample. For patients and carers, was the sample collected in 2015. For staff this was a sample consisting of the first data point of staff who filled the questionnaire for the first time between 2016 and 2018. Repeating the tests described above for the first sample, if there have been changes.

Sample size calculation

Confirmatory factor analysis, normally requires a sample size of at least 100-150 subjects[234], but more subjects gives more reliable results. This sample size is also adequate for tests of internal reliability and concurrent validity and for Rasch analysis[235]. For patients and carers it was estimated that the sample size will be reached by surveying consecutive patients in four consecutive clinics, which we estimated would recruit 200-300 participants. For staff, the sample size was limited to the number of staff in the hospital (approximately 300), but it was expected that more than 100 staff would agree to take part.

3.4.2 Data collection

This section is an expansion of the supplementary materials, published in Shoesmith (2022)[236].

Patients and carers

All patients and carers who attended the outpatient's department for two separate two consecutive week periods were asked to complete a questionnaire in November 2014 and October 2015. The inclusion criteria were that they were being treated in the hospital, they were over 18, they were willing to participate, and they were able to give informed consent. Participants who consented filled in the questionnaire anonymously after their appointment.

2014

Eight data collectors were recruited, including two psychologists and a psychiatric nurse who had been involved in the scale development process and were part of the core research team for developing the scale. Data collectors who were not part of the core research team were paid RM50 per day as an honorarium. Data collectors were trained in asking for informed consent and in helping people to fill in the questionnaire. They were instructed to read the questions for the patients, without interpreting, if patients had problems filling the questionnaire themselves. There was a psychiatrist (WS) and a clinical psychologist (ACA) involved in data collection, who were able to assist, particularly if there was uncertainty regarding the capacity of the patient to consent. Data were collected in two clinics on Tuesday and Thursday morning. These were the clinics where all adult follow-up patients are seen.

Staff were stationed in two areas, by the table where patients make their follow-up appointment and in the pharmacy. Since this was a follow up clinic day, nearly all of the patients would have made another appointment or collected medication from the pharmacy. Data collectors recorded all approaches made to patients and carers, recording if the patient had attended with a carer, if either of them did not wish to take part, and the questionnaire number. If a patient- carer pair agreed to take part, their questionnaire numbers were recorded together. Data collectors ensured that they did not fill in the questionnaires together, so that the patient-carer correlations could be examined.

During the second, third and fourth days of data collection, doctors were also asked to fill in a version of the new shared decision-making scale. Prior to giving them completing the scales, they were and given an explanation about the scale and asked to provide written informed consent. After the clinic on the day 2 of data collection, the doctors were given the questionnaires for all the consenting patients they had seen during the clinic. However, this did not work well, because the doctors had each seen 15-20 patients and could not remember the names of the patients and what had happened in each the consultation.

There was a discussion between the data collectors and the researchers after each day of data collection to discuss any problems. The data from the first day 1 of data collection were entered by one of the data collectors on the same day that it was collected. The data were examined, to assess for significant problems, such as large amounts of missing data. The question about the number of times that the patient had seen the same doctor was being missed due to formatting problems, so this was reformatted, and data collectors were asked to ensure that this was filled.

2015

This was similar to the 2014 data collection, with some differences. We used more data collectors with, 8-10 on each day of data collection. There were observers present in the interview rooms of two doctors on each day of data collection, who also filled a version of the new SDMPS scale. Patients and carers entering those rooms consented to having an observer present prior to seeing the doctor, which meant that they had to be given the questionnaire before going in and given instructions to only fill it when they came out. Attempts were made to pair patient, doctor and observer data, using this method, however again there was inadequate paired data for reliable analysis.

Staff

A list of all staff with patient contact in the hospital was obtained and random staff ID numbers were created using the Excel randomise procedure. This was done on the computer of the head of the outpatient clinic, so that the research team did not have access to the list. The ID numbers were printed on the top of the questionnaires and consent forms. The research team prepared envelopes containing the questionnaire, the consent form, and two other envelopes for returning the questionnaires and consent forms separately (to allow them to remain anonymous). The ID number was written on the front of the envelope. For the data collected in 2015, clinic staff then used the list of staff ID numbers to stick labels with the staff names over the ID numbers, which were written on the front of the envelopes. This was done to allow the staff to remain anonymous to the research team, but still allow their responses to be tracked over the four years of the study. The questionnaires were then sent out in the hospital mailing system. They were returned to a member of the university staff who was stationed in the hospital. Between 2016 and 2018, a member of the university staff, who did not have access to the data, kept the list of ID numbers and stuck the name labels on the envelopes.

3.4.3 Development of new scales

After reviewing the literature, I found that there were some things that we wished to measure, which did not have an appropriate scale.

Development of the shared problem-solving and decision-making scale

We made the decision to create a new scale for this study, which was later named the shared problem-solving and decision-making scale (SPSDM scale). This was originally designed to be a scale measuring shared decision-making. The reasons for developing this scale were that there were no other scales that could be used flexibly to measure shared decision-making in a range of situations, for example: situations involving only a patient and a healthcare professional, situations involving other family members and situations involving other professionals. More explanation is given in the literature review section 2.5.2. A full discussion about the development of this scale is published in Shoesmith (2022)[236]. A summary of the process is included here.

The process of developing this scale roughly followed the process described by Boateng [228] and involved several stages:

- Creating of a model of shared decision-making from the themes of the qualitative data collected in 2013.
- Writing items for the new scale, writing several items for each theme.
- Comparison of scale with other similar scales in the literature, to ensure all areas were covered.
- Discussion of the items with people with expertise in management and healthcare, to ensure the items were understandable and appropriate areas had been covered.
- Pilot testing of the scale in patients and staff, followed by adjustments to the scale in an iterative cycle.
- Use of the scale on the first sample of patients and carers.
- Adjustment of the scale.
- Use of the scale on the first sample of staff, with analysis of internal reliability, factor structure, and conformity to the Rasch model with differential item function measurement between groups.
- Confirmation of the factor structure on data from the second sample of patient and carer data and a second sample of staff data (consisting of the first data point from the data collected from staff in 2016, 2017 and 2018). Measurement of scale invariance between groups and between time points, using longitudinal confirmatory factor analysis. Measurement invariance means that the same construct is being measured consistently between time points or between groups. If a scale has weak measurement invariance, this means that the item loadings are the same over time or across groups. If a scale has strong measurement invariance, this means the item intercepts are the same as well, over time and across groups [237]. To measure this, a configural model (where there were no constraints on the factor loadings or intercepts) was compared to models with the loadings constrained (strong measurement invariance) and both the factor loadings and the intercepts constrained (strong measurement invariance). A drop of less than 0.01 in the CFI between

successive models was considered to be adequate measurement invariance [238]. Group invariance was also tested between different groups in staff: professional group, gender, age, civil service grade, length of experience and having done post-basic training. Group invariance was also tested between patients and carers.

Section 3.5 PHASE 2 - CREATION AND IMPLEMENTATION OF A MODEL OF COLLABORATIVE PRACTICE

In this phase a collaborative practice committee was formed in the hospital. They created recommendations for collaborative practice in the hospital. These recommendations were sent to a nationwide Delphi committee. The process of forming and running the committee is described in section 3.5.1 and the process of forming and running the Delphi committee is described in a published paper reprinted in section 3.5.3.

3.5.1 Collaborative practice committee

A committee was formed in the hospital, which met a total of ten times between May 2016 and October 2018. The main task of this committee was to form recommendations for collaborative practice in the hospital and to find ways to implement the changes in the hospital.

Procedure for recruiting to the committee

Attempts to recruit patients and carers were initially made by posting adverts in the hospital waiting room. Since there was no interest generated from this method of recruitment, hospital doctors were asked to recommend patients and carers. Several patients and carers were contacted before some of them agreed to take part. For the first meeting, only one person was able to come, who was both a patient and carer. The committee then recommended two other carers, who were able to come for the second meeting. One more patient and carer were eventually recruited, who had been involved in our university teaching program. The patients and carers were paid an honorarium for their time and for travel expenses.

The following criteria were used to select patient and carer committee members:

- Have been treated at Hospital Mesra Bukit Padang for at least one year.
- Had at least one admission to Hospital Mesra Bukit Padang (this criterion was relaxed in the end).
- Want to be involved and interested in helping to improve the mental healthcare system.
- Ability to work with others.
- Mental Health disorder is not significantly interfering with judgement or ability to make decisions.
- Basic literacy in Bahasa Malaysia and English, to ensure that they are able to understand documents and the research evidence.

Hospital staff committee members were recruited by sending a letter to all hospital staff. The letter contained a summary of the research that had already been carried out by that point and an invitation to take part in the committee. There were no spontaneous volunteers, so hospital staff were approached purposively. Hospital staff that had contributed significantly during the qualitative focus group and staff in positions that would help with the committee objectives were chosen. Staff were selected that could satisfy the following criteria were selected.

- Have enough available time to prioritise the meetings and read the relevant documents. Time involved will be approximately 1-2 hours per week for around 2 months.
- Want to be involved and interested in helping to improve the mental healthcare system.
- Ability to work with others.
- Basic literacy in Bahasa Malaysia and English, to ensure that they are able to understand documents and the research evidence.

Membership

The initial aim was to recruit according to the following membership. The eventual composition of the committee and meeting attendance is shown in the Appendix - Appendix K.

Table 3-2 - Initial aim for membership of the Collaborative Practice Committee

Number	Professional group
2-4	Patients
2-4	Carers
1	Attendants.
2	Nursing and MA – higher grades (above U34 grade)
2	Nursing and MA – lower grades
2	Specialist
2	Medical officer
2	Occupational therapy/ work placement/ Social work/ Psychological therapy/ pharmacy/ physio/ dietician
1	Hospital Director

**MA - medical assistant. This is a healthcare professional who works in a similar way to a nurse in the hospital and has a similar level of training.*

3.5.2 Committee procedures

A description of the role of the committee, the ways of working of the committee and the ground rules was given in the first meeting. This is shown in Appendix A presentation was given to inform the committee about what collaborative practice meant and the findings of the qualitative research. Committee members were given the opportunity to discuss these findings and make suggestions about how they felt the committee should run. They were also given a written information sheet and asked to sign an informed consent form. Descriptions of activities in the meetings are described in Section 5.1.

The role of the Committee:

The committee was told in the first meeting that their aim was to produce a new model way of working in the psychiatric system, which will lead to collaborative practice. The committee were given a list of responsibilities, so that they knew what was expected of them.

- To produce a model of collaborative practice for the psychiatric system in Malaysia.
- To review the feedback from the Delphi Committee on the model.
- To produce a set of guidelines, and a manual for the implementation of the model.
- To provide advice and guidance as the model is implemented.
- To review the model after implementation and adjust accordingly.

They were given the World Health Organisation definition of collaborative practice "when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care." [24] They were told that this included:

- healthcare professionals working with patients and families as partners.
- healthcare professionals working collaboratively with each other, including across professional groups (such as doctors working collaboratively with nurses).
- Healthcare professionals working collaboratively with other people who are involved with the patient or family, who may be outside of the healthcare system.

Ways of Working

The committee initially aimed to meet every two weeks until the initial set of recommendations were agreed on. The committee then met less frequently, as more time was needed between meetings to allow things to be implemented. All meetings were recorded and transcribed verbatim and I produced meeting minutes from this, as described in the section below. Between meetings there was some communication between meeting members, using a Whatsapp group. During the 3rd meeting there was agreement that an internet forum would be helpful for communication between meetings, which was created, but was not eventually used by the committee. Subgroups were formed at times to look at specific issues, for example subgroups were formed in meeting two, to allow parallel discussion about several different issues. From time to time, other individuals were co-opted into the committee, in order to provide specific expertise, for example more acute ward nurses were asked to come to the meetings when we were considering making changes there. The language of the meetings was a mixture of Bahasa Malaysia and English. The committee agreed on the following ground rules in the first meeting:

1. Try to be concise and not to dominate.
2. Share your ideas and your perspective.
3. Listen respectfully and non-judgementally. Try to understand the perspectives of others.
4. Try not to interrupt until the person has finished talking.
5. Accept differences in opinion as a good thing.
6. Try to reach consensus.
7. Be present in the meeting. Try not to get distracted by phones and other things.

Participants were introduced to a participatory decision-making model to make decisions in the meetings. This involved an initial brainstorming, followed by the discussing the pros and cons of each of the options was discussed, and then deliberation about what to implement. Efforts were made to achieve consensus during the meetings. Proposals were modified until all concerns had been addresses and consensus was reached. The meeting chair regularly went around the room, ensuring no objections, before recommendations were accepted, to reduce the chance of staff disagreeing with a recommendation but being too afraid to say anything. The initial intention was to use a two thirds majority if consensus could not be reached, however this did not occur in the meetings. The decisions to implement recommendations which were bigger, were discussed in other committees, for example the hospital management committee.

The first two meetings were chaired by members of the research team but after this, the other committee members took over chairing the meetings, on a rotating basis. My role was mainly to facilitate the meetings, for example by arranging the time and place and writing the meeting minutes. I presented research findings from the qualitative study and from the literature, to help clarify the evidence for various recommendations. I transcribed the recordings of the meetings and wrote the meeting minutes and analysed the data between meetings. I helped in the implementation of some of the programs and conducted staff training as part of implementing the recommendations. I was sometimes involved between meetings in getting programs implemented, for example meeting with staff to find out any concerns. I attempted to stay as an impartial facilitator throughout this process, but this was sometimes very difficult to do.

After the committee had produced a draft of the guidelines, this was sent to the Delphi committee, as discussed in the published paper reprinted in section 3.5.4.

3.5.3 Data analysis

All committee meetings were recorded and transcribed verbatim, with the exception of the seventh meeting, where there were problems with the recording. The meetings were coded according to the headings of the program theory. Every meeting, minutes were produced of the previous meeting, using this coding structure and this was used as a form of member checking. This coding structure grew and eventually became the first draft of the recommendations, which were sent to the Delphi structure. Within each heading, codes distinguished between general discussion on the topic, what was recommended and discussion about the implementation of any changes. Discussions about implementation were used for the realist evaluation, described in Section 6.4.

3.5.4 Delphi committee

A Delphi study was carried out with a panel of experts from Malaysia to gather opinion and develop consensus about the suitability and usefulness of the proposed model. This involved an iterative process, whereby the panel of experts anonymously rated and commented on the model, which was then modified, until consensus was reached[239]. The steps followed are listed below.

1. Opinion leaders in mental health systems in Malaysia were identified to form an expert panel through reviewing the literature and by referral of other opinion leaders.
2. An initial questionnaire was developed about the recommendations for collaborative practice in Sabah.
3. The questionnaire was sent to the panel of experts, providing an anonymous on-line mechanism for them to review and comment on the recommendations.
4. The central tendency and variability of their opinions was analysed.
5. The recommendations were changed where consensus had not yet been reached and the process continued until consensus was reached. The interquartile deviation, together with the proportion of positive responses was used to determine consensus had been reached[239].

Further information on the methods of this study are given in Shoesmith *et al.* (2020)[240], which is reproduced in Appendix C. The model of collaborative practice was disseminated through this publication and presentation in various conferences (Appendix E) and in the hospital continuous professional development session.

Section 3.6 PHASE 3 – IMPLEMENTATION AND EVALUATION

3.6.1 Implementation of the model

The original intention was for the model to be produced first and then implemented, but it became clear that it would not work that way. The hospital committee started to implement ideas before the new model had been produced. An amendment was put into the ethics committee to account for this.

- Ideas generated by the hospital collaborative practice committee were implemented if the following conditions were met.
    1. The committee reaches a consensus that the idea is likely to improve patient care and is feasible.
    2. Other relevant hospital committees have also agreed that the idea is likely to improve patient care and is feasible.
- Ideas were implemented as they were generated or become feasible.
- The hospital collaborative practice committee discussed the implementation and modified the ideas accordingly.

Since we wished to conduct a realist evaluation, which included developing a better understanding of contextual factors, recruitment to activities were similar to a real-world setting. For example, recruitment to training events was done by publicising the event to the hospital staff and asking hospital management to release staff for the events. This is a different approach to an efficacy study, which would have involved controlling and eliminating the effect of contextual factors[241].

3.6.2 Realist Evaluation

This section describes how quantitative and qualitative research methods were used together to evaluate the programs implemented between 2016 and 2018.

Quantitative evaluation methods

Data were collected from staff in 2016 (prior to the formation of the committee), and in 2017 and 2018 (after the formation of the committee), using the method described in Section 3.4.2. The data were analysed to assess measures of central tendency, spread and validation procedures conducted. Further details of this are described in Section 3.4 and the description of the data is in Chapter 4. The data were explored for extreme values, which was defined as a value further than 3 times the interquartile range from the third and first quartile. To evaluate whether any change had occurred over time, the data from 2016, 2017 and 2018 were compared.

A linear mixed model approach was used to find differences between time-points, using SPSS vs27. This approach allows data collected longitudinally from people who filled the questionnaire more than once to be combined with data from people who filled the questionnaire only once. The procedure from Heck et al. (2014)[242] was used, starting with examining a no-predictors model, then adding time as a fixed effect and a random intercept and lastly adding a random slope. The restricted maximum likelihood method (REML) was used with degrees of freedom estimated using the Kenward-Roger method, which allows some deviance from normality. The time scale was converted to both a orthogonal linear scale (with time-point 2 = 0, time-point 2 = 1, and time-point 4

= 2) and an orthogonal quadratic scale (with time-point 2 = 0, time-point 3 = 1, and time-point 4 = 4)[242]. The time scale with the best fit was used. Various covariance structures at level 1 (covariances between time points) and level 2 (covariances between the random intercept and random slope components of the model) were compared to each other by comparing the Akaike information criterion (AIC), to find the best fitting model. Two tailed tests of significance were used, with α = 0.05.

Missing data were handled using maximum likelihood estimation. Chi-squared tests were used to test whether there were any significant associations between the scores on any of the scales and whether the person filled the questionnaire again, since one of the assumptions of maximum likelihood estimation is that the data are either missing at random or missing completely at random.

We had also intended to do a historical control trial, using the data collected from patients and carers in the outpatient department. During the project, it became clear that an historical control trial of outpatients was not appropriate, since very little had changed for them.

Qualitative evaluation methods

Interviews and focus groups were held with a sample of staff to gain a deeper understanding of the effects of the model on staff working. A semi-structured interview guide was used, but this was modified according to emerging themes (see Appendix S for the interview questions). Purposive sampling was used, with staff chosen for interview because they were able to offer the most information about the changes in the hospital. Most had been working in the hospital for at least four years, the length of time that the project had been ongoing. Some of the staff had been members of the collaborative practice committee. Interviews took place in the hospital, mostly in the workplace of the staff interviewed, for example on the ward or in the clinic. I conducted the interviews, mainly in English, and there were no other people present at the time of the interviews. No staff declined being interviewed. Focus groups for ward staff took place before and after the course, also in the hospital. The focus groups were conducted in Malay, by another member of the research team (LJL). Field notes were taken during the focus groups. One focus group for ward staff took place six months after the last course. Most of the interviews and focus groups took place between May and November 2019.

Interviews and focus groups were recorded and transcribed verbatim. Recordings of the collaborative practice meetings were transcribed and analysed using N-vivo. Data were initially coded, using open codes, with NVivo (vs10) software. These were then organised into mechanisms, outcomes, and contexts. The data fitted the program theory, so the outcomes were arranged according to this. There was a problem with the recording of the seventh meeting, so the meeting minutes were used, which had been written from the notes taken at the meeting and then checked at the next meeting. I coded the focus groups together with the researcher who had conducted the interviews. I initially coded the individual interview data alone, then checked the codes with other members of the research team.

Strategies to increase the trustworthiness of the data

Strategies to increase the trustworthiness of data include triangulation, reflexivity strategies, and member checking[243–245] Using mixed methods and the different data sources (interviews, focus groups, and meeting transcripts) allowed for triangulation of findings. Reflexivity strategies were used, as described in the ‘reflections’ section, including keeping a journal, memoing and regular supervision meetings. For the collaborative practice meetings, member checking was done at the next meeting, with the analysis included in the meeting minutes for the previous meeting. Member checking of full transcripts was not done, but if parts of the recording were unclear then this was checked in the field notes or clarified with the staff involved. Member checking of the analysis was done by presenting the findings at a conference and to educational meetings of the hospital. The director of the hospital and other members of the research team were asked to comment on the findings, to reduce the risk of bias.

Section 3.7 ETHICAL CONSIDERATIONS

As this project was an intervention study involving human subjects, ethical approval was sought. Ethics approval was applied for from the Ministry of Health Medical Research Ethics Committee. Reciprocal approval was sought from the Human Research Ethics Committee at Curtin Sarawak. During Phase 1, we were concerned that patients and carers may be worried about criticising the staff that care for them and may feel an obligation to take part in the research because of fears that their care may be affected if they do not. Many patients in the hospital had been previously subject to involuntary treatment, and we were concerned that they may feel obliged to do everything that the hospital asks of them. Care was taken to train the research team so that they made clear that the research was voluntary, using both language and non-verbal communication. The research team were clearly identifiable, wearing T-shirts marked with ‘research team’ to make them distinguishable from hospital staff.

The risk of harm from introducing the intervention was reduced by ensuring that the main stakeholders were adequately consulted and had ownership of the changes. These risks were mitigated by ensuring adequate, informed consent, ensuring privacy and confidentiality and sensitivity during the research process. Subjects given quantitative instruments were given an information sheet and asked to fill an informed consent form. A data de-identification procedure was used for longitudinal staff data to allow data to be linked across time points, without the research team knowing the identities of the staff. Some of the demographic categories were collapsed if a particular category was expected to have low numbers, for example ‘allied health’ was one category, since there was only one member from some professional groups. The questionnaires did not ask about ethnicity for the same reason, in that there are low numbers of some ethnic groups (which would have made some staff identifiable), but collapsing ethnic groups into one would also not have been acceptable to people from those groups.

When the questionnaire was used for the first-time staff, none of the medical staff returned the questionnaire. Some of them complained that the questionnaire was too long, which is why a shorter questionnaire was used after this. When it was used the second time, there was also a very low response rate from medical staff, despite the questionnaire being considerably shorter. Further investigation revealed that the medical staff were worried about being identifiable through their demographics. Further reassurance was given, and they were told not to fill in the demographics if they are worried about this.

The changes made to the system in Phase 3 were system wide interventions and were implemented for all patients as part of normal clinical practice. Since the changes were systems changes (for example training staff to involve the patient in decision-making), it was not possible to ask patients individually for informed consent, which would be possible if this was a randomised controlled trial or experimental design. However, the changes implemented were all established components of care in other systems, rather than being experimental, new treatments. During Phase 3, there was the potential for adverse effects on the system, particularly at the time of the system change, which may increase the stress on staff. This was minimised by ensuring that staff were involved in decisions about change and having these changes go through relevant committees.

Section 3.8 ISSUES AND DEVIATIONS FROM THE PROTOCOL

3.8.1 Timing

The initial plan was to collect the data at three monthly intervals. We decided to collect the data at yearly intervals for the following reasons:

- The time needed to enter and analyse the data between the first and second data points was longer than expected. This was largely because of the other commitments of the principal investigator.
- Some of the staff commented that the first questionnaire was very long. Repeating the data collection after only three months would have led to research fatigue in the staff.
- The time needed to produce and implement the recommendations by the committee was longer than expected.

3.8.2 Change in leadership at the hospital

The hospital director left in June 2016 and there was no new director until April 2017. Between these times there was an acting hospital director. This was the time when the collaborative practice committee was most active. Members of the collaborative practice committee were reluctant to make any major changes to the hospital before the new director came. This delayed the collection of the third set of data by six months.

3.8.3 Loss of the list of ID numbers

After one year, all three of the staff that had been given the anonymised list of ID numbers and names were transferred and the list could not be found. The head of the clinic had been transferred to another hospital and his computer had been reformatted. A decision was made that a member of the University staff needed to keep a copy of the list, because the same problem was likely to recur if the list was kept with the hospital staff. The list of ID numbers had to be recreated using the consent forms that the staff had returned separately in 2015. This was done by a member of the University staff, who did not have access to the data. We believe that this was done accurately, because the demographic information did not change in subsequent years, with the few exceptions described in the section below.

3.8.4 Staff switching questionnaires.

There were five instances from the 2015 data, where the professional group indicated by the staff on the questionnaire was different to the demographic group indicated by the ID number (the professional group was the first two digits of the ID number). This indicated that these staff had switched the questionnaires after opening them. However, this would not have affected the results, since the data from 2015 was not used longitudinally. There were only two instances after the first year where staff had switched questionnaires (the demographics were different). On one of these occasions the ID number was used only once, so it would not have affected the results. On the other occasion, a new ID number was allocated, to prevent the points being linked longitudinally.

3.8.5 Decision to not collect follow up data from patients and carers

The reasons for this are discussed in Section 3.6.

Section 3.9 SUMMARY

This study used action research methodology to develop a model of collaborative practice suitable for this setting. The study was conducted in three phases. These phases were non-linear and iterative.

In Phase 1, quantitative data were collected by questionnaire survey from patients and carers and staff to measure satisfaction with services, wellbeing and collaboration with healthcare staff. Validation was conducted for the Maslach Burnout Inventory (MBI), the Work-related Basic Need Satisfaction scale (WRBNS), Collaboration and Satisfaction about Care Decisions scale (CSCD), the Leeds Attitude to Concordance scale (LAC), the University of West of England interprofessional scale (UWE) and the Hospital Survey on Patient Safety Culture scale (HSPSC – Teamwork-Within-Units, teamwork-across-units, Communication-Openness subscales only). Data were also collected from service users (patients and carers) in 2014 and 2015. The Client satisfaction questionnaire (CSQ) and Personal wellbeing index (PWI) had already been translated but were validated in the new context and the Healthcare climate questionnaire (HCQ) was translated and validated for the first time. A new scale, called the ‘Shared Problem Solving and Decision-Making Scale’ (SPSDM) was developed, piloted and validated in patients and staff. The Experiences of caregiving inventory (ECI) and the CollaboRATE scale were translated, and pilot tested. Some of these scales were modified and used again one year later, if there had been difficulty with any items, with further validation analysis conducted.

In phase 2 a ‘Collaborative Practice Committee,’ which consisted of multiprofessional staff and service users was formed in the hospital. The committee met ten times between 2016 and 2018 and developed a set of recommendations to improve collaborative practice in Malaysia. These recommendations were created from a model of collaboration developed from the qualitative research prior to this study. A Delphi committee was established across Malaysia, consisting of five patients and thirteen professionals. Iterative rounds of a Delphi process were used to produce consensus and allow the recommendations to be generalised.

In phase 3 recommendations agreed to by the hospital management were implemented in the hospital. Realist evaluation methods were used to assess the feasibility and effectiveness of programs implemented, using both quantitative and qualitative methods. Longitudinal mixed modelling was used to assess change over time in collaboration, burnout and psychological needs of staff. Post intervention data were not collected from patients, since none of the changes that the committee wished to implement involved the outpatients, where the original baseline data had been collected.

Chapter 4. PHASE 1: SCALE VALIDATION AND DEVELOPMENT.

This chapter describes the results of validating the scales. This starts with a description of the demographic characteristics of the respondents in both the staff and patient samples.

Section 4.1 RESPONSE RATES AND DESCRIPTIVE STATISTICS FOR PATIENTS AND CARERS

The response rates for patients, carers and staff are shown in Table 4-1. The response rate for 2014 was 61.7% and 54.3% for 2015. The demographics are shown in Table 4-2. Approximately 45% of the patients surveyed were engaged in employment or education outside of the home, 37% were married and 86% of patients had post-primary education. Table 4-3 shows the previous hospital use. Out of the patients surveyed, 60% had previously been admitted to the hospital. Table 4-4 shows the relationship between the carer and the patient and whether they live together, which shows that 84.7% of the carers surveyed lived with the patient. Table 4-5 shows the self-described diagnosis of the patient, which shows that 61.0% of the patients reported that they had either a psychotic illness or bipolar disorder.

Table 4-1 - Response rates of patients, carers and staff

Sample	*Year*	*Number of respondents*	*Non-responses*	
Patient/ carers 1	2014	265 patients 119 carers	Declined to take part	190
			Capacity/ communication problems	47
Patient/ carers 2	2015	191 patients 86 carers	Declined to take part	209
			Capacity/ communication problems	24

Table 4-2 -Demographics of patients and carers

		Patient	**Carer**	**Total**
Age				
Under 25	2014	32	9	41
	2015	21	8	27
26-35	2014	62	18	80
	2015	51	11	63
36-45	2014	67	27	94
	2015	53	18	71
46-55	2014	47	25	72
	2015	34	18	53
56-65	2014	14	16	30
	2015	12	21	32
66-75	2014	5	8	13
	2015	7	6	13
Over 75	2014	0	4	4
	2015	1	0	1
Total	*2014*	*227*	*107*	*334*

		Patient	Carer	Total
	2015	*178*	*82*	*260*
		405	*189*	*594*
Sex				
Male	2014	124	51	174
	2015	105	32	138
Female	2014	102	56	159
	2015	76	50	124
Total	*2014*	*226*	*107*	*333*
	2015	*180*	*82*	*262*
		406	*189*	*595*
Marital status:				
Single	2014	115		115
	2015	101		101
Married	2014	92		92
	2015	59		59
Divorced/ separated	2014	14		14
	2015	15		15
Widowed	2014	3		3
	2015	4		4
Other	2014	3		3
	2015	0		0
Total	*2014*	*227*		*227*
	2015	*179*		*179*
		406		*406*
Occupation				
Not working	2014	85	14	99
	2015	73	22	96
Housewife	2014	31	20	51
	2015	26	17	43
Full time salaried employee	2014	60	45	105
	2015	37	23	75
Part time employee	2014	14	1	15
	2015	7	0	7
Self employed	2014	31	23	54
	2015	31	15	45
Student	2014	3	1	4
	2015	1	2	3
Sheltered employment	2014	3	2	5
	2015	4	3	11
Total	*2014*	*227*	*106*	*333*
	2015	*178*	*81*	*259*
		405	*187*	*592*
Education				
No school	2014	11	10	21
	2015	13	6	19
Primary school	2014	19	17	36
	2015	14	13	27
Secondary school	2014	158	60	218
	2015	121	50	170
Tertiary education	2014	34	19	53

		Patient	**Carer**	**Total**
	2015	31	11	42
Total	*2014*	*222*	*106*	*328*
	2015	*178*	*80*	*258*
		400	*186*	*586*

Previous Hospital Use of patients and carers

Table 4-3 - Previous hospital use

Number of years attending Hospital Mesra Bukit Padang:				
		Patient	Carer	Total
Less than 1	2014	26	20	46
	2015	36	22	58
1-5	2014	53	33	86
	2015	44	19	63
6-10	2014	53	21	74
	2015	32	14	46
11-20	2014	40	18	58
	2015	39	16	55
Total	*2014*	*223*	*101*	*324*
	2015	*179*	*82*	*261*
		402	*183*	*585*

Have you/ the person you care for ever been admitted to Hospital Mesra Bukit Padang:				
		Patient	Carer	Total
No	2014	96	42	138
	2015	65	44	109
Yes, once	2014	42	32	74
	2015	41	16	57
Yes, 2-5 times	2014	64	22	86
	2015	48	13	61
Yes, more than 5 times.	2014	21	10	31
	2015	24	7	31
Total	*2014*	*223*	*101*	*324*
	2015	*179*	*82*	*261*
		402	*183*	*585*

Relationship of carer with patient

Table 4-4 - Relationship of the carer with the patient

Relationship with patient			
Spouse	2014	21	21
	2015	13	13
Parents of patient	2014	30	30
	2015	26	26
Child of patient	2014	19	19
	2015	18	19
Sibling	2014	18	18
	2015	16	16

Other family member	2014	3	3
	2015	4	4
Other	2014	12	12
	2015	2	2
Total	*2014*	*103*	*103*
	2015	*79*	*79*
	Total	*182*	*183*
Living with patient			
Yes	2014	90	90
	2015	65	65
No	2014	13	13
	2015	14	14
Total	*2014*	*103*	*103*
	2015	*79*	*79*
	Total	*182*	*183*

Diagnosis

Table 4-5 - The diagnosis of the patient (self-described)

	Patients		**Carers (diagnosis of the patient)**	
	2014	2015	2014	2015
Schizophrenia	132	90	54	28
Bipolar disorder	13	15	8	1
Depression	46	41	29	15
Anxiety disorder	31	15	14	5
Drug or alcohol problem	6	6	10	2
Schizoaffective disorder	1	2	0	0
Psychosis	10	9	2	4
Other	0	3	0	5
Not sure	6	20	10	19
Total	*245*	*201*	*127*	*79*

Chi-squared testing showed that there were no significant differences between the data collected in 2014 and 2015, other than the number of years attending the hospital ($X^2 = 9.645$, $p = 0.047$). *Data set 1* had 19.0% that had attended the hospital for less than one year which compared to 11.2% in *Data set 2*.

4.1.1 Response rates and demographics of staff

There were 154 out of 301 staff that returned questionnaires in 2015, 124 out of 309 staff that returned questionnaire in 2016, 119 out of 310 staff that returned their questionnaire in 2017 and 121 out of 302 staff that returned their questionnaire in 2018. There were 185 staff who filled the questionnaire on one occasion only, 71 staff who filled the questionnaire twice, 47 staff who filled the questionnaire three times and 16 staff who filled the questionnaire on 4 occasions. Approximately 50 staff were transferred out of the hospital or retired for every year of the study and the same number joined. There were 165 staff who filled the questionnaire for the first time between 2016 and 2018, which became the second sample needed for scale validation (referred to below as *Data set 2*).

Figure 4-1 - Demographics of staff respondents

Batch	2015	2016	2017	2018
Age				
under 25	24	15	7	8
26-35	60	52	57	62
36-45	20	19	21	26
46-55	29	26	26	20
over 55	19	13	13	8
Total	*152*	*125*	*124*	*124*
Sex				
Male	54	52	52	38
Female	92	70	71	81
Total	*146*	*122*	*123*	*119*
Professional group				
Attendant	48	35	31	34
Doctor	0	2	3	3
Nurse	60	54	59	54
Medical assistant	28	25	24	22
Other	15	6	4	11
Total	*151*	*122*	*121*	*124*
Grade				
U3-10	3	3	0	0
U11-17	44	35	34	34
U19-24	8	8	8	4
U29-32	84	69	73	72
U36-48	10	9	8	11
U51-JUSA	0	0	1	3
Total	*149*	*124*	*124*	*124*
Number of years of mental health experience				
<1	9	1	4	5
1-5	63	66	57	59
5-10	24	17	21	28
10-20	18	15	15	14
>20	35	27	28	19
Total	*149*	*126*	*125*	*125*
Formal training in mental health				
Yes	14	14	18	25
No	136	112	106	100
Total	150	126	124	125

Section 4.2 PHASE 1 SCALE DEVELOPMENT AND MEASUREMENT OF BASELINE

This section describes the psychometric properties of the scales used, going through the validation process for each scale individually. Each population studied has two data sets for testing validity. For patients and carer *Data set 1* refers to the data collected in 2014 and *Data set 2* refers to the data collected in 2015. For staff *Data set 1* refers to the data collected in 2015 and *Data set 2* refers to the first data point for each staff member between 2016 and 2018. The reason for using the first data point is because the tests require independent data points and using test results collected in different years from the same subject may have reduced the overall variance, which would have affected significance tests.

For each scale, I describe the data for each sample, including the central tendency, the spread and the distribution of the data. I used *Data set 1* of the patient/carer and staff data to validate. If there was a known factor structure, then confirmatory factor analysis was used to confirm this structure. Rasch analysis is used to test conformity to a unidimensional Rasch measurement model, which means that the response categories are properly ordered, there is invariance across the scale and there is no differential item function between groups. If there are problems with the reliability or validity of scales using *Data set 1* then adjustments to the scales are made and the scale tested again on *Data set 2*. If the *Data set 1* is used to explore factor structure, then *Data set 2* is used to confirm it. Convergent and divergent validity are tested by exploring the pattern of correlations of the *Data set 2* data. The Maslach Burnout Inventory validation study was published before the 2017 and 2018 data were analysed, so follows a slightly different validation procedure, described in the paper in Appendix B.

The list of abbreviations used is shown in Table 4-6. Table 0-1 in the appendix shows an overview and timeline of the scale development and validation process.

Table 4-6 - List of abbreviations for scales

Scale	Abbreviation	Subscales
Client satisfaction questionnaire	CSQ-8	
Personal wellbeing index:	PWI	
Healthcare climate questionnaire	HCQ	
Maslach burnout inventory	MBI	MBI-EE (emotional exhaustion), MBI-DP (depersonalisation), MBI-PA (personal accomplishment)
Work related Basic Need Satisfaction scale	WRBNS	WRBNS-autonomy, WRBNS-relatedness, WRBNS-competence
University of West of England Interprofessional scale	UWE	UWE-CT (Communication and Teamwork), UWE-II Interprofessional Interaction Scale
Attitudes towards healthcare teams scale	ATHT	ATHT-QC (Quality of care), ATHT-PC (physician centrality)
Hospital Survey on Patient Safety Culture	HSPSC	HSPSC - Teamwork Within Units HSPSC - Teamwork Across Units HSPSC - Communication Openness
Leeds Attitude to Concordance Scale	LACS	
Collaboration and Satisfaction about Care Decisions scale	CSACD	
Collaboration pairs scale (new)	CP	
Shared problem-solving scale and decision-making scale (new)`	CPSDM	CPSDM – Problem-solving CPSDM – Decision-making
CollaboRATE scale		
Experiences of caregiving inventory	ECI	

4.2.1 Patient and carer scale translation and validation

Client satisfaction questionnaire (CSQ-8) [207]

The descriptive statistics for the scale are shown in Table 4-7 for *Data set 1 (2014)* and *Data set 2 (2015)*. The scale mean is 25.5, out of a range of 8 to 32, with higher scores indicating greater satisfaction.

Table 4-7 - Mean, standard deviation, kurtosis and skewness of the CSQ-8

Batch		Mean	N	Std. Deviation	Kurtosis	Skewness
2014	Patient	25.2379	248	3.18712	-0.255	0.604
	Carer	25.6330	109	3.21645	-0.579	0.371
	Total	25.3585	357	3.19678	-0.387	0.528
2015	Patient	25.5824	182	3.23163	0.243	-0.017
	Carer	25.6543	81	3.35470	0.482	-0.164
	Total	25.6046	263	3.26377	0.292	-0.064
Total	Patient	25.3837	430	3.20681	-0.115	0.335
	Carer	25.6421	190	3.26733	-0.117	0.127
	Total	25.4629	620	3.22504	-0.137	0.270

In *Data set 1,* Cronbach's alpha was 0.83. Rasch analysis showed correct ordering of all categories. All infit and outfit statistics were in the acceptable range, as shown in Table 4-8. There was no significant differential item functioning between patients and carers, sexes, between different educational levels or whether they had previously been admitted to the hospital.

Table 4-8 - Rasch analysis of the CSQ-8

Item	Difficulty	Std.Err	WMS (infit)	Std.WMS	UMS (outfit)	Std.UMS
csq1	0.01	0.09	1.01	0.17	0.94	-0.74
csq2	-0.21	0.1	1.03	0.34	0.93	-0.64
csq3	0.71	0.08	1.17	2.67	1.19	2.91
csq4	-0.1	0.09	1.02	0.23	0.97	-0.34
csq5	0.2	0.09	0.99	-0.06	1	0.08
csq6	-0.49	0.09	0.93	-1.08	0.89	-1.43
csq7	0.01	0.1	0.88	-1.58	0.85	-1.63
csq8	-0.14	0.09	0.93	-0.94	0.86	-1.69

In *Data set 1, s*atisfaction was correlated with the HCCQ (r = 0.48(169), p < 0.001) and SPS3 (r= 0.40(219), p < 0.001), the SDM4 (r = 0.47(216), p < 0.001) but correlated less well with subjective wellbeing (r = 0.35(248), p < 0.001).

Conclusion

The CSQ-8 is a reliable unidimensional measure of service satisfaction in this context. The pattern of correlations showed evidence of convergent validity, in that satisfaction is expected to correlate with shared problem-solving and decision-making, and autonomy support. The correlation with subjective wellbeing is less, which is also as expected and indicates divergent validity. The scale mean compares with the scale mean in the original validation study of between 26.4 and 27.2 in a US population seeking mental healthcare[246].

Healthcare climate questionnaire[168]

The use of the scale in *Data set 1* showed this scale had a high Cronbach's alpha of 0.93 for the HCCQ-15, which only reduced to 0.87 when the 6 item version was used[170]. A decision was taken to use the 6-item version for the 2015 data collection (*Data set 2).* Cronbach's alpha was 0.88 for the 6-item version in *Data set 2*. Since there were better correlations with the HCCQ-6 than the HCCQ-15, and the two scales were highly correlated with each other, the results for the HCCQ-6 are given here. The descriptive statistics for the scale are shown in Table 4-9. This scale has a mean of approximately 23, out of a possible range of 6 to 30, with higher scores indicating higher levels of autonomy support for patients in healthcare consultations.

Table 4-9 - Mean, standard deviation, kurtosis and skewness of the HCCQ6 (used in patients only)

Batch	Mean	N	Std. Deviation	Kurtosis	Skewness
2014	23.02	246	3.53	1.64	-0.23
2015	23.10	175	3.64	2.25	-0.85
Total	23.05	421	3.57	1.86	-0.49

Rasch analysis of both *Data set 1* and *Data set 2* showed correct ordering of all categories. All infit and outfit statistics were in the acceptable range, except for HCQ10, which is slightly low, as shown in Table 4-10 (analysis done with both samples together). There was no significant differential item function between sexes, between different educational levels or whether they had previously been admitted to the hospital.

Table 4-10 - Rasch analysis of the HCQ6 questionnaire

Item	Difficulty	Std.Error	WMS (INFIT)	Std.WMS	UMS (OUTFIT)	Std.UMS
HCCQ1	0.05	0.10	1.10	1.03	1.16	1.22
HCCCQ2	-0.42	0.11	0.88	-1.30	0.84	-1.37
HCCQ4	0.02	0.10	0.91	-1.00	0.82	-1.97
HCCQ7	0.08	0.10	1.13	1.59	1.04	0.43
HCCQ10	0.00	0.11	0.76	-2.89	0.70	-3.19
HCCQ14	0.28	0.11	1.15	1.61	1.13	1.31

In *Data set 2,* the scale was correlated with the SPS3 ($r= 0.52(147)$, $p < 0.001$), the SDM4 (0.56(144), $p < 0.001$) and satisfaction with services ($r = 0.48(169)$, $p < 0.001$), but correlated less well with subjective wellbeing ($r = 0.30(164)$, $p < 0.001$).

Conclusion

The Bahasa Malaysia version of this scale is a reliable unidimensional measure of perception of autonomy support in healthcare. The six-item version of this scale performed as well as the 18-item version of the scale in *Data set 1*. The pattern of correlations is what would be expected theoretically and indicates convergent and divergent validity.

Personal wellbeing index[212]

Results from the initial study in 2014 (*Data set 1)* showed very high values for this scale, which appeared unrealistic compared to values in other populations[247]. The values were higher that than values normally obtained from non-psychiatric populations, even after removing results where PWI= 10 (meaning that the respondents rated their quality of life as 10 out of 10 for every domain - this procedure was recommended by the scale developers, to remove respondents who were filling the scale without thinking[212]). A likely reason for the higher values is likely to be that an item assessing general satisfaction of the hospital on a similar scale directly proceeded these items and may have skewed the results, due to a priming effect.

The item assessing general satisfaction of the hospital was removed for the second data collection period in 2015 (*Data set 2).* The results were now more realistic and in line with what is normally found in psychiatric populations. *Data set 2 r*esults were significantly lower than *Data set 1* results (F(1, 622) = 29.28, $p < 0.001$). Carers had significantly higher scores that than patients (F(1, 622) = 13.05, $p < 0.001$).

Table 4-11 - Mean, standard deviation, kurtosis and skewness of the PWI

Year	Patient or relative	Mean	N	Std. Deviation	Variance	Kurtosis
2014	Patient	7.4422	251	1.69681	2.879	0.046
	Carer	8.0982	112	1.23053	1.514	0.153
	Total	7.6446	363	1.59522	2.545	0.328
2015	Patient	6.8125	180	1.7799	3.168	0.067
	Carer	7.1559	81	1.59314	2.538	0.038
	Total	6.9191	261	1.7284	2.987	0.101
Total	Patient	7.1792	431	1.75766	3.089	0.037
	Carer	7.7027	193	1.4664	2.15	0.321
	Total	7.3411	624	1.68928	2.854	0.175

Cronbach's alpha was 0.94 in *Data set 1* and 0.91 in *Data set 2*. Rasch analysis for *Data set 2* showed appropriate category ordering, if consecutive categories were merged, reducing the number of categories from 10 to 5. All of the infit and outfit statistics were in the appropriate range, as shown in Table 4-12. There was no significant differential item function between sexes, between different educational levels or whether they had previously been admitted to the hospital.

Table 4-12 - Rasch analysis of the PWI

Item	Difficulty	Std.Error	WMS (INFIT)	Std.WMS	UMS (OUTFIT)	Std.UMS
PWI1	-0.09	0.06	1.03	0.47	1.02	0.41
PWI2	0.15	0.06	1.12	1.86	1.14	2.08
PWI3	0.49	0.06	1.01	0.21	1.08	1.3
PWI4	-0.11	0.06	0.89	-1.77	0.88	-1.87
PWI5	-0.12	0.06	1.07	1	1.06	0.83
PWI6	-0.05	0.06	0.93	-1.12	0.92	-1.17
PWI7	0.09	0.06	0.82	-3.13	0.81	-3.08
PWI8	-0.37	0.06	1.12	1.86	1.03	0.42

In *Data set 2* there was a strong correlation with the 'life as a whole' question, which is used to test construct validity of the PWI[247] (r= 0.77(252), $p < 0.001$). There were weak-moderate correlations with all of the other scales: SPS3 (r = 0.36(218), $p < 0.001$), SDM4 (r = 0.40(215), $p < 0.001$), HCCQ6 (r = 0.30(164), $p < 0.001$), CSQ (r = 0.35(248), $p < 0.001$).

Conclusion

The PWI is a reliable unidimensional measure of subjective quality of life, but it is sensitive to priming effects. The scale showed evidence of convergent and divergent validity.

4.2.2 Staff scale translation and validation

Maslach burnout inventory

The process of validating this scale has been previously published[248] and is reproduced under a Creative Commons licence in Appendix B.

Work related Basic Need Satisfaction scale[167]

The descriptive statistics for each year are shown in Table 4-13. The scale mean is a mean of all the items in the subscale and has a range of possible values from one to five, with higher scores indicating higher levels of the need.

Table 4-13 - Mean, standard deviation, kurtosis and skewness of the WRBNS

Subscale	Year	Scale mean	N	Std. Deviation	Kurtosis	Skewness
WRBNS - relatedness	2015	4.02	150	0.72	2.26	-1.35
	2016	4.14	123	0.48	1.82	-0.67
	2017	4.08	120	0.55	2.45	-1.03
	2018	4.17	124	0.63	3.14	-1.36
	Total	4.10	517	0.61	2.96	-1.29
WRBNS - competence	2015	3.60	149	0.56	-0.31	0.21
	2016	3.67	122	0.52	0.07	-0.15
	2017	3.65	120	0.56	0.27	0.19
	2018	3.77	122	0.53	0.26	-0.30
	Total	3.67	513	0.55	-0.07	0.01
WRBNS - autonomy	2015	3.30	149	0.51	-0.44	-0.25
	2016	3.36	123	0.54	1.51	-0.43
	2017	3.28	120	0.55	0.62	-0.13
	2018	3.40	124	0.57	1.11	-0.41
	Total	3.33	516	0.54	0.63	-0.29

In *Data set 1*, Cronbach's alpha for the relatedness, autonomy and competence were .77, .42, and .69 respectively. There was a low CFI on confirmatory factor analysis for the three-factor structure (X^2 = 260.77, DF=132, RMSEA=0.077, CFI=0.68). Three of the autonomy items (items 13, 16 and 17) were retranslated before use for the second time.

In *Data set 2,* Cronbach's alpha for the relatedness, autonomy and competence were .75, .60, and .76 respectively. The model fit was still low on confirmatory factor analysis (X^2 = 260.77, DF=132, RMSEA=0.077, CFI=0.84). However, the fit became acceptable when the autonomy factor was not included (X^2 = 88.172, DF = 53, RMSEA = 0.064, TLI = 0.909, CFI=0.94).

On Rasch analysis of *Data set 2*, there were disordered category boundaries for items 3, 5, 6 and 12, so lower categories were collapsed. The likely cause was low use of these categories. The infit and outfit of item 7 and the outfit of item 10 of the competence scale were high. There was no significant differential item function between sexes, professional groups or between staff with and without mental health training.

Table 4-14 - Rasch analysis WRBNS

Item	Difficulty	Std.Error	WMS (INFIT)	Std.WMS	UMS (OUTFIT)	Std.UMS
Relatedness						
WRBNS1	-0.19	0.14	0.93	-0.53	0.99	-0.02
WRBNS2	-0.92	0.16	1.26	1.83	1.23	1.73
WRBNS3	0.88	0.16	0.82	-1.74	0.82	-1.68
WRBNS4	0.33	0.14	1.04	0.35	1.18	1.28
WRBNS5	-0.67	0.15	0.82	-1.72	0.83	-1.53
WRBNS6	0.57	0.15	1.18	1.6	1.19	1.67
Competence						
WRBNS7	0.04	0.12	1.51	3.87	1.64	4.59
WRBNS8	-0.07	0.14	0.67	-2.97	0.62	-3.26
WRBNS9	-0.25	0.14	0.62	-3.43	0.58	-3.69
WRBNS10	0.12	0.12	1.17	1.48	1.36	2.66
WRBNS11	-0.76	0.16	0.95	-0.23	0.91	-0.45
WRBNS12	0.92	0.15	1.08	0.71	1.08	0.63
Autonomy						
WRBNS13	-1.27	0.13	0.91	-0.92	0.89	-1.08
WRBNS14	0.62	0.1	1.06	0.62	1.05	0.55
WRBNS15	1.13	0.1	1.09	0.91	1.09	0.87
WRBNS16	0.13	0.1	1.1	1.01	1.09	0.9
WRBNS17	-0.26	0.15	0.92	-0.74	0.9	-0.85
WRBNS18	-0.34	0.1	0.95	-0.42	0.94	-0.5

The pattern of correlations with the scale in *Data set 2* is shown in Table 4-15. There was a moderate level of correlation between the three subscales. The relatedness scale correlated best with the teamwork scales of the HSPSC. The autonomy scale was correlated negatively with the emotional exhaustion scale and positively with the Communication-Openness and teamwork-across-units scales. There was a positive correlation of the competence scale with the personal accomplishment scale of the MBI and negative correlations with the emotional exhaustion and the depersonalisation scales.

Table 4-15 - Pattern of correlations with the WRBNS

	WRBNS - relatedness	WRBNS - competence	WRBNS - autonomy
WRBNS - relatedness	1	.347**	.413**
WRBNS - competence	.347**	1	.292**
WRBNS - autonomy	.413**	.292**	1
CSCD	0.100	.190*	0.157
CPS4	.137*	.123*	.179**
CPS3	.164**	.124*	.150**
Collaboration pairs	.179**	.176**	.232**
MBI - emotional exhaustion	-.187**	-.212**	-.406**
MBI - depersonalisation	-.312**	-.255**	-.271**
MBI – Personal accomplishment	.191**	.207**	0.060
HSPSC - Teamwork Within Units	.330**	.133*	.280**
HSPSC - Teamwork Across Units	.334**	.134*	.305**
HSPSC - Communication Openness	.237**	-0.014	.301**

Conclusion

The relatedness and competence scales were reliable, but the autonomy scale did not show adequate internal consistency. The relatedness and autonomy scales conformed to the Rasch model after the lower categories were collapsed for the items 3, 5, 6 and 12. The competence scale had some high outfit and infit values, but not enough to cause measurement distortion[232]. The relatedness and competence scale showed some evidence of convergent validity, but all of the correlations were weak. The items expected to correlate were similar to other correlations, so there is little evidence of divergent validity from this sample.

Hospital Survey on Patient Safety Culture [179]

After this scale was translated, I discovered from the scale developers that another unpublished translation was available. The two versions of the scale were given to three bilingual people (UMS staff) who had not previously been exposed to the scale. They were asked to choose which translation that they preferred and the results of this are shown in 0Appendix J. The descriptive statistics are shown in Table 4-16. The scale means are the means of all items in the subscale, with a possible range of values from one to five, where higher scores indicate higher levels of teamwork or communication openness.

Table 4-16 - Mean, standard deviations, kurtosis and skewness for the HCPSC subscales

	Year	**Mean**	**N**	**Std. Deviation**	**Kurtosis**	**Skewness**
HSPSC - Teamwork Within Units	1.00	4.1983	153	0.60388	3.089	-0.912
	2.00	4.0650	123	0.65239	0.417	-0.505
	3.00	4.1722	120	0.72179	1.532	-1.053
	4.00	4.1311	122	0.67970	2.005	-0.881
	Total	4.1448	518	0.66202	1.652	-0.850
HSPSC - Teamwork Across Units	1.00	3.6577	149	0.64747	0.404	-0.189
	2.00	3.6475	122	0.56841	0.174	-0.072
	3.00	3.7584	119	0.59920	-0.373	0.166
	4.00	3.8646	120	0.63419	-0.382	-0.035
	Total	3.7275	510	0.61934	0.030	-0.037
HSPSC - Communication Openness	1.00	3.4289	150	0.67923	0.502	-0.594
	2.00	3.4704	124	0.68010	0.905	-0.848
	3.00	3.4958	119	0.68871	-0.187	0.226
	4.00	3.5501	123	0.67073	1.004	-0.429
	Total	3.4832	516	0.67912	0.527	-0.416

The Cronbach alpha for *Data set 1* were acceptable for the Teamwork-Within-Units (0.79) and the Teamwork-Between-Units subscales (0.73), but low for the Communication-Openness subscale (0.61). Confirmatory factor analysis was not performed since not all the subscales of the HSPSC were used. Rasch analysis of individual subscales showed disordered category thresholds for a1 and a3, so the two lower categories were collapsed into one. F4 had no responses in the first category, so this was collapsed into the second category. The infit and outfit values were acceptable for all items, except for c2, which was high but not degrading to measurement (see Table 4-17). There was no significant differential item functioning between sexes, professional groups, or between staff with and without mental health training.

Table 4-17 - Rasch analysis of the HSPSC subscales

Item	**Difficulty**	**Std.Error**	**WMS (INFIT)**	**Std.WMS**	**UMS (OUTFIT)**	**Std.UMS**
Teamwork within units						
a1	-0.18	0.2	0.9	-0.58	0.66	-1.63
a2	-0.46	0.23	1.03	0.21	0.87	-0.55
a4	0.65	0.22	1.06	0.41	1.28	1
Teamwork across units						
f2	0.52	0.14	0.98	-0.13	0.98	-0.13
f4	0.34	0.15	0.97	-0.18	0.88	-0.71
f6	0.1	0.14	1.08	0.69	1.02	0.19
f10	-0.96	0.16	0.86	-0.95	0.91	-0.54
Communication openness						
c2	-0.62	0.14	1.35	2.63	1.38	2.8
c4	0.41	0.11	0.86	-1.28	0.81	-1.58
c6	0.21	0.1	0.74	-2.53	0.78	-1.97

The Cronbach alpha was tested again using *Data set 2*. This was acceptable for the Teamwork-Within-Units (0.82), but low for the Teamwork-Between-Units subscales (0.66) and the Communication-Openness subscale (0.63). There were small-moderate correlations of the subscales to each other and the scales that measure collaboration and autonomy (see Table 4-18)

Table 4-18 - Pattern of correlations with the HSPSC

	HSPSC - Teamwork Within Units	**HSPSC - Teamwork Across Units**	**HSPSC - Communication Openness**
HSPSC - Teamwork Within Units	1	.384**	.398**
HSPSC - Teamwork Across Units	.384**	1	.434**
HSPSC - Communication Openness	.398**	.434**	1
WRBNS - relatedness	.330**	.334**	.237**
WRBNS - competence	.133*	.134*	-0.014
WRBNS - autonomy	.280**	.305**	.301**
CSCD	.252**	.265**	.227**
CPS4	.258**	.268**	.266**
CPS3	.211**	.217**	.246**
Collaboration pairs	.401**	.332**	.305**
MBI - emotional exhaustion	-.287**	-.197**	-.236**
MBI - depersonalisation	-.193**	-.199**	-.129*
MBI – Personal accomplishment	0.105	0.039	0.068

Conclusion

The Teamwork-Within-Units subscale is internally consistent, and the Teamwork-Between-Units has borderline internal consistency. The Communication-Openness subscale does not show adequate reliability in this context. The subscales are mainly consistent with a Rasch measurement model. There is evidence of convergent and divergent validity, with the collaboration and relatedness scales correlating the best and negative correlations with burnout.

Leeds Attitude to Concordance Scale[187,188].

In *Data set 1,* Cronbach's alpha for the 20-item version of the scale was 0.79. Items 11, 14, 15 and 19 had poor item-total correlations, less than 0.2. Principle component analysis was conducted, since a likely explanation of these low values was that the scale was multi-dimensional. PCA with promax rotation showed a three-factor solution, accounting for 44% of the variance. The first factor containing six items about how the healthcare practitioner should communicate with the patient, the second factor was five items related to positive attitudes towards equality and the third factor contained three items related to paternalism sometimes being necessary. However, this three-factor model did not show good fit on factor analysis.

Table 4-19 – Principal component analysis of LACS

Item	Communication	Positive attitude to equality	Paternalism sometimes necessary
9	.846		
5	.833		
8	.736		
10	.630		
12	.615		
7	.606		
20	-.469		.404
6	.458	.443	
17			
2			
13			
1		.721	
4		.655	
18		.569	
3		.527	
19		.489	
16			
14			.770
11			.718
15			.553

Correlations with this scale were weak in *Data set 1*, including with the CSCD scale, and the other scales measuring collaboration with patients, which were expected to have stronger correlations (see Table 4-20).

Table 4-20 - Correlations with the LACS in the first and second sample

Item	Correlation with *Data set 1*	Correlation of 8-item abbreviated scale with *Data set 2*
WRBNS - relatedness	0.117	.239**
WRBNS - competence	.180*	.196*
WRBNS - autonomy	0.016	.184*
CSCD	.186*	Only used in 2015
CPS4	0.138	0.138
CPS3	.256**	0.136
Collaboration pairs	.196*	.318**
MBI emotional exhaustion	0.060	-0.019
MBI_depersonalisation	-0.042	-0.115
MBI_Personal_accomplishment	-0.023	.271**
HSPSC - Teamwork Within Units	0.083	.183*
HSPSC - Teamwork Across Units	.244**	0.151
HSPSC - Communication Openness	-0.047	.176*

Although Cronbach's Alpha for this scale was adequate, we needed a shorter scale to use for the study. We also wanted a unidimensional scale. Knapp[176] found five factors altogether and the last three of them are broadly related to positive attitudes towards equality. The five items in our attitudes towards equality factor were all included in the three scales related to attitudes towards equality. Items 16 and 17 were included in both Cuavas[249] and Knapps[176] equality scales, but they were non-loading in our study. Since attitudes towards equality in the relationship was the concept closest to what we wished to measure, and the equality items on their own had a low Cronbach's Alpha of 0.70, we included items 16 and 17 in the scale for the second time data were collected.

Testing of the eight items which measure equality was done in the *Data set 2*. This showed an acceptable internal reliability, with a Cronbach alpha of 0.79 for these eight items. The descriptive statistics for this scale is shown in Table 4-21.

Table 4-21 - Descriptive statistics for the eight-item version of the LACS scale

Year	Scale mean	Std. Deviation	Skewness	Kurtosis
2015.00	2.9215	0.36430	0.169	0.384
2016.00	2.8868	0.41974	0.584	0.806
2017.00	2.8518	0.43190	0.195	1.428
2018.00	2.9280	0.39067	0.319	1.077

Rasch analysis showed acceptable infit and outfit values, except for item 4 which had infit and outfit values which were high but not degrading. There was no significant differential item functioning between sexes, professional groups and between staff with and without mental health training.

Table 4-22 - Rasch analysis of the LACS eight item version

Item	Difficulty	Std.	WMS (INFIT)	Std.WMS	UMS (OUTFIT)	Std.UMS
LACS1	1.79	0.17	1.19	1.4	1.31	1.63
LACS2	-1.7	0.15	0.91	-0.8	0.89	-0.94
LACS3	2.06	0.16	1.3	2.84	1.4	2.69
LACS4	0.8	0.13	1.38	3.35	1.44	3.08
LACS16	-0.9	0.12	0.83	-1.99	0.83	-2.04
LACS17	-1.72	0.13	0.84	-1.73	0.84	-1.78
LACS18	0.12	0.11	0.9	-1.09	0.84	-1.59
LACS19	-0.45	0.12	0.81	-2.36	0.81	-2.42

The correlations with the scale were still low in *Data set 2*, (see Table 4-20), with the exception of the collaboration pairs scale, which had a moderate strength correlation.

Conclusion

Both the twenty-item version of the scale and the eight-item version of the scale were internally reliable and fitted the Rasch measurement model. However, there was inadequate evidence of either concurrent or divergent validity in this study. This may be due to not using any other scales that looked at attitudes to collaboration with patients.

Collaboration and Satisfaction About Care Decisions (CSACD)[180]

This scale was used only for the first data collection in staff (*Data set 1)*. The reason it was included was to validate the other scales used. It was chosen because it was a short scale that was related to the constructs that we wished to measure. The scale mean was 5.40, from a scale of 0 to 7, with a standard deviation of 1.26, skewness of -0.931 and kurtosis of 1.23. Cronbach's Alpha was 0.94. On principal component analysis, one factor accounted for 74% of the variance. On Rasch analysis, the ordering of the category boundaries was correct, after the lower three categories were collapsed, which had a low frequency of use. Rasch analysis showed acceptable infit and outfit values, except for the first item, where the values were high but not enough to be degrading. There was no other differential item functioning between sexes, professional groups and between staff with and without mental health training.

Item	**Difficulty**	**Std.Error**	**WMS (INFIT)**	**Std.WMS**	**UMS (OUTFIT)**	**Std.UMS**
CSACD1	0.27	0.14	1.38	2.59	1.37	2.62
CSACD2	0.04	0.15	0.95	-0.36	0.9	-0.76
CSACD3	0.04	0.14	0.76	-1.95	0.87	-0.99
CSACD4	0.17	0.14	0.9	-0.68	0.87	-1
CSACD5	-0.57	0.14	0.97	-0.18	0.8	-1.57
CSACD6	0.04	0.14	0.97	-0.22	1.02	0.18

The scale correlated moderately with the other scales that measure collaboration and teamwork and less well with scales that were not measuring collaboration.

	Collaboration and satisfaction about care decisions
Collaboration pairs	.553**
CPS4	.467**
CPS3	.440**
HSPSC - Teamwork Within Units	.252**
HSPSC - Teamwork Across Units	.265**
HSPSC - Communication Openness	.227**
WRBNS - relatedness	0.100
WRBNS - competence	.190*
WRBNS - autonomy	0.157
MBI emotional exhaustion (5 items only)	-0.091
MBI depersonalisation	-0.080
MBI Personal accomplishment	-0.009

University of West of England interprofessional scale[250]

Only one of the subscales: The Communication and Teamwork Scale (9 items) was used. This scale was translated to Bahasa Malaysia, backtranslated and pilot tested. The Bahasa Malaysia version of this scale did not perform well on the *Data set 1* in staff, in that the Cronbach's alpha was 0.53 and the scale correlated very weakly with other scales. A decision was taken to not use it for the study.

Section 4.3 DEVELOPMENT OF NEW SCALES

Shared problem-solving and decision-making scale

This section is an expansion of the paper published in Shoesmith (2022)[236].

Initial development

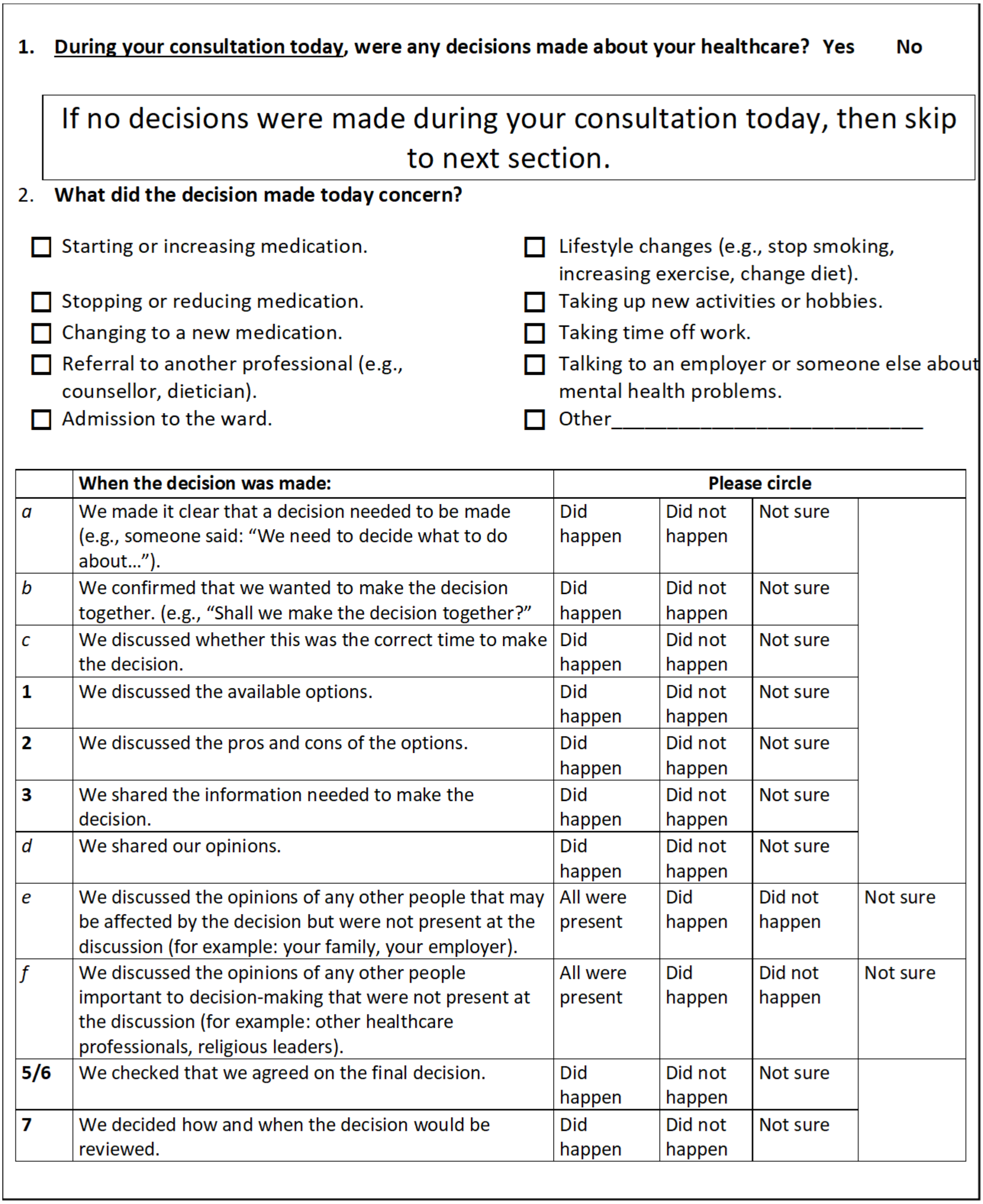
The scale was initially developed from a model of shared decision-making, which is shown in Appendix D. This came from the qualitative data collected in 2013[61,240]. The items of the new scale were written for each stage of this model, as shown in Table 4-23. The new scale was compared to scales already published in the literature, with the process and each version of the scale shown in Appendix I – (Appendix table 1).

Table 4-23 - Initial model of shared decision-making with rationale and items associated with each stage.

Model	Findings from qualitative research	Items*
1. Inviting into decision-making.	Patients, families, and non-medical staff often felt that it was not their place to be involved in decision-making and they may get into trouble for doing this.	a, b
2. Identifying stakeholders and making decisions at the optimal time, with stakeholders present if possible.	Patients, families, and non-medical staff were frequently excluded from the decision-making process and were not present when decisions were made.	c, **4**,
3. Sharing knowledge and discussing options.	Patients, carers, and non-medical staff felt that they did not have enough knowledge to be involved in decision-making. They did not know the options.	**1, 2, 3**
4. Making the decision – including discussing and incorporating all opinions into the final decision.	Patients, carers, and non-medical staff were asked for information but not concerns, ideas or opinions.	**5, 6**, d, e, f
5. Implementing the decision	Patients frequently felt that the doctors' decision was final and cannot be discussed or changed.	**7**

**The numbering is different to the original numbering. Numbered items here refer to items retained in some form in the final scale. Items with letters were eventually dropped. The items that the numbers refer to can be seen in* Figure 4-2 *and* Figure 4-3.

The scale was pilot tested on staff, patients and carers. Items were rewritten and tested again, in a cyclical, iterative process, with the various versions of this scale shown in Appendix I (Appendix table 2). Initially a Likert scale was used (strongly disagree to strongly agree) but many participants were using only two values to indicate whether a process had occurred or not (e.g. 2 to indicate that the process did not happen and 4 to indicate that it did happen). The Likert scales were changed to a simpler scale with only three choices: 'did happen', 'did not happen', and 'not sure'. Version 9 of the scale, which was used on *Data set 1* for patients and carers, is shown in Figure 4-2.



1. <u>During your consultation today</u>, **were any decisions made about your healthcare? Yes No**

If no decisions were made during your consultation today, then skip to next section.

2. **What did the decision made today concern?**

- ☐ Starting or increasing medication.
- ☐ Stopping or reducing medication.
- ☐ Changing to a new medication.
- ☐ Referral to another professional (e.g., counsellor, dietician).
- ☐ Admission to the ward.
- ☐ Lifestyle changes (e.g., stop smoking, increasing exercise, change diet).
- ☐ Taking up new activities or hobbies.
- ☐ Taking time off work.
- ☐ Talking to an employer or someone else about mental health problems.
- ☐ Other_____________________________

	When the decision was made:	**Please circle**			
a	We made it clear that a decision needed to be made (e.g., someone said: "We need to decide what to do about…").	Did happen	Did not happen	Not sure	
b	We confirmed that we wanted to make the decision together. (e.g., "Shall we make the decision together?"	Did happen	Did not happen	Not sure	
c	We discussed whether this was the correct time to make the decision.	Did happen	Did not happen	Not sure	
1	We discussed the available options.	Did happen	Did not happen	Not sure	
2	We discussed the pros and cons of the options.	Did happen	Did not happen	Not sure	
3	We shared the information needed to make the decision.	Did happen	Did not happen	Not sure	
d	We shared our opinions.	Did happen	Did not happen	Not sure	
e	We discussed the opinions of any other people that may be affected by the decision but were not present at the discussion (for example: your family, your employer).	All were present	Did happen	Did not happen	Not sure
f	We discussed the opinions of any other people important to decision-making that were not present at the discussion (for example: other healthcare professionals, religious leaders).	All were present	Did happen	Did not happen	Not sure
5/6	We checked that we agreed on the final decision.	Did happen	Did not happen	Not sure	
7	We decided how and when the decision would be reviewed.	Did happen	Did not happen	Not sure	

Figure 4-2 – English version of the scale used on data set 1 for patients and carers (version 9)

*The numbering is different to the original numbering. Numbered items refer to items retained in some form in the final scale. The item marked here as 5/6 later evolved into two final items. Items with letters were eventually dropped.

Cronbach's alpha was 0.89 for the summated scale on *Data set 1* in patients and carers. The percent in agreement with each item is shown in Table 4-24. The data collectors reported that many people found questions a, b, c, e, and f confusing. The data for many of the items and the summated scale was right skewed and there was a ceiling effect, since many respondents ticked ‘agree’ for every question. For these reasons, we made the decision that the scale needed further development before the next use.

Table 4-24 - Percent in agreement with each item in patient and carer Data set 1

	Percent patients in agreement	**n**	**Percent carers in agreement**	**n**
a. We made it clear that a decision needed to be made (for example someone said: “We need to decide about......”).	65%	129	70%	74
b. We confirmed that we wanted to make the decision together (for example someone said: “Shall we make the decision together?”).	58%	129	74%	73
c. We talked about whether this was the correct time to make the decision.	61%	128	70%	73
1. We talked about the options.	50%	125	72%	72
2. We talked about the pros and cons of the options.	58%	127	81%	72
3. We shared the information needed to make the decision	60%	125	74%	73
d. We shared our opinions	67%	127	76%	71
e.2. We talked about the opinions of people affected by the decision, who were not there.	35%	128	37%	73
f.2. We talked about the opinions of people who might be helpful in making the decision, who were not there.	27%	129	39%	72
7. We checked that we agreed on the final decision.	63%	129	88%	73
8. We decided how and when the decision would be reviewed.	46%	128	66%	71

**The numbering is different to the original numbering. Numbered items refer to items retained in some form in the final scale. Items with letters were eventually dropped.*

Further development of the scale

The scale then went through further development and more rounds of rewriting items and pilot testing, with the various versions of the scale shown in Appendix I (Appendix table 3). The scale was changed back to a 5-point Likert scale (strongly disagree to strongly agree) to improve the psychometrics and reduce the right skew. It became clear that many patients and carers found it difficult to determine what ‘decision making’ meant, for example listing the pharmacist as involved in decision-making, when they are rarely involved in this. Most found it easier to discuss problem-solving than decision-making – they knew what the problem was that they were trying to solve but were not always clear what the ‘decision’ was. The scale was rewritten, this time focussing on problem-solving rather than decision-making (see Figure 4-3). Some of the staff were answering the scale based on their usual practice, rather than thinking about an individual decision. The 5-point Likert scale was changed to a scale based on frequency to reflect this in the staff version of the scale, as shown in Figure 4-4.

Select the main problem you discussed with the doctor today. Check the box below. (Select only one).

☐ Problems taking medication.
☐ Problems sleeping.
☐ Feeling sleeping.
☐ Disturbance in thinking
☐ Feeling unhappy
☐ Irritability
☐ Loss of motivation.
☐ Problems in behaviour
☐ Hearing voices
☐ Problems with work or study
☐ Smoking.
☐ Drug or alcohol use
☐ Weight gain
☐ Body stiffness
☐ Eyes rolling up
☐ Other medication side effects
☐ Other ___________________________
☐ No problems

Try to think about what happened in the discussion with the doctor about how to solve the problem. Please circle your answer.

	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
1. We discussed all the ways of solving the problem.	1	2	3	4	5
2. We discussed the pros and the cons of each of the ways of solving the problem.	1	2	3	4	5
3. Enough information was shared to solve the problem together.	1	2	3	4	5
d. Everyone shared their opinions.	1	2	3	4	5
4. We discussed who should be involved in making the decision about what to do.	1	2	3	4	5
5. We decided what to do together.	1	2	3	4	5
6. We agreed on how to solve the problem.	1	2	3	4	5
7. We discussed how and when the decision will be reviewed.	1	2	3	4	5
e. Try and think about all the people who may be affected by the problem. Please list them here______					
e.i All the people that may be affected by the decision were present when the decision is made.	1	2	3	4	5
e.ii. Their opinions were discussed.	1	2	3	4	5
f. Try and think about all the people who have knowledge, ability or are in a position that may be useful for solving the problem. Please list them here_________________					
f.i. All the people that may be useful in solving the problem were present when the decision was made.	1	2	3	4	5
f.ii. Their opinions were discussed.	1	2	3	4	5

Figure 4-3 – English version of the scale used for patients and carers in 2015 (Data set 2).
Numbered items refer to items retained in some form in the final scale. Items with letters were eventually dropped.

Choose one problem that you normally face in your work, where you discuss what to do with other healthcare professionals. Please tick one box only

☐ Symptoms not improving
☐ Dealing with aggression
☐ Patient not following instructions
☐ Patient at risk of falls
☐ Family not coping with patient's behaviour.
☐ Problems in discharging a patient
☐ Managing difficult social issues (work, education, money, immigration).
☐ Medication side effects

The questions that follow are about the problem that you have chosen. Please circle one option.

	Never happens	Some-times happens	Happens about half of the time	Often happens	Happens every time
1. We discuss all the ways of solving the problem.	1	2	3	4	5
2. We discuss the pros and the cons of each of the ways of solving the problem.	1	2	3	4	5
3. Enough information is shared to solve the problem together.	1	2	3	4	5
d. Everyone shares their opinions.	1	2	3	4	5
4. We discuss who should be involved in making the decision about what to do.	1	2	3	4	5
5. We decide what to do together.	1	2	3	4	5
6. We agree on how to solve the problem.	1	2	3	4	5
7. We discuss how and when the decision will be reviewed.	1	2	3	4	5
e. Try and think about all the people who may be affected by the decision. Please list them here______					
e.i All the people that may be affected by the decision are present when the decision is made.	1	2	3	4	5
e.ii. Their opinions are discussed.	1	2	3	4	5
f. Try and think about all the people who have knowledge, ability or are in a position that may be useful for solving the problem. Please list them here________________					
f.i. All the people that may be useful in solving the problem are present when the decision is made.	1	2	3	4	5
f.ii. Their opinions are discussed.	1	2	3	4	5

Figure 4-4 – English version of the scale used for staff in 2016, 2017 and 2018 (Data set 2)
Numbered items refer to items retained in some form in the final scale. Items with letters were eventually dropped. In 2015 (Data set 1), the staff was identical, except the staff were not asked to list the people involved in items e and f.

Item reduction

The scale was then used again in the first sample of staff. Chi-squared analysis demonstrated that the pattern of missing values for these items was related to professional group, age, number of years of experience and having post basic training, indicating that these items were not missing completely at random. Rasch analysis showed that category ordering was appropriate and most items conformed to the Rasch model (Table 4-25), except that there were significant differential item functioning for items e.i, e.ii, f.i, f.ii between professional groups. To try to improve the performance of these items, in 2016, 2017 and 2018 the staff were asked to list the people who were affected by the decision or involved in solving the problem. However, the performance of these items did not improve, and so they were dropped from the scale.

Table 4-25 - Rasch analysis of the shared problem-solving and decision-making scale

	Staff first batch (2015)			**Patients/carers second batch (2015)**		
Item	Difficulty	Infit	Outfit	Difficulty	Infit	Outfit
1	0.20	1.00	1.02	-0.75	1.00	0.89
2	-0.02	1.20	1.2	-0.35	0.99	1.10
3	-0.18	0.89	0.83	-0.60	0.83	0.87
d	-0.33	1.35	1.26	-0.31	0.81	0.79
4	-0.02	1.10	1.07	-0.06	0.91	0.93
5	-0.36	0.88	0.85	-0.09	0.78	0.81
6	-0.65	0.73	0.72	-0.45	0.96	0.98
7	0.03	0.73	0.69	-0.01	0.73	0.72
e_1	0.85	1.01	1.1	1.01	1.35	1.44
e_2	0.62	0.79	0.75	0.72	1.14	1.09
f_1	0.1	1.08	1.07	0.46	1.16	1.16
f_2	-0.23	1.19	1.15	0.45	1.28	1.35

Exploring the factor structure

Principal component analysis of the remaining eight items from staff *Data Set 1* showed either one or two factors, with 64.4% of the variance extracted with 1 factor (eigenvalue for 1st factor 5.15) and 75.92% extracted with two factors (eigenvalue for 2nd factor 0.92). The factors were named shared problem-solving (SPS), containing items 1, 2 and 3; and shared decision-making (SDM), containing items d, 4, 5, 6 and 7. Since it was unclear whether a one or two factor model fitted the data best, a confirmatory factor analysis (CFA) was used (in an exploratory way) to compare the two model fits. The single factor model (model A) had an inferior fit to the two-factor model (see Table 4-26). Since item *d* had high modification indices (meaning the error terms were correlating with other error terms in the same factor) and had the weakest factor loading, it was eliminated. This improved the model fit (model C).

Confirming the factor structure and internal consistency

The three different model structures were compared in the second data set for both staff and patient/carers (see Table 4-26). Model C had acceptable model fit in all groups. In staff Cronbach's Alpha was 0.90 for the SPS and 0.92 for the SDM subscales (all data points considered together). In patients, Cronbach's Alpha was 0.88 for the SPS and 0.89 for the SDM subscales (batch 2).

Table 4-26 - Comparison of fit statistics for different models on confirmatory factor analysis

Group		Model	X^2	DF	TLI	NFI	CFI	RMSEA	Pass/ fail
Staff Data set 1 (exploratory)		A	120.04	20	0.778	0.858	0.877	0.181	Fail
		B	58.48	19	0.908	0.931	0.951	0.117	BL*
		C	24.65	13	0.964	0.966	0.983	0.077	Pass
Patients/ carers Data set 2 (confirmatory)		B	40.83	19	0.976	0.970	0.984	0.072	Pass
		C	30.25	13	0.975	0.974	0.985	0.077	Pass
Staff Data set 2 (confirmatory)		B	71.18	19	0.911	0.938	0.953	0.129	BL*
		C	33.5	13	0.955	0.967	0.979	0.098	Pass
Longitudinal model C between time points:	1 and 2	UC	122.65	68	0.943	0.923	0.963	0.05	Pass
		WI	114.46	71	0.957	0.928	0.971	0.044	Pass
		SI	115.21	74	0.961	0.928	0.972	0.042	Pass
	2 and 3	UC	153.6	68	0.910	0.903	0.942	0.063	Pass
		WI	149.46	71	0.921	0.905	0.947	0.059	Pass
		SI	153.72	74	0.923	0.903	0.946	0.058	Pass

	3 and 4	UC	139.6	68	0.925	0.912	0.952	0.058	Pass
		WI	117.32	71	0.954	0.926	0.969	0.059	Pass
		SI	133.25	74	0.943	0.916	0.960	0.050	Pass

Model A: All 8 items loading on to one factor; Model B: SPS scale- items 1-3, SDM scale – items d,4,5,6,7; Model C: SPS scale- items 1-3, SDM scale – items 4-7; UC: unconstrained model; WI: weak invariant model with the factor loadings constrained to be the same for each group, SI: Strong invariant model with both factor loadings and intercepts for each item constrained to be the same in each group.
Scaling method: fixed factor method. Maximum likelihood estimation used to account for missing data.
**BL: borderline results*

Longitudinal confirmatory factor analysis showed that the scale had strong measurement invariance. To reduce the percentage of missing data and because the model would not converge if all time points were included in a single analysis, successive time points were analysed separately. Between time points, there was no reduction in CFI greater than 0.01 between the unconstrained, weak invariant and strong invariant models, indicating that there was strong invariance (see Table 4-26). There was no significant difference in fit indices between the unconstrained, weak invariant and strong invariant models between groups (professional groups, genders, years of experience, having formal training in mental health, grade and being a patient or a carer) (see Appendix K).

Convergent and divergent validity

In staff the SPS and SDM scales correlated best with other scales that measure collaboration: the CSCD scale and the collaborating pairs scale. They had weaker correlations teamwork (the HSPCS scales) and had the lowest correlations with burnout (MBI scales) and satisfaction of psychological needs (WRBSN scales). In patients and carers, the scales correlated best with autonomy support (HCQ) and less well with satisfaction (CSQ) and wellbeing (PHQ) (see Table 4-27).

Table 4-27 - Correlations of the SPSDM subscales with other scales (Pearson)

Staff	**SPS items 1-3 (n)**	**SDM items 4-7 (n)**
SPS items 1-3 (Shared problem-solving)	1 (304)	.666** (302)
SDM items 4-7 (Shared decision-making)	.666** (302)	1 (305)
Collaboration and satisfaction about care decisions	.467** (150)	.440** (151)
Collaborating pairs	.341** (293)	.271** (295)
HSPSCa - Teamwork Within Units	.258** (302)	.211** (302)
HSPSCa - Teamwork Across Units	.268** (298)	.217** (298)
HSPSCa - Communication Openness	.266** (300)	.246** (299)
LACSb	.153** (290)	.183** (290)
MBIc- Emotional exhaustion (modified)	-0.082 (294)	-0.051 (295)
MBIc - Depersonalisation	-.126* (297)	-0.063 (298)
MBIc - Personal accomplishment	.209** (283)	.175** (283)
WRBSNd - relatedness	.137* (300)	.164** (301)
WRBSNd - competence	.123* (297)	.124* (298)
WRBSNd - autonomy	.179** (299)	.150** (300)
Patients and carers		
SPS items 1-3 (Shared problem-solving)	1 (227)	.805** (223)
SDM items 4-7 (Shared decision-making)	.805** (223)	1 (230)
Healthcare climate questionnaire (patients only)e	.560** (146)	.516** (149)
Client satisfaction questionnaire	.470** (218)	.396** (221)
Personal wellbeing index	.396** (217)	.359** (220)

**Pearson Correlation is significant at the 0.01 level (2-tailed).

*Pearson Correlation is significant at the 0.05 level (2-tailed).
The sample used to calculate correlations in staff consisted of the first data point for each member of staff.
[a]AHPSC hospital survey on patient safety culture
[b]Leeds attitude to concordance. An abbreviated 8 item version was used at time points 2-4.
[c]Maslach burnout inventory.
[d]Work relatated basic satisfaction of needs scale.
[e] A 15-item version and a 6-item version was available [172], with the 15-item version used in the first batch and the 6-item version used in the second batch, since the psychometrics of the 6-item version were found to be as good as the 15-item version in the first batch.

Scale statistics

The scale statistics are shown in Table 4-28.

Table 4-28 - Descriptive statistics for the SPSDM subscales

		N	Mean	Std. Deviation	Skewness	Kurtosis
CPS	Patients and carers data set 2	230	3.71	0.79	0.14	-1.05
	Staff 2015 data	151	3.65	0.85	-0.374	-0.543
	Staff 2016 data	120	3.62	0.91	-0.580	0.030
	Staff 2017 data	117	3.69	0.81	-0.434	-0.118
	Staff 2018 data	119	4.05	0.78	-0.828	0.572
SDM	Patients and carers data set 2	227	3.56	0.89	-0.64	0.04
	Staff 2015 data	150	3.75	0.82	-0.758	0.167
	Staff 2016 data	119	3.69	0.91	-0.787	0.625
	Staff 2017 data	115	3.72	0.83	-0.727	0.818
	Staff 2018 data	118	3.97	0.83	-1.053	1.330

Conclusion

The SPSDM scale showed internal consistency, a stable factor structure, measurement invariance, and evidence of convergent and divergent validity. This scale is different to currently available scales. Firstly, it is flexible and can be used in a number of different situations, including in situations with more than two people present, such as in healthcare teams or in consultations where the family is also involved. Secondly, the scale is neutral about who is leading the discussion and offering the options, rather than assuming that it is the doctor. Thirdly, the scale asks initially about shared problem-solving, rather than asking immediately about shared decision-making. Shared problem-solving was an easier concept for the respondents to consider than shared decision-making.

This scale offers a different way of measuring partnership in healthcare situations. Most available scales that measure collaboration between healthcare staff and patients measure shared decision-making in doctor-patient consulatations[181,182,193,194]. These scales assume that it is the doctor who generates the options, who then presents the list to the patient, for example “My doctor told me there are different options for treating my medical condition” in the SDM-9 scale[182]. This assumption works well if there is a predefined list of options, such as a list of acceptable medications. The scale that we have developed makes no assumptions about who creates the list of options. This is useful in this context, where options often need to be generated from both the healthcare provider and the patient or carer. For example the problem of ‘irritability’ could have solutions that include increasing or changing medication (suggested by the doctor), spending less time in the house (suggested by the patient), or sleeping earlier (suggested by the relative). I was unable to identify any other scales that measure shared problem-solving in doctor-patient consultations. The

‘Problem-solving decision-making scale’[251], measures patient preferences for level of involvement in problem-solving and decision-making, but does not measure shared problem-solving.

The evidence is equivocal about whether shared decision-making alone improves patient outcomes in healthcare consultations[252,253]. However, collaborative problem solving is an evidence based treatment for children with behavioural problems [254] and teaching patients effective problem-solving is effective in treating depression and anxiety disorders [255]. Further research is needed about whether shared problem-solving leads to better outcomes than using shared decision-making alone in healthcare consultations. Measuring inter-rater reliability and test-retest reliability is still needed for this scale. Although it was used every year, the gap between the time-points was too long to reliably measure test-retest reliability.

Collaboration pairs items

These items were designed to measure the general impression of staff about collaboration across the system, including between the hospital and people outside the hospital. A similar scale could not be found on literature review. The pairs of collaborators in this scale were based on the qualitative research. The scale is shown below:

1. How much collaboration occurs between the following pairs?

			← No collaboration							Complete collaboration→
Hospital staff	and	patients	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Hospital staff	and	families	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Hospital staff	and	primary care clinics	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Hospital staff	and	religious leaders	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Hospital staff	and	village/community leaders	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Hospital staff	and	employers	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Hospital staff	and	schools/colleges/universities	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Doctors	and	patients	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Doctors	and	families	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Doctors	and	nurses/MAs	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Doctors	and	other hospital staff	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Nurses/MAs	and	patients	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Nurses/MAs	and	families	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Nurses/MAs	and	other hospital staff	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**

This scale was only used in staff and not in patients. The Cronbach’s Alpha was 0.94 in *Data set 1*. Rasch analysis showed low frequency of use of the first 3 response categories for many of the items. After these were collapsed into one, the items all conformed to the Rasch model, except for the item between staff and village/ community leaders, which had a high infit and outfit, but not enough to be degrading (see Table 4-29). After collapsing the categories, all of the response categories were correctly ordered. Item 13 (collaboration between nurses/MAs and families) showed significant differential item functioning between sexes, with men rating the item higher than women. There was no differential item functioning for the other items between sexes or between groups that had mental health training vs those who had not.

Table 4-29 - Rasch analysis of the collaboration pairs scale

Item	Difficulty	Std.Error	WMS (INFIT)	Std.WMS	UMS (OUTFIT)	Std.UMS
Hospital staff and patients	0.36	0.13	1.35	2.63	1.32	2.33
Hospital staff and families	0.74	0.12	1.07	0.58	1.02	0.16
Hospital staff and primary care clinics	-0.3	0.13	1.1	0.86	1.03	0.25
Hospital staff and religious leaders	0.46	0.12	1.13	1.05	1.08	0.62
Hospital staff and village/community leaders	1.06	0.12	1.36	2.68	1.4	2.95
Hospital staff and employers	0.33	0.12	0.85	-1.22	0.95	-0.34
Hospital staff and schools/colleges/universities	0.25	0.12	0.85	-1.26	0.83	-1.43
Doctors and patients	-0.13	0.13	0.92	-0.64	0.97	-0.22
Doctors and Families	-0.09	0.13	0.75	-2.17	0.74	-2.19
Doctors and nurses/MAs	-1.15	0.13	0.97	-0.18	1.15	1.08
Doctors and other hospital staff	-0.31	0.13	0.97	-0.19	1.1	0.74
Nurses/MAs and patients	-0.35	0.13	0.94	-0.48	0.93	-0.47
Nurses/MAs and families	-0.22	0.12	0.68	-2.92	0.64	-3.08
Nurses/MAs and other hospital staff	-0.64	0.13	0.89	-0.83	0.86	-1.04

On principal component analysis, the scree plot indicated one factor, but there were three factors with an eigenvalue above one, with one factor accounting for 56% of the variance, two factors 66% and three factors 74%. On confirmatory factor analysis none of the models had adequate fit, since there were large correlations between error terms. Since there were two groups mentioned in each pair, there were two ways of splitting the scale which made sense theoretically. The first way was to split according to the first group mentioned in the pair: doctors, nurses/MAs, and hospital staff. The second way was to split according to the second group mentioned in the pair: other staff, patients and carers, and people outside the hospital. This meant that whichever way the subscales were split, there were many cross correlations, which meant that it was unlikely that any model would fit in confirmatory factor analysis without allowing many correlations of error terms. A decision was taken to retain the one factor solution, since it accounted for more than 50% of the variance alone, there was high internal consistency and the items largely conformed to the Rasch model. The correlations were better for other scales that measure collaboration and teamwork (see Table 4-30).

Table 4-30 - Correlations of the collaboration pairs scale

	Collaboration pairs
Collaboration and satisfaction about care decisions	.553**
CPS4	.341**
CPS3	.271**
HSPSC - Teamwork Within Units	.401**
HSPSC - Teamwork Across Units	.332**
HSPSC - Communication Openness	.305**
WRBNS - relatedness	.179**
WRBNS - competence	.176**
WRBNS - autonomy	.232**
MBI emotional exhaustion (5 items only)	-.237**
MBI depersonalisation	-.226**
MBI personal accomplishment	0.110

The Cronbach's Alpha was 0.93 in *Data set 2*. This data showed conformity to the Rasch model, with infit and outfit within acceptable values and no differential item functioning between groups.

Conclusion

The collaboration pairs items form an internally consistent scale, which shows evidence of convergent and divergent validity and most of the items show conformity to a Rasch model.

4.3.1 Scales field tested but not used

Experiences of caregiving inventory[213]

This questionnaire was translated, backtranslated and pilot tested. It was found to be too long to be used alongside other questionnaires. Low levels of literacy meant that some carers took up to 40 minutes to fill it, even with help.

Attitudes towards healthcare teams scale[256].

This measures attitudes towards team-working. This scale was translated, but staff found it difficult to understand many of the items in field testing. Most the people interviewed had no experience of working in an interprofessional team and many of the items referred to this.

CollaboRATE scale[257].

This three-question questionnaire was translated, back-translated and pilot tested. Patients and carers found the three questions difficult. Attempts were made to change the wording, but patients and carers continued to find the questions difficult.

Section 4.4 SUMMARY

The CSQ, PWI, HCQ, CSCD, the relatedness and competence subscales of the WRBNS and the teamwork-across-units and Teamwork-Within-Units of the HSPSC were found to be reliable and valid. The autonomy subscale of the WRBNS, the Communication-Openness subscale of the HSPSC and the UWE interprofessional scale were not reliable. The LAC scale had an acceptable Cronbach alpha, but did not correlate well with other scales. The SPSDM scale was found to be valid and reliable after redevelopment, where the focus was moved from shared decision-making to shared problem solving. The ECI and CollaboRATE scale did not perform well in pilot testing and were not used.

Chapter 5. PHASES 2: DEVELOPMENT OF THE MODEL. RESULTS AND DISCUSSION

Section 5.1 COLLABORATIVE PRACTICE COMMITTEE

The formation of the collaborative practice committee and the Delphi committee is described in Shoesmith *et al.* (2020) ^{240}, which is included in Appendix C.

The committee met for a total of ten times between May 2016 and October 2018. Four phases can be seen in the lifetime of the committee, which were labelled as 'Premeeting preparation', 'Idea generation', 'Implementation of ideas', and 'Closure'. This summary has been constructed from the meeting transcripts and journal entries. The topics discussed in each meeting is shown in Table 5-1.

Premeeting preparation: A newsletter was sent to all hospital staff to explain the results of the qualitative research and to ask for volunteers for the committee (see Appendix O.). There were no spontaneous volunteers from this exercise. Together with the hospital management, we created a list of people to invite to the meeting, based on the table shown in Appendix M. We also advertised for patient and carer volunteers, using posters placed in the waiting room. Again, there were no spontaneous volunteers. The hospital management helped find people willing to take part in the committee from a carers support group which had been running for the previous few months. We also invited a patient and carer educator who had been teaching at the university and two carers who had previously been members of a carer support group run by the hospital.

Idea generation: Meetings 1-4 (May-July 2016) – Idea generation - In the first four meetings, problems were discussed, and many ideas were generated. Membership was relatively stable, and the meetings had an excited, upbeat feel. The meetings were close together, with four meetings held in just over two months. In the first meeting the floor space was dominated by 2-3 voices, with other members remaining quiet. In the second meeting this was fed back to the group and the discussion became more balanced. The discussion took place in an open space (rather than around a table) and split into four different subgroups, which helped ensure that more people had a voice. The ideas generated by the small groups allowed a theory of change to be presented in the third meeting. Some small changes had already started to happen, for example the seating had changed in the ward round from lecture style format to a circle format and new poster boards had been erected in the outpatient department. In this meeting evidence-based strategies were presented as alternative systems of care. In the fourth meeting the discussion started to centre around a few main ideas: primary nurses, continuity of care in the outpatient department, clinic notebooks, providing training and zone-based care. A decision was made to create proposals for some of these ideas.

Implementation of ideas: Meetings 5-9 (Sept 2016-Jan 2017) – Implementation of ideas: During these meetings proposals were discussed for the main ideas suggested in the first four meetings. At this point it became clear that many of these ideas would be very difficult to implement in the system in its current state. Leadership was also a problem. The director of the hospital had been transferred to another hospital after the second meeting and was yet to be replaced. The director of the hospital had previously been very supportive of the project and the project lost some momentum after she left. The interim directors and other hospital specialists were reluctant to implement large changes until a permanent director was appointed. This gap in leadership lasted for nine months. The committee also lost several key members, who had been involved in initial brainstorming sessions and came up with many of the ideas. Newer members had to be initiated into the process. Since there were new people at every meeting and different people attending, this meant that a significant amount of meeting time was spent summarising previous discussions and addressing concerns that had previously been discussed. The atmosphere of the meetings had now changed. With the focus mainly on implementation, rather than idea generation, discussion was mainly about why things could not be done. The gap between meetings grew longer, since there was an expectation that things needed to be implemented between meetings.

Some changes were made during this period, which did not require hospital level decisions to be made. Most of the work for these changes could be conducted by the research team and a few key staff, who were well engaged with the committee. The clinic notebooks were made and put in every clinic room. Training was conducted in skills needed for collaborative practice, which was well attended. Some of the training sessions were difficult to organise, due to the problems finding adequate staff development time (see Section 6.1.9 for more details).

Closure: Meetings 9 and 10 (June 2017-October 2018) – Closure. By this point many of the original active committee members had already transferred to other hospitals and the meetings felt repetitive, with similar points being made in every meeting. The primary nurse program was finally implemented for a short period on both acute wards but did not continue (described in more detail in Section 6.1.8). The final meeting was spent discussing problems with the implementation of the primary nurse program and considering solutions for these problems. A decision was made that the ward staff needed to be at a higher level of training before trying to implement the primary nurse scheme again. The continuity of care for patients in the outpatient department was also discussed, with no solution found for implementing it. Several of the ideas were now being discussed in other hospital meetings, for example discussion about improving the continuity of medical care moved to the specialist and medical officer meeting, where there was better representation of people involved and discussion about the amount of paperwork for nurses moved to the medical advisory committee, which also includes members of the university team.

Table 5-1 - Summary of each meeting

1	Introductions. Signing of consent forms and permission to record. Committee members introduced themselves to each other. Discussion of ground rules and terms of reference for committee introduced and accepted (see terms of reference and ground rules in appendix). Presentation and discussion of research by research team. Brainstorming on ways to improve collaboration in the system. Discussion on ways to improve meeting process and plans for the next meeting

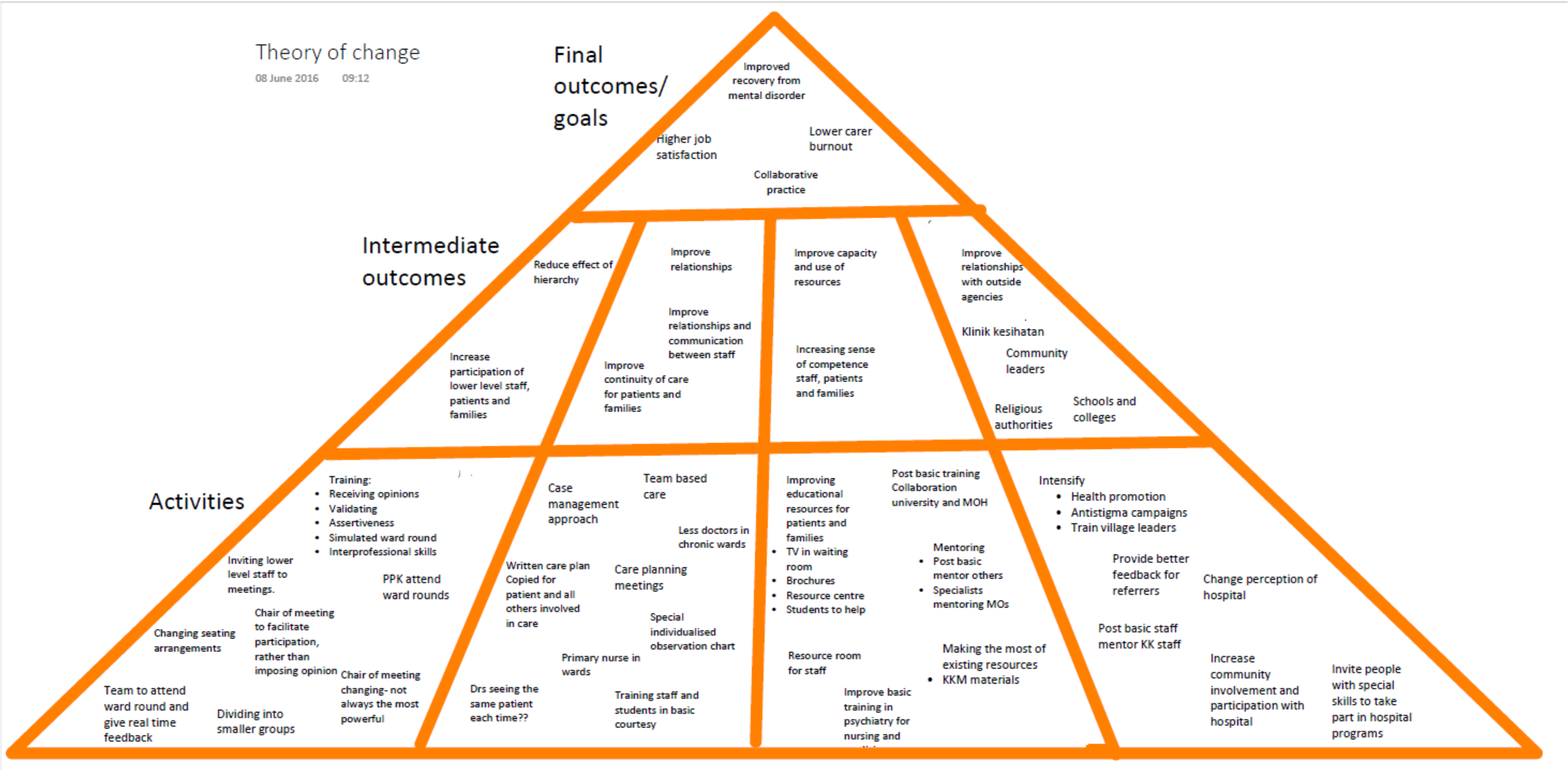
2	Analysis of communication from the first meeting Break up into four small working groups to discuss four separate areas Hierarchy Caring, continuity of care and under-involvement Resources, time Relationships outside the hospital Explanation of nation-wide/international Delphi committee and suggestion of members. Discussion of process of meeting and create agenda for next meeting
3	Discussion on change of seating in the ward round Discussion on changes in the OPD – better information about mental health on poster boards Discussion of theory of change model Presentation and discussion on team-based care and care programme approach Discussion on practical implementation strategies for ideas raised so far Reflection on team processes and plan for next meeting
4	Introductions and any changes since last meeting Training sessions – simulated ward round Primary nursing – decision to write a proposal Resource room, materials in OPD and creating a book of NGOs Reflection on meeting process
5	Any changes and new ideas since last meeting Proposal for primary and associate nurse Proposal for team-based care Proposal for new outpatients notebook Discussion on IPE training Reflection on meeting process
6	Resource room Primary nurse Clinic notebooks Creation of Delphi committee and discussion of new members Discussion of collaborative practice guidelines draft
7	Detailed discussion on the new collaborative practice notebook prototypes Discussion of collaborative practice guidelines draft
8	Notebooks – getting quotes, practical process of making them, improving translation Discussion of collaborative practice guidelines draft
9	Primary nursing Continuity of care for community patients Zone teams Substance use services
10	Primary nursing – why discontinued and ideas about how to make it work Continuity of care for community patients and zone-based care Clinic notebooks Collaborative practice guidelines - changes suggested by the Delphi committee and publication plan

Section 5.2 THEORY OF CHANGE MODEL

This model was created from the qualitative data analysis of the collaborative practice meeting transcripts. A new printout of the model was given to the committee at every meeting, with any new ideas from the previous meeting added to it. This is provided a visual representation of the work that we are were doing and allowed committee members to see how all of the ideas are were linked to higher level outcomes.

The theory of change diagram (Figure 5-1) demonstrates the working hypotheses of the committee. The higher-level outcomes were improved recovery from mental disorder, better collaborative practice, better job satisfaction and lower burnout in staff and lower burnout in carers. Not all these outcomes were measured. These would be impacted on by intermediate level outcomes, shown in the middle level of the diagram. The intermediate level outcomes would in turn would be impacted by various activities, shown in the lower level of the diagram. The intermediate level outcomes were derived from the concepts of autonomy, relatedness, and resources from the original program theory (see sections 1.3.2 and 2.2.4), which are shown in the first three columns. Collaboration with outside agencies is shown in the fourth column.

The ideas for the various activities were produced after the subgroup work in the second meeting, where four different groups worked on the four different intermediate outcomes (represented by the four columns). A pyramid structure was chosen for this to demonstrate that many lower-level outcomes and activities would lead to the higher-level outcomes. The theory of change was updated after each meeting, adding other ideas as they were produced.



(advise to enlarge page to read) KK – Klinik kesihatan (primary healthcare centre), KKM – Kementerian Kesihatan Malaysia (Ministry of Health Malaysia*

Section 5.3 MODEL OF COLLABORATIVE PRACTICE FOR MALAYSIA

The development of the model is described in detail in the paper by Shoesmith *et al.* (2020)[240], which is included in Appendix C. This paper summarises the process of developing collaborative practice recommendations through a hospital level collaborative practice committee. This committee collectively produced recommendations that were further refined through a national level Delphi committee, which made the guidelines generalisable to Malaysia. The discussion section of this paper explains the ways that these guidelines fit into the existing literature. The final guidelines are included in Appendix N.

Section 5.4 SUMMARY

The collaborative practice committee, consisting of hospital staff from different professional groups, patients and carers met a total of 10 times between 2016 and 2018. They produced a set of recommendations, based on a theory of change, which had been developed from the original theory of collaboration. These recommendations included ways to improve the autonomy, relatedness, collaborative decision-making, and levels of resources in the system. The nationwide Delphi committee consisting of 18 experts (including healthcare staff, academics, people from NGOs, patients and carers) reached consensus on these recommendations within three rounds. Professionals and service users involved in the process of producing the recommendations were mainly in agreement, but service users put a greater importance on continuity of care than professionals.

Chapter 6. PHASE 3: IMPLEMENTATION AND EVALUATION. RESULTS AND DISCUSSION

This chapter covers the process of implementation of some of the recommendations of the committee and the evaluation of these changes.

Section 6.1 MAIN IDEAS DISCUSSED AND IMPLEMENTED

In this phase, some of the recommendations were implemented or considered for implementation. Some of the recommendations that had most discussion are discussed below. The chart shown in Figure 6-1 was produced from the coded transcripts of the meetings and shows the amount of meeting time spent discussing the main ideas raised. The recommendations that had the most discussion was the plan for primary nurses on the ward, zone-based care and doctors caring for the same patient in clinic. The first meeting focussed primarily on the training needed for staff, but the amount of time spent discussing this decreased after this.

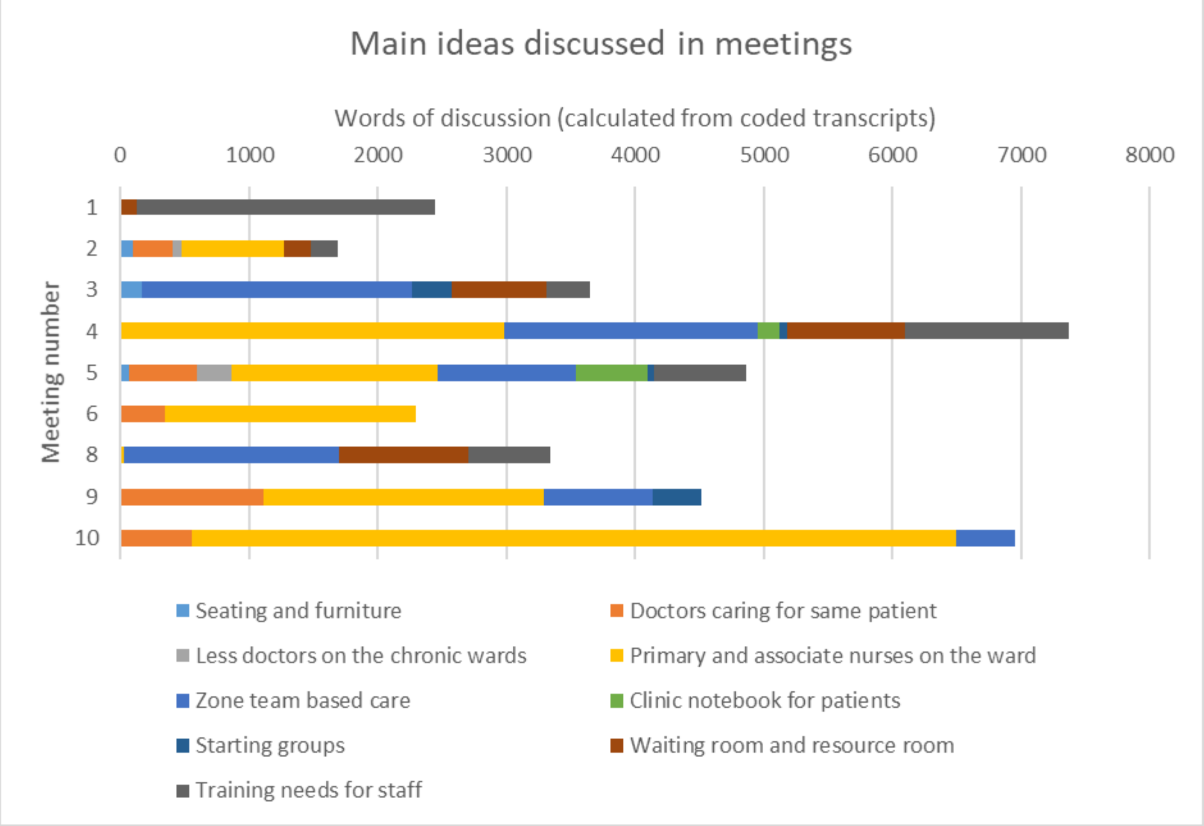


Figure 6-1 - Discussion of main ideas in the collaborative practice meetings.

The decision to change the seating arrangement in the ward round was the first change to be made by the committee. In the first meeting there was discussion about how the lecture-style arrangement of furniture in the ward-round sometimes discouraged discussion. In this set-up, most of the discussion was between specialists, who sat at the front. The medical officers, nursing staff and other professionals mainly watched, giving input only when asked directly. On one of the wards this was changed to a circle arrangement after the first meeting. This could not be done on the other ward, due to problems with space. This change was discussed and felt to be successful.

6.1.2 Improving resources in the waiting room

The issue of educational resources for patients was raised in the first two meetings. The walls of the waiting room had educational posters about other problems (e.g., infection control, brain death) and hospital management information (e.g. 5s, organisational charts, hospital statistics), but no practical information about how to manage mental health problems. Between the second and the third meetings one of the committee members (who was in charge of health promotion) put some poster boards in the waiting room, with information that was more relevant to mental health problems. The plan was to rotate the posters every month, to ensure that the information stayed interesting to visiting patients. The room allocated to health promotion was also turned into a resource room, where patients could theoretically drop in and talk to one of the nurses to receive education. This room contained some brochures relevant to mental health. There was a plan to run educational videos in the waiting room instead of showing the normal TV, but the TV in the waiting room was too old to accept input from a modern device, so the plan was never carried out. Educational brochures which could be given to patients by doctors were also discussed. This plan eventually became part of the notebook, which is discussed below.

The person who implemented the poster boards was eventually transferred and the poster boards came down. The waiting room eventually reverted back to the previous state, with most of the information related to other conditions and management related information. The resource room was never properly utilised as a drop-in centre, since the health promotion nurse was normally outside, giving talks in schools and other places, so did not have time for patient education. The room was never labelled or advertised to patients, so they did not know that it was there.

6.1.3 Less doctors in the chronic wards

The decision to implement this change was done after the first meeting, outside of the meeting time. There were originally of many medical officers coming to the chronic ward to see patients, which made it more difficult for nursing staff to form working relationships with the doctors, since each doctor spent very little time on that ward. The hospital decided to change this so that there were only two doctors allocated to each chronic ward. This made it easier for nurses to find the appropriate doctor if a patient had a problem. However, there were sometimes difficulties if the appropriate doctor was in the outpatient department at the time.

6.1.4 Starting a substance user group

One of the committee members started a new group, for substance use (the decision for this taken was taken outside of committee time). This was because there was very little help offered to people with substance use problems, other than medication. Materials were developed with some help from the principal investigator and another member of the research team with experience in treating people with substance use disorders. The first few meetings of the group were held on the ward and several patients attended and participated well. The meetings then stopped because the staff member was transferred and not replaced. The committee agreed that the initiative was good and worth continuing, however there was no suitable replacement for the transferred member of staff. The materials developed for this eventually became part of the notebook pages and then part of the Ultra-brief Intervention Course, which is described below in 6.1.9.

6.1.5 Clinic notebooks

The idea for the clinic notebooks was raised in the fourth meeting, with the idea originally to provide a small book for patients to use to document their care and allow different professionals to contribute to an overall care plan. The notebook was designed to improve collaboration between the patient and the healthcare staff. The concept evolved over the next few meetings, with prototypes produced and discussed. Eventually an A6 notebook with loose-leaf pages was produced and put in all the clinic rooms and the acute wards. The pages were provided in a separate file and were designed to improve collaboration between the patient and the healthcare staff. They included pages to improve knowledge (e.g. pages on psychosis, the patient's medication) and pages to help in planning (e.g. relapse planning, decision-making, problem solving) as well as pages to record physical health (e.g. blood pressure and diet). The first draft of the pages was written by the research team, with the committee reviewing and suggesting changes. The notebooks were made from low-cost materials found in local stationery shops and each cost approximately RM1 to produce each. The doctors in the hospital were introduced to the notebooks in a brief training session. Two further sessions on motivational interviewing and planning care according to the patients' own goals and values were also conducted (see section 6.1.9 for details of this).

After several months of using the notebooks, it became clear that the sheets that had been designed to improve collaboration were rarely used. The books were given to patients on the ward as a blank space to write on, like a diary. There was a perception that they could only be used for educated patients that liked to write. They were not being used for the purpose of education or planning care with patients. The medical officers in the hospital had not received any previous training in care planning with patients, other than the very brief sessions that we had conducted, which meant that they did not know how to use the care planning sheets with patients. There was a perception that the pages were another form to fill - 'paperwork' - rather than having a therapeutic purpose. There was not a culture of giving patients written information, other than the instructions written on the pharmacy packets. The committee decided that further training would be needed before a system like this could be used. The decision to start the Ultra-Brief Intervention Course came from this decision.

6.1.6 Improving continuity of care in the outpatient department

This idea was raised in the first meeting after discussion of the problems that the lack of continuity of care had for patients. This meant that patients had to tell the same stories to different doctors on every visit, which often led to patients dropping out of treatment. During the second meeting, the director reported that they had decided to give medical officers six-month rotations in the outpatient department (rather than a previous two months), to improve continuity of care for patients. This decision was reversed by the fifth meeting, because the medical officers found it mundane to work only in the clinic for more than a few months at a time and felt that they were losing skills. The system was changed to a system where medical officers spent part of their time doing clinics and part of their time in the ward. Since the rota was not fixed more than a week in advance, this made continuity of care impossible, since they did not know when they were going to be in clinic to see the patient again.

The reasons given for not improving continuity of care revolved around flexibility and a fear of letting people down. There was concern that if patients are told that they will see the same doctor again, they will be disappointed if that doctor is not available (e.g. if they are unwell or have been called to the ward). There was also concern about fairness – that some doctors might end up with more patients than others. There was concern that waiting times would go up since if a doctor had to spend longer with a patient, then all the other patients due to see that doctor would get delayed. By the ninth meeting, some solutions had been found and there was an agreement that a continuity of care system with a very limited number of patients would be implemented (patients with depressive type of illness). However, this was not implemented (the reasons are described in Section 6.3) and most patients still see a different doctor every time they come to the clinic.

6.1.7 Zone based team care

This idea was first suggested by the primary investigator, during the third meeting, where the evidence for different methods of organising a healthcare system was presented. This idea involved a specific team of professionals being in charge of a geographical zone. They would be responsible for all the patients in that zone, health promotion, liaison with schools, primary care clinics and other agencies operating in the zone. There was some enthusiasm behind this idea, since some of the committee members had worked in similar systems in West Malaysia. There was already one zone in the city which operated like this, in a unit called the *Mentari*. However, there was a feeling that the system could not be implemented due to the lack of staff, for example there was only one clinical psychologist and one social worker for the whole hospital.

6.1.8 Primary nurse

This idea was raised during the second meeting, by the subgroup that was working on continuity of care and the idea gradually developed over the next few meetings. The system was already happening in the chronic wards, where each patient had a member of staff who would be in charge of their longer-term care needs. In the fourth meeting a decision was taken to develop the idea into a proposal and two of the nursing staff agreed to write a draft proposal for the roles of the primary nurse. This was presented in the fifth meeting and modified by the committee. In the sixth meeting there was a consensus that it should be implemented on the acute wards. Since this was a larger system change, the interim director did not wish to make the change until the new director was appointed.

The new director arrived in April 2017 and was in agreement with the primary nurse scheme, which was then discussed in the ninth committee meeting. Since the committee membership did not, by then, have adequate representation from the acute wards, the heads of the acute wards were also invited to this meeting. The ideas had been previously raised with these heads informally and they had raised a number of concerns. These included:

- It might increase workload.
- It may lead to reduced flexibility regarding leave and shift patterns.

- The patient may want more from the relationship than the primary nurse is able to give (e.g. may want more frequent talking sessions than the nurse has time for).
- The primary nurse would be blamed if there was a problem with one of their patients.
- The primary nurse and patient might not be suited to each other.

These concerns and solutions were discussed in the ninth meeting, together with the ward heads and the new director. Some of the concerns were due to a belief that the primary nurse would need to see the patient every shift and would be responsible for their day-to-day care. After explaining that the primary nurse would only be responsible for longer term care (e.g. education), that it would not require the primary nurse to be present on every shift and they would only require the primary nurse to talk to the patient for approximately 10-15 minutes twice per week, there was agreement to implement.

The training consisted of the following:

- A short manual was written by the principal investigator, together with one of the matrons. This included the roles of the primary nurse and some information on building a therapeutic alliance with a patient and why this was important. The booklet also addressed the concerns about the scheme.
- A meeting with senior staff, where the program was described, and concerns addressed. This part was largely didactic. The manual was presented to the staff. After this session staff reported that they had no further concerns and were willing to implement the system on two wards: the acute male ward and the acute female ward.
- Brief meetings with small groups of ward staff (approximately 2-3 seen at one time). The training needed to be given to most of the ward staff and arranging this was difficult. Nursing staff have a professional development session once per week, but normally only 2-3 staff from each ward are able to attend this, since the ward still needs to be staffed. Staff work six shifts per week and training during shifts is difficult, so we decided to see staff in very small groups just after the shift handover. These training sessions were brief (approximately 20 minutes), to ensure that staff were not kept for too long after their shift. At these meetings, the staff members were taken through the manual, explaining the function of the primary nurse and what the role involved. This part of the meeting was didactic. After this, most of the nurses asked a number of questions. A lot of the questions were regarding the objective of the primary nurse program. Many were not aware of the concept of the therapeutic alliance and its importance in recovery.

The primary nurse scheme was continued for approximately 3 weeks on the male ward and 6 months on the female ward. Allocating primary nurses had gradually reduced over the time that the system was operating, until eventually it was stopped altogether. The reasons for this are explored further in the evaluation section.

6.1.9 Training modules

Training sessions among staff have took taken place over the period of five years, since the project started. These are listed below.

24.9.13	Awareness building talk to staff about prior to starting qualitative research, so that staff understood reasons for research.
19.3.14	Plenary lecture to Sabah mental health conference on collaboration in mental health.
19.6.15	Talk to staff prior to sending out staff questionnaires, covering some of the qualitative research findings and some of the principals of collaborative practice.
22.6.15	Talk to senior staff on collaborative practice.
5.5.16	Presentation of research findings to Collaborative practice committee.
29.6.16	Feedback session in real ward round (approximately 20 staff)
2.9.16	Role playing session on interprofessional practice in the ward round (approximately 40 staff)
24.9.16	Presentation of case management literature to senior staff (approximately 20 staff)
9.12.16	Training in validation and giving feedback (approximately 20 staff)
16.2.17	Training on using collaborative practice notebooks in MO/specialist meeting Notebooks left in clinics and wards (approximately 20 staff)
28.4.17	Motivational interviewing techniques (approximately 15 staff)
23.6.17	Goal setting and clarifying values (approximately 15 staff)
27.11.17	Training of senior staff to launch primary nurse program (approximately 15 staff)
4.12.17-20.12.17	Small group training of staff on ward in primary nurse system (all ward staff)
20.12.17	Implementation of primary nurse system
9.4.18 - 10.4.18	Two-day ultra-brief intervention course for 13 staff, which included two medical officers from HMPB
13.7.18	Half-day ultra-brief intervention course with eleven ward nursing staff
25.9.18	Half-day ultra-brief intervention course with six ward nursing staff
10.1.19	Half-day ultra-brief intervention course with six senior nursing staff
14.3.19-15.3.19	Two-day ultra-brief intervention course for 18 staff, which included two medical officers from HMPB

Role playing session on interprofessional practice in the ward round

A formal training session was conducted September 2016. The staff were divided into five different interprofessional groups. The learning objectives are listed below:

- To describe what is meant by collaboration and collaborative practice.
- To critically appraise current practice and consider the positive and negative effects on patient care.
- To experiment with ways of working which may be more collaborative.

Teaching-learning methods:

A ten-minute talk on collaborative practice was given. Staff were then divided into five groups and briefed in the different roles, with staff playing the roles of the different members of the interprofessional team, the patient and two of the patient's family members (described in the appendix Appendix K, page 230). The scenario involved a 25-year-old man with schizophrenia who had been admitted to the ward after a family conflict. Different members of the team, the patient and family members were given different aspects of his story and information about him, with no one having full information.

A briefing was conducted by members of the collaborative care committee, including one of the patient representatives. Staff playing different roles were given information sheets and briefed in their role. Staff were asked to imitate the current ward round for 20 minutes, using the roles that they had been briefed in. They were then asked to reflect on the things that they would like to change in the current ward round. Some of the reflections are listed below:

- Present ward round focuses too much on biological treatment. Need to consider other aspects, psychological and social.
- Specialist kept interrupting presentation with comments and criticisms about the presentation. Inefficient and increased sense of hierarchy.
- Other staff were hardly involved at all. Need to get more active involvement of others, e.g. pharmacy, OT, counsellor.
- Hierarchy is a problem. Everyone is afraid to voice concerns, feeling that it is disrespectful to answer back to a higher authority.
- Too much focus on biological treatment, too medically oriented.
- Involvement of the medical assistants (MAs) and nurses helped to understand patient's behaviour on the ward.
- Nurses and MAs should be given a chance to talk, e.g. Did not find out about family conflict until they were given the chance to talk.
- Seating in the grand ward round is not working. People sitting behind one another, not everyone is involved in the discussion. Problem that is that people sit at the back and cannot hear, because patient is presented in a soft voice. Suggest everyone sits in a circle or round a table so that everyone can focus.
- There is no time for everyone to provide input on the patient. Suggestion to avoid topics not related to the patient.
- The staff that witness the incidents should present. Suggestion that attendants should be involved in the ward round.
- The family should be involved in the ward round. However unable do this with all patients, some may be too disturbed, family may be busy, ward round is too busy.

Staff were then given 20 minutes to see the patient in the ward round in a new way, using what they had learned from reflecting on the previous exercise. They were then asked to reflect on what had changed and what worked. After the change in the way the ward round was conducted, the focus shifted, in that consideration given to:

- Relapse prevention
- Long term care of the patient.
- Family issues
- Involving the social worker.

They felt that it worked better because:

- It was multiprofessional – more people were contributing.
- The leader of the group asked more people in the group about their opinions, so fear could be overcome.
- Everyone was prepared.
- Only the main points and issues were highlighted.
- Everyone was involved in the discussion.
- Looked at the psychosocial as well as the biological.

Other observations:

- Small group worked better than big group, in that everyone had chance to talk and fear of rejection was less.
- Different people need to be involved depending on the setting: acute setting- should be active involvement of the in charge of the ward. Pre-discharge- the people involved should be a bit different.
- Nursing process – nurses must be there to give input during ward round.

Reflection on the training session:

Since the training session had to be conducted in only 2 hours, we (the trainers) decided not to carry out formal feedback during the session, which would have taken too much time. The collaborative practice committee reported that the session generally went well and allowed people to reflect on ward round practice. It led to changes in the way the ward round was being conducted. Seating arrangements were changed so that everyone sat in a circle, rather than a lecture hall format. They also reported that less people attended the ward round, so that the people there were alert, and the patient was not intimidated.

Some of the problems from the session included some of the staff not understanding the explanations given. The hall had poor acoustics and some of the explanations had been given in English. They took some time to understand what to do. There had also been problems dividing up into multiprofessional groups, with some groups uneven.

Training in validation and giving feedback

This session was based on validation skills from dialectical behavioural therapy [258]. Validation, in this sense of the word, is the process of recognising or affirming a person that their feelings or opinions are valid or worthwhile, without necessarily agreeing with them. The reason for this session was because many staff were afraid to give opinions, due to fear of an invalidating response from other staff (e.g. being belittled, dismissed or reprimanded). Handouts were produced in both Bahasa Malaysia and English, with different ways of validating other people, when they shared an opinion. The learning objective of this session were:

- To use validation skills with other staff when they give an opinion
- To give feedback in a way which is helpful to the person receiving it.

This session was mainly attended by medical officers (approximately 15), with two specialists also present for part of the session and five senior nursing staff. This session lasted two hours and started with a 10-minute didactic explanation about the levels of validation. The participants were then asked to practise these skills in a large circle. Participants were asked to give an opinion about patient care in the hospital. The person opposite them in the circle was asked to validate this opinion, before giving their own opinion. Other participants were then asked to state which type of validation had been used (using Marsha Linehan's levels of validation[258]). Staff commented during the session that although they had been taught to use validation with patients to some degree, they rarely used it for other people in the team.

The next part of the session focussed on skills for giving feedback to someone else. Some of the medical officers discussed the ways in which the environment was often invalidating, and feedback given to them frequently did not help or undermined confidence. Participants were then shown a short sketch (played out by the facilitators) showing a medical officer with poor communication skills, who was then given unhelpful feedback by a superior. The participants had to consider how to give the person feedback in a way which would be helpful. They then role played a more balanced method of giving feedback, using a simplified form of the Agenda-Led Outcome-Based Analysis (ALOBA) method[259].

Reflection on the training session

Most participants were well engaged and animated during this session. In this controlled environment, all the participants were able to use at least one of the levels of validation by the end of the session. The participants were able to reflect on how the style of feedback affected motivation and that some feedback styles were more helpful. Participants were able to suggest more helpful ways of giving feedback.

Training on using collaborative practice notebooks in MO/specialist meeting

This was part of a regular training meeting. The notebooks were introduced, together with laminated cards into each clinic room. Each doctor was given a set of the coloured sheets, which could be inserted into the notebooks and a copy of the instruction manual. The slot available for training was brief (approximately 30 minutes), which meant that it was not possible to do any skills training in this session. The session was largely didactic, with few questions asked.

Two further sessions were then conducted with the medical officers and specialists (in the regular educational meeting), where skills training was done:

- Motivational interviewing techniques (approximately 15 staff) – this was planned to be a session lasting two hours, to give a basic introduction to motivational interviewing. The session had to be compressed to approximately 40 minutes, due to other agenda items in the meeting, which overran. Very few of the staff had previously done any training in this and were using mainly advice- giving to try and shift patients towards behaviour change. Some of the participants were able to perform a few motivational interviewing skills by the end of the session.
- Goal setting and clarifying values (approximately 15 staff) – This session had similar problems with the previous sessions, in that the planned time of approximately two hours had to be compressed to less than one hour due to the overrunning of the previous agenda items. This session was based on some of the skills from acceptance and commitment therapy[260]. It was not normal practice to write care plan together with the patient, aligned

with their personal goals and values. Staff were able to understand the importance of doing this, but there was little time for them to practise the skills.

Reflection on the sessions

These sessions were too short to realistically learn the skills. Participants did not have adequate time for practise and were not confident to carry out the skills by the end of the session.

Ultra-Brief Psychological Intervention course

This course was started near the end of the lifetime of the committee, between meetings 9 and 10, due to problems implementing both the clinic notebook and the primary nurse system. Both programs were considered to be unviable due to the lack of staff trained in any psychological intervention skills. This meant that staff did not have the skills needed to form a collaborative relationship with patients. Training staff in the allocated professional development time was difficult, due to too many agenda items (e.g. each house officer has to present a set number of seminars to pass their housemanship). Most of the professional development time was taken up with didactic presentations, with no time given to skills training.

This course was delivered in two formats: a two-day course which was mainly aimed at medical officers, and a half-day course which was mainly aimed at ward staff. The problem with running a two-day course was the difficulties with attendance – only two medical officers could attend at one time, due to service needs. Out of the 31 people that did the two-day course, only four were from the hospital. A half-day course for ward staff was also started, with some of the skills from the two-day course. The shorter period for the ward staff course meant that more could attend, but it reduced the number of skills that could be taught and the practise time available for practicing the skills.

Two-day course

The two-day course, which was conducted mainly in English, had an initial online component, which had didactic descriptions of the skills and was designed to take approximately 4-8 hours to complete. The course was conducted mainly in English. This component had most of the background information needed to implement the skills and minimised the amount of time needed for didactic description of skills. In the workshop, each skill was discussed and then demonstrated by the facilitators. The participants were then able to practise the skills in small groups. On the last afternoon of the course the participants were given the chance to practise deciding which skill to use in a ‘simulated clinic’. Participants were given seven minutes with a patient with an unknown problem, after being told a limited amount of information about them. They were given the task of deciding which skill was the most important and then implement it in the time period. It was notable that all participants were able to demonstrate at least one of the skills taught in this time. Other participants (observing through a one-way mirror) were able to identify the skill used.

Half-day course for ward staff

The half-day course was conducted in Bahasa Malaysia and did not use the initial online component. Since this course was initially devised as a way of improving the primary nurse scheme, the course started off with a focus group exploring this. Some of the problems in implementation were used as the context to practise the skills taught (e.g. boundary setting with patients). This session focussed on a few key skills: goal setting and values (understanding what is important to individual patients), shared decision-making and relapse planning. In the values exercise, participants were asked to choose their most important values from a list. Subsequent discussion allowed the group to see the differences between people in their values. Some commented during the focus group that this allowed them to see the patients as individuals, who want different things. The patient's values were then incorporated into discussion about meaningful goals with the patient. Again, this allowed them to see patients as wanting different things. In the first role- play in each group often the staff only had a limited number of goals for the patients: taking medication after leaving hospital, not being admitted again and employment. It was often assumed that all patients wanted these three things and most reported that they did not discuss goals with patients. After discussion, they were able to discuss with patients their own personal goals for their lives and think about strategies to get there.

During the role-plays it was clear that the main intervention that nurses were using was advice-giving. Most of this advice was reminders to take medication every day. During the role plays they shifted to using more open questions and reflections, rather than directly going to advice-giving, and they started using shared decision-making. One scenario involved the patient telling the nurse that their medication was too sedating and was not suitable for them. In the initial role- plays, most of the nurses explained to the patient why they needed the medication and the importance of taking it every day, without addressing their concern. In later role- plays the nurse was able to give options to the patient, including discussion with the doctor about whether a more suitable medication was available.

Reflections on the training

This course was the most successful of all the training formats. Participants appeared well engaged and actively practised the skills during both the two-day and half-day courses. Written and verbal feedback for the two-day course showed that participants appreciated the course and their confidence in practicing the targeted skills had increased, since before the course. The effect of this course was mainly seen outside of this hospital, since most of the participants of the two-day course were not from the target hospital. There was an active Whatsapp group following the course, where participants shared their experiences of using the skills. Some of the participants presented their experiences of using the skills at conferences[261]. The course was used to develop interventions used for stressed staff during the pandemic[262] as well as an intervention for prison officers. Some of the materials were adapted to create a course in managing alcohol related problems for village leaders. Several of the course participants then went on to do further training in some of the skills taught in the course, particularly acceptance and commitment therapy. New courses in acceptance and commitment therapy were then organised by them, which led to increased numbers of people practicing acceptance and commitment in Malaysia. The half-day course had a greater effect on the hospital, since more hospital staff were able to attend this course. The confidence at the end of the half-day course was not as high as the two-day course, but it was clear from interviews conducted after the course that some of the skills taught in the half day course were being used (see Section 6.3).

Section 6.2 QUANTITATIVE EVALUATION RESULTS

In this section I describe analysis of the quantitative results on collaboration, teamworking, burnout and psychological needs in staff for data collected longitudinally at the three time points in 2016, 2017 and 2018. Data had also been collected in 2015, which was used for scale validation, but some of the items were changed between 2015 and 2016, so this time point is not included in the analysis. The WRBNS autonomy scale and the WRBNS communication openness scale were not included in the analysis due to the low reliability values of these scales. The response rates and demographics for the respondents are reported in Section 4.1 4.1.1 and the descriptive data for each scale is reported in 4.2.2.

6.2.1 Mixed model analysis

The differences between time points two, three and four were analysed for the various scales using mixed model analysis. The best fitting model, using the Akaike Information Criterion is what is shown here. The comparisons between the different models are shown in the appendix (Appendix R). If the random slope model would not converge or had worse fit, the results of the random intercept model are shown. Kenward-Roger method of estimation was used due to skew and kurtosis in some scales[263]. This method of estimation has been shown to be robust with high levels of kurtosis and moderate levels of skewness[264].

Mixed model analysis showed a significant increase in the SPSDM Shared problem solving and shared decision-making scales, the collaborative pairs scale, the WRBNS competence scale and the HSPSC teamwork-across-units scale. There were significant reductions in the MBI emotional exhaustion and depersonalisation scales (see Table 6-1 and Figure 6-2).

Table 6-1 - Mixed model analysis between data collected in 2016, 2017 and 2018

Scale	**Best fitting model**	**Regression coefficient β (CI)**	**F**	**DF**	**p value**
SPSDM: Shared problem solving	Level 1: Autoregressive Intercepts only Quadratic	0.104 (0.06 to 0.14)	24.54	123.22	<0.001
SPSDM: Shared decision-making	Level 1: Identity Intercepts only Quadratic	0.063 (0.02 to 0.11)	7.29	229.87	0.007
Collaboration pairs	Level 1: Diagonal Intercepts only Linear	0.187 (0.09 to 0.28)	14.51	149.27	<0.001
MBI: Emotional Exhaustion	Level 1: Autoregressive Intercepts only. Quadratic	-0.489 (-0.92 to -0.05)	4.94	196.37	0.027
MBI: Depersonalisation	Level 1: Diagonal Level 2: Diagonal Linear	-0.157 (-0.26 to -0.05)	8.88	193.43	0.003
MBI: Personal accomplishment	No significant difference				
WRBNS: Competence	Level 1: Identity Intercepts only Quadratic	0.34 (0.01 to 0.06)	6.74	215.11	0.010
WRBNS: Relatedness	No significant difference				
HSPSC: Teamwork across units	Level 1: Autoregressive Intercepts only Quadratic	-0.121 (0.06 to 0.19)	14.06	129.39	<0.001
HSPSC: Teamwork within units	No significant difference				

LACs	No significant difference

WRBNS autonomy scale and HSPSC communication openness scale were not analysed due to low internal consistency of these scales in this population

Figure 6-2 - Changes between 2016 and 2018

Section 6.3 QUALITATIVE EVALUATION RESULTS

The quantitative results showed that there had been some changes in the way people were making decisions. The qualitative evaluation aimed to find out if any change was perceived by the staff and to what they attributed the change to. Since several different programs were introduced by the committee as well as other programs, realist evaluation methods were used to answer questions about what worked, for whom and why? The information used for this section came from focus groups carried out before and after the ultra-brief intervention training for ward staff (three groups before and three after), one focus group with senior nursing staff carried out six months after the training, eleven individual interviews with key informants, the transcripts of the collaborative practice meetings (except for the seventh meeting) and notes from the journal of the principal investigator. The interviews and focus groups lasted between 20 minutes and one hour.

Realist evaluation attempts to find which mechanisms lead to which outcomes under which contexts. These are named CMO links (Context-Mechanisms-Outcomes). In the explanation given below, outcomes are identified first, then mechanisms that are believed to have led to these outcomes are labelled with an 'M' and contexts are labelled with a 'C'.

The following main outcomes will be discussed in terms of their evidence, the proposed mechanisms and contexts. In terms of the original program theory, the following was found:

There was either quantitative or qualitative evidence of the following in some staff:

- Outcome 1: Increased collaborative behaviours between staff.
- Outcome 2: Greater sense of autonomy.
- Outcome 3: Increased skills and knowledge.
- Outcome 4: Improved communication between staff and patients.
- Outcome 5: Paradoxical effects on motivation to collaborate.
- Outcome 6: Improved motivation, less burnout and more work satisfaction in staff.

These outcomes are arranged according to the original program theory.

Outcome 1: Increased collaborative behaviours

There is evidence that the following collaborative behaviours increased in staff: asking open questions, reflective listening, sharing information, validating, asking opinions, asking for help, inviting to take part in decision-making, shared problem-solving, shared decision-making, sharing leadership, non-judgemental evaluation and learning from others. Several staff who had worked at the hospital for some time described noticing greater level of participation of nursing staff in decision-making and problem-solving. Doctors were now deliberately asking staff their opinions. They described people in leadership positions were more frequently listening to and validating the opinions of others. There were also increased incidence of incident reporting. This corroborated what was found in the quantitative surveys, which showed an increase in the scales measuring collaboration.

ALLIED HEALTH INTERVIEW

AH2: I think people do more giving opinion in meeting instead of they just stay quiet, I didn't say they are really there to give out-spoken or something, but since last last year [2 years ago] they start to give opinion and they start to tell the directors 'I think the doctors should…' something like that….

R1: ok so we get ideas bouncing around now?

AH2: If previously they will keep quiet and they will just keep their opinion behind and we know it from other people rather than them, but now it is like, they really give their opinion during the meetings, I can see that.

There were also descriptions of ward staff acting more proactively. For example, when a doctor or allied health staff came to the acute ward to see a patient, one of the nurses was deliberately finding them and updating progress. This made it easier to plan management

DR11 INTERVIEW

Dr11: I think the staff are more able to give, … more able to tell about the patient their symptoms in the ward what are the issues that they are facing. So it is kind of so easy for us as a doctor to plan the management. And they clearly tell that they know what are the specific complaints they observe in the ward.

M1.1 Improved skills in staff led to increased collaborative behaviour in staff.

Some staff described how improved skills led to changes in the way that they were communicating with patients, which was now more collaborative, for example using open questions and validation.

WARD STAFF FOCUS GROUP SIX MONTHS AFTER ULTRA-BRIEF INTERVENTION COURSE FOR WARD STAFF

R5: Did you see any changes in other aspects?

N17: The good impact was, the change in the way of asking questions and talking to patients has improved. Lots of soft skills, better soft skills

N18: Asking

N17: We ask about their needs and their concerns instead of providing guidance. Before this workshop our way of asking...

N19: the way of asking was different

N19: Like with this one patient … after the workshop I applied some of the skills a bit. I looked for feedback. I know the way to ask, like before it was just 'true or not'.

The new skills could only be implemented by the staff when they had the time (C1.1.1). One of the nurses reported that it was possible to use the skills only at weekends, when they had more time to spend with patients. Another important context was that there was low use of some collaborative behaviours initially (C1.1.2), as seen in the qualitative research conducted in 2013, particularly shared decision-making and problem-solving between staff and patients and between different professional groups. Most of the staff had no formal training in mental health (C1.1.3) and so the very brief skills training given here is likely to have made a larger difference.

M1.2: Staff had more knowledge about the patients, and this meant that they were more effective when participating in discussions.

This was mainly secondary to the ward staff using more skills in their relationship with the patient (see outcome 3), so the patient was more open with them. This meant that the ward staff knew more about the patients, so were about to contribute to discussions about them.

WARD STAFF INTERVIEW 6 MONTHS AFTER UBPI COURSE

> *N19: Like when we talk to the patient and they are comfortable with us we can tell the doctor better. With us they tell different problems, so we can detect more and can discuss with the doctor.*

M1.3: Improved motivation to collaborate (see outcome 2) led to increased collaborative behaviours.

Before behaving collaboratively staff weighed up the risks of attempting to collaborate with the potential benefits. This is described further in outcome 5.

M1.4: Increased collaborative spaces led to increased collaborative behaviours.

Collaborative behaviours occurred when people had the opportunity to collaborate. For example, the director called a meeting of the nursing assistants to find out their views on what could be improved, which led to fruitful discussions and a greater awareness of some of the problems in the hospital. The nursing assistants previously had poor access to any collaborative spaces. The collaborative practice committee functioned as a collaborative space, in the first few meetings, where ideas could be exchanged, and shared planning could occur. Many of the people in the committee did not have access to collaborative spaces other than this.

The change from a lecture style format to a circle made the ward round made it easier for staff to contribute. This turned the ward round into a new collaborative space, whereas previously many staff had just been an audience for the specialists discussing problems among themselves.

DR 2 INTERVIEW

> *Dr2: When sit like that so much easier to get them things across, as opposed to you are sitting at the back and you know something, but you can't actually raise your voice, so you don't actually do that. So anyone can state their suggestion and that make a different in that sense.*

Outcome 2: Increases and decreases in autonomy

In most parts of the system, staff described a feeling of less hierarchy, where people felt that they were less likely to be treated harshly by people above them in the hierarchy. Some staff described more choices over their work, with a greater sense of freedom. This could not be measured quantitatively, due to the poor reliability of the autonomy scale.

DR5 INTERVIEW

> *R1: is that a new thing, the staff giving opinions?*
>
> *Dr5: Yeah quite new, it is not all staff that will do that, because if this staff have this feeling of hierarchy they wont usually dare to tell you that. They feel very scared to tell us this kind of thing. That is why in my opinion when the hierarchy gap is reduced, we can manage the patient efficiently. They will give you their opinion, 'doctor this patient like this like this' they can actually can give their opinions freely.*

There were also some contexts where staff felt that autonomy was reduced, discussed in mechanisms 2.4 and 2.5 below.

M2.1: Change in the communication style of the doctors and senior staff led to a greater sense of autonomy in more junior staff.

The increase the collaborative behaviours of senior staff as described in outcome 1, was one of the main causes of the change in communication style. One doctor described how she had noticed that the way doctors communicated had changed over the last 5 years. The doctors were 'asking for help' and giving reasons about why they needed help, rather than 'ordering':

DR5 INTERVIEW

> *I mean the way they work now, it is like… when we ask them to carry out something, the way they ask the staff it doesn't sound like they are ordering them. It is like they are asking for help, like 'can you help do this?'*

Some of this was attributed to general culture change in society and this meant that newer staff had a different communication style to older ones.

N15 INTERVIEW (SENIOR STAFF MEMBER):

> *At least 3 years ago working here, I saw a lot of changes. Last time, during my time I am junior one, I'm afraid to ask my senior because last time we saw that our senior very strict [laughing]. So we scared to ask them if we not understand what have to do. So that one change time to time so nowadays, like I become the senior one… so now we make like a friendly friend, even we are a senior one which among the junior, so we make them as a friend. Macam jangan tunggu dia tanya [don't wait for them to ask], we teach them, we guide them before they ask.*

Giving more access to decision-making situations also improved the sense of autonomy. For example, one of the collaborative practice committee reported that involvement in the committee made them feel that what they said mattered. The director had also started a program of meeting regularly with the attendants, to improve autonomy and communication.

M2.2: Reduced blaming led to an increased sense of autonomy.

There was a deliberate effort by the director to reduce the blame culture. There had been a change in the way that incident reporting was handled, with the emphasis changing from individual blame to systems change. Several staff mentioned that this made them feel less afraid when they were reporting incidents.

HOSPITAL DIRECTOR INTERVIEW

> *My own approach giving discussion on incident reports for instance. I make it a point not to point fingers at people and to look at system faults. We improve the systems rather than identifying individuals that make mistakes and being punitive I don't go for punitive actions I go for improvement of systems. So over the last 2 years I feel the general feeling of the staff is that they are not being monitored. Admin does not go looking for faults so I do feel that is the general feeling nowadays - that the director does not go around looking for people's faults.*

M2.3: Rotating leadership opportunities led to greater autonomy.

The way of doing the ward round was also changed so that the person chairing the round rotated between specialists, which meant there was a greater sense of equality between specialists. It also meant that junior specialists gained skills in chairing the meeting.

DR11

> *Dr11: I think prior to this the person who chairs the round are conducted by the senior, the senior specialist, who is in that round so now anybody have the chance. It will be doing by rotation, even the juniors have the chance to experience how to conduct the round, to lead the round. This one gives them, trains them to voice any opinion, what their opinion is, so they are not afraid to say it out in front of the consultant.*

M2.4: Increased relatedness between patients and staff led to a feeling of reduced autonomy in some staff.

Some staff described a feeling that they had to do whatever the patient wanted, if they were the primary nurse. They were concerned about setting boundaries with them, such as telling them that they did not have time to see them or telling them that they cannot do something. They were worried that saying 'no' to them may lead to the patient withdrawing from the relationship and as a result were sometimes trying to do everything the patient asked.

> *N18: If we follow everything they ask it is difficult because we have a lot of work.*
>
> *N17: And if we do not follow they will feel upset with us and they will refuse to share with us anymore.*
>
> *R5: So after that the rapport is not OK.*
>
> *N17: So we set boundaries, like cannot, certain things are OK... like that... when we set rules then we try to talk to them they don't want to answer.*

1ST NURSING STAFF FOCUS GROUP, AFTER IMPLEMENTATION OF PRIMARY NURSE, BEFORE UBPI TRAINING.

An important context to this is that most of the staff in the hospital had no training in mental health care and there is no supervision system in the hospital (C2.4.1). This meant that it was very difficult to manage boundaries in a closer relationship with a patient or know how to manage if the patient wanted more than they can give or if a patient withdraws from a relationship. Rapidly engaging and disengaging closer relationships was difficult to do, because the staff did not have the training or support to do this.

M2.5: Presence of patients and carers on the collaborative practice committee made some staff feel afraid to discuss things openly.

Almost everyone asked highly valued the presence of patients and carers on the collaborative practice committee and reported that it helped them see things in a different way. However, some described feeling inhibited at times, since they were worried about saying things openly in front of patients and carers.

Outcome 3: Increased skills and knowledge in staff

There was evidence that some staff had learned more collaborative skills and were using them with patients, as described in outcome 1. Skills mentioned included asking more open questions, finding out about the patients' needs and concerns, and validating. There was also some quantitative evidence of this, since there was an increase in the 'competence' scale on the WRBNS scale.

AH2 INTERVIEW

> *AH2: Compared to 3-4 years ago, yes I can see the changes. I can see there is more involvement from the staff. Because there is a lot of courses going on right, so previously maybe the same person have to handle this type of patient but this time I can see that instead of the same staff nurse, they have different different staff nurse to help, to collaborate and you know like join together to handle the patients.*

DR 11 INTERVIEW (DISCUSSING THE VALIDATION TRAINING)

> *Dr11: I notice that now especially when we conduct the rounds, we will do some practice session, some interviewing skill with MO, with the house officer. So we notice that in the interview they do…they know how to validate patient, so I can see some improvement. I think prior to that they have difficulty doing that part.*

M3.1: Practicing the skills in the workshops and observing others led to increased skills.

Practising skills in the workshops, rather than being told skills through didactic methods allowed some of the staff to generalize to the real world.

DR1 INTERVIEW (REGARDING THE TWO-DAY ULTRA-BRIEF INTERVENTION COURSE)

> *Dr1: That workshop was particularly good, because we were doing it as a hands-on approach. So only when I did it there, it gave me an idea of how idea to utilize it. Instead of knowing verbally how to use it and it much less and it is much less likely that I would know how to use it in real life. Because we did it there I know how to do it.*

It appeared that the skills training was only effective when it was long enough for staff to practise skills (C3.1.1). The training sessions were not as effective when they were given as a normal part of continuous professional development or as a brief session at the end of the shift. Neither of these types of training were long enough to allow the staff to practise the skills. However, the problem with the longer two-day training was that the hospital could not release enough staff, due to low staffing (C3.1.2). This meant that although the two-day course led to greater improvement in skills, it had less impact on skills in the hospital overall. The half day was optimal for ward-staff, since it meant that more staff were able to attend and was just about long enough to learn some skills. Some staff who had done the half-day course reported that they forgot some of the skills very quickly, because the course had been a one-off without follow up (C3.1.3). After six months the staff were still interviewing the patient in the new way, with open questions and reflections. However, they reported that other skills were not used or had been forgotten, such as exploring the values of the patient.

M3.2: Staff seeing the patient as an individual through understanding that they have different values and goals.

Staff mentioned seeing the patient more as an individual, both immediately after the course and at six months. Immediately after the course, participants mentioned the value clarification exercise as being central to this, where the participants had chosen their own most important values and chosen something that they wanted to do in the next week to move closer to those values (exercise from acceptance and commitment therapy). Comparing their answers to the others in the group had helped them understand individual differences in what people want. Although participants did not use values clarification with patients, some of them were now exploring patient's goals in more depth.

FOCUS GROUP FOLLOWING FIRST ULTRA-BRIEF INTERVENTION TRAINING FOR WARD STAFF

> *N18: values [was the most important thing learned], because when the patient come in, I don't think he is like a normal human being with their own values, so I treat him like a patient. If we realize that the patient has a certain value, he will be more human in my eyes, so the relationship becomes closer and I can make him feel validated.*
>
> *[other speakers]*
>
> *N24: I agree more with [N18] and [N20] from this we learn to appreciate the patient's values, only now I know through the workshop, that's how his approach is because before this we only asked about what we wanted to know, I don't know what the patient wants, that was not asked.*

One participant who had been on the two-day course reported that they were regularly doing discharge plans with the patient since the course, which was not normally done in this setting.

An important context here is that staff were rarely exploring patients' goals or writing individualised care plans (C3.2.1). It was clear during the training that staff did not usually explore fully what the patients hope to achieve in treatment. The plan written in the medical notes for the patient normally only consisted of which medication they are taking, when the follow up date will be and occasionally who the patient will be referred to. The hospital did not give patients or families written care plans to take away. There were not usually any patient goals recorded. Psychoeducation sessions used mainly didactic methods to groups of patients, with little interaction or education individualised to patients' needs.

M3.3: Improved awareness through role playing.

The simulated ward round increased the awareness of the patient's experience and the problems with the ward round practice at the time.

MEETING 5 TRANSCRIPT

> *Dr2: What [Dr1] said, we actually changed what we are doing in ward round… and while we were doing it it also… it opened our minds to the problems the patient might actually have in a ward round, being nervous in front of so many people, not able to actually tell everything in the time, but actual decisions are being made at that time so we realise that*

M3.4: The course was engaging and increased the motivation to learn, which increased learning.

Several staff reported the small group structure of the course meant that the course was interactive, meaning that they did not feel sleepy or bored. At the end of the course participants expressed a desire to learn more during a follow-up course. They also discussed ways of getting others to do the same course.

M3.5: Staff learning from other staff and from nursing leaders.

Some staff mentioned that the leadership on the acute wards was very good and this had led to some positive changes. They also mentioned staff learning from each other, so that if there were staff who were good, this had a positive effect on others.

DR 13 INTERVIEW

> *Dr13: But I feel ward [x] when [member of leadership staff] came in there's an improvement to me. I think staff quality also, I think some of the staff are much better quality then the other staff also, if the good staff are in those ward, you can see the performance of the staff in that ward increase, but now ward [x] there are a few very good staff. When we do review they are with us and give feedback. Of course they didn't tell immediately but when we ask patient condition they tell us and I feel that very good.*

M3.6: Increases in relatedness increases knowledge about the patient.

The increases in relatedness due to the improved skills and the brief introduction of the primary nurse program led to greater knowledge about the patient.

However, this increase in knowledge was not always useful because the patient was often transferred quickly to another ward (C3.6.1). Doctors were not very aware of the primary nurse program (C3.6.2). This meant that although the primary nurse had a greater knowledge about their patients, this knowledge was not always used in decision-making. Doctors asked any nurse on the ward about the patient, rather than asking the primary nurse. Nurses needed to know a little bit about all patients as well as the patients that they were primary nursing. This had the effect of reducing motivation to continue the primary nurse program.

M3.7: Other educational programs improving knowledge and skills.

As well as the mechanisms mentioned above, there were other courses which happened in the hospital at them same time, for example courses run by the hospital and by pharmaceutical companies.

Outcome 4: Improved relatedness in some areas.

There was qualitative evidence that there were some improvements in relatedness in some areas. Most of the programs which attempted to improve relatedness either were not implemented or were implemented briefly and then discontinued. Some of the reasons for that are described under outcome 5.

M4.1: Increased use of skills in by staff led to improved relatedness between patients and staff.

Staff described asking more open questions, asking the patient about what they want and validation (see outcome 1 and outcome 3). This meant that patients became more interactive, which was leading to closer relationships. They also mentioned that the psychoeducation sessions (where ward staff educate patients about their illness) had become more interactive, with patients asking questions at the end.

WARD STAFF FOCUS GROUP SIX MONTHS AFTER ULTRA-BRIEF INTERVENTION COURSE FOR WARD STAFF

> *N16: Yes, there is a change, usually the patient will interact more with us because when the road opens for them to talk to us, he will approach you back and forth with many problems.*
>
> *R5: So you are giving them a chance to talk?*
>
> *N16 Yes, giving a chance to let out their feelings.*

The improvement in relatedness depended partly on the patient (C4.1.1). For example, educated patients and first episode patients were more interactive, compared to patients with less education and patients who had been unwell for a long time. Staff also reported that some patients found it very hard to trust staff, even if their skills were good due to the environment of the ward (C4.1.2). The wards were built more than 40 years ago, with little development since then. The wards allow little interaction between staff and patients. On one ward the patients spend most of their day inside two dormitories, with the staff observing through a large acrylic window. They are allowed out of this area only for mealtimes and to take medication. These are the only times of day that staff interact with patients. The interactions at mealtimes are mainly with the support staff, rather than with professional staff, so most of the information about the patients' mental state comes through the support staff.

WARD STAFF FOCUS GROUP SIX MONTHS AFTER ULTRA-BRIEF INTERVENTION COURSE FOR WARD STAFF

> *N23: The acute ward is mainly psychotic clients. Our ward is mainly observation. We rarely talk for more than a moment. We only interact with certain patients, mainly observation. We don't have a therapeutic environment, so patients only want to talk occasionally, and they are not in the mood to talk. They just ask, 'when can I go back', 'when can I go back', that is all they ask... I feel that being on the ward, it is not really a ward, I feel it is more like a jail, thus they keep asking 'want to go back', 'want to go back', 'want to go back'.*

M4.2: Increased continuity of care led to increased relatedness between staff and patients.

Although the primary nurse program only operated for a short time, some staff noticed improvements in the relationships with the patients that they were caring for. Since they knew the patient better, it enabled them to collaborate better.

1ST NURSING STAFF FOCUS GROUP, AFTER IMPLEMENTATION OF PRIMARY NURSE, BEFORE UBPI TRAINING.

> *N18: …but before there was a primary nurse, we only had superficial information because we didn't focus too much. Before primary nurses were allocated, we took care of all the patients, we didn't check the history, the family relationships… So we were designated to have a nurse for one patient, for example…. I will check and go through all his history, I will establish a deep relationship with her, so every time the doctor asks, they will refer to the primary nurse because we know more. Maybe I observe her more during the shift, so I will notice changes in her more than other nurses, who take care of the patient in a general way. It's good to have this primary nurse now. The relationship with the nurse is more transparent and closer.*
>
> *N20: there is more trust*

However, the rapid turnover meant that there was inadequate time to build a relationship on the acute ward, whereas the system worked well on the chronic wards (C4.2.1). This was particularly the case on the male ward, where patients were transferred to the subacute ward or discharged within 2-3 weeks of arrival on the ward. If the nurse is on leave for any part of this time, then it was very hard to get to know the patient before they leave.

1ST NURSING STAFF FOCUS GROUP, AFTER IMPLEMENTATION OF PRIMARY NURSE, BEFORE UBPI TRAINING.

> *N24: One of the problems obviously is that the patients change too fast on the ward, so the patient is admitted today and then next week he transfers to another ward. Difficult to ask to continue our management lah. So fast changing lah.*

M4.3: Improvement of communication between staff and doctors on chronic wards due to less doctors.

On the chronic wards the communication improved after the decision that only a limited number of doctors would be assigned to each ward. This meant that it was easier to find the correct doctor.

MEETING 4

> *N12: …Last time all the doctors involved with patients and they in charge of their patient, right. Now maybe they allocate two maybe.*
>
> *N14: it is not that the doctor number has increased, or decreased, it is just the allocation, the way of the doctors.*
>
> *R1: how has that affected things?*
>
> *N12: from my point of view, it is much easier for us lah, cari dr [to find the doctor], because there is only two doctor.*

An important context to this was that increasing number of doctors had led to worse communication between doctors and nurses over time (C4.3.1). The doctors were now less likely to develop relationships with the ward staff and the ward staff have to spend longer trying to find the right doctor for the patient, so increased doctors paradoxically reduced available resources in some ways.

> *N16: the more doctors we have, the more this thing happens [communication problems]. They are in and out, house officers, medical officers etc. We don't blame them, but it means our workload has increased. It is not like we have no communication, some doctors only.*

Outcome 5: Increases and decreases in motivation to collaborate

This refers to the decisions staff make when choosing whether to either work collaboratively with someone. It is a process of weighing up the pros and the cons of the collaboration, to decide if they will gain or lose more and how well the collaboration will help them in achieving their goals. Examples include the decisions to call a doctor for help, to give an opinion, to go to a meeting, to go along with a system change or to join a committee. There were mechanisms that increased and decreased the motivation to collaborate with patients during the period as well as mechanisms which increased and decreased the motivation to collaborate with the programs introduced by the committee.

M5.1: When the staff understood the patient better, they were more motivated to collaborate with them and wanted to help more.

This was discussed in relationship to the ultra-brief intervention course. Increased use of skills by the ward staff allowed them to develop a more open relationship, which them made them want to work together with the patient to help more.

WARD STAFF FOCUS GROUP SIX MONTHS AFTER ULTRA-BRIEF INTERVENTION COURSE

> *N19: the relationship between the staff and patients is more open… when we ask, we want to understand more. We want to help more.*
>
> *R5: You want to help more?*
>
> *N19: We know what the problems are, so we are able to help better.*

However, this mechanism had another paradoxical effect. Some of the staff were feeling overwhelmed by demands and expectations (C5.1.1). If staff formed a relationship with a patient, they were more motivated to help them, and wanted to spend more time with them. Since they did not have this time, they did not form relationships with patients.

DR12 INTERVIEW

> *Dr12: Between MO [medical officers] I feel like we probably have lots of patient and if you want to follow up with one patient you definitely you need to spend some amount of time with them, to make sure that its effective, but we don't have that kind of time or that luxury. Like we are overwhelmed right now with the number of patients.*

Motivation to collaborate with the patient was partly determined by how responsive the patient was to them and if they felt that they could make a difference (C5.1.2). Staff mentioned 'chronic patients' (patients who had been unwell for a long time), less educated patients, patients with active psychosis and patients with less insight as being much more difficult to engage. Often this would lead to less attempts to engage, for example when the clinic notebooks were used, they were not given to these categories of patients at all and were mainly given to well-educated patients with depressive conditions. When attempts to collaborate failed, for example when the staff attempted to engage a patient and the patient did not respond, this reduced motivation to collaborate.

M5.2: Improved motivation to collaborate and proactivity due to improved autonomy.

This was a mechanism which operated through the improved autonomy mechanism. There were risks associated with attempting to collaborate, staff particularly mentioned being treated harshly. Since staff felt safer, they were more likely to decide that the benefits of collaboration outweighed the risk. This was mainly due to the program to reduce the blame culture introduced by the director (as described in mechanism 2.2).

N15 INTERVIEW

> *N15: If the staff is junior and the doctor is senior, sometimes the doctor is harsh, and they are afraid. There are doctors that scold staff, so they don't want to find the doctor, they just try to solve the problem themselves.*

This mechanism was also discussed as part of the context of feeling like it was not safe to be proactive at the start of the project (C5.2.1).

D13 INTERVIEW

> *D13: because this is our culture since young ...and we don't want to take many responsibility because if we do something wrong, we will get punished. Might as well don't get involved.*
>
> *WS: it is too high risk*
>
> *D13: [laughing] like the more patient you see the more involved you are, if the patient has anything problem, then I will be responsible for it, might as well don't see. I think that is the problem, the whole system problem that is why I feel like cannot change just by one level.*

Personality was also an important context affecting this mechanism (C5.2.2). One participant mentioned not talking in meetings, even after feeling that the hierarchical culture had reduced, due to having a 'shy' personality. The offer to chair meetings was also sometimes rejected because the person described themselves as 'shy'.

M5.3: Doctors were now making a deliberate attempt to ask opinions from staff during the ward round and at other times which led to greater engagement.

Several participants reported that there was a change in the ward round routine, so that non-medical staff were asked for their input and opinions. In some cases, this led to greater engagement and motivation.

AH2

> *I think because of the sense of like they have been given the responsibility included in the decision-making, even for example in the ward round they start to ask 'ok you are, do you have opinion, do you have this, do you have anything to say' because they feel included. Like me for example like previously it feels like OK I just listen to the ward round and ok go back', but I think starting last year they start like asking 'Ok... do you have any opinion, do you have anything to say, something like that?' So it's built like 'oh ok we have to do something, because they trust us and we have the responsibility to do something, something like that lah'*

The important contexts for this were that many staff were theoretically aware of the importance of collaboration (C5.3.1), even at the start of the project before any intervention. This theoretical awareness appeared to be translating into a willingness to change practice in some cases. Staff were only motivated to collaborate when staff knew about the patient (C5.3.2). Some participants reported that the ward staff were still not able to give much useful input into creating the management plan, because they still did not know much about the patient.

One participant mentioned that asking all of the staff their opinion sometimes felt like a routine only and that suggestions from non-medical staff were still not always taken into consideration.

D12 INTERVIEW

> *D12: The one I have noticed is like during grand ward rounds, so then the staff nurses, the matrons, the pharmacist like everyone has to say something... anything at all... to do with the management of the patient. But a lot of the time it gets dismissed. So if they give suggestions... usually problems are considered because something has to be done but if they give suggestions it is dismissed.*

When doctors did not appear to consider the opinions of ward staff, believe what they say, or read nursing notes, it led to a loss in motivation to collaborate and reduction in participation (C5.3.3).

1ST NURSING STAFF FOCUS GROUP, AFTER IMPLEMENTATION OF PRIMARY NURSE, BEFORE UBPI TRAINING.

> *N18: for example... the doctor asks about their patient progress. We say, 'The patient is so confused', then after that they say, 'I don't see him confused, why do you say he is confused?'. They ask what we see, we take care of them on every shift and the doctor comes for a review only, so whatever we say, they base their opinion only on what they see. So it feels kind of pointless and the staff nurse feels reluctant to tell. 'No point in telling if that is the case, so you take care of yourself'.*

M5.4: Increased awareness of the importance of collaboration led to greater motivation to collaborate.

The role- plays during the ultra-brief intervention course were effective at demonstrating that coercive practices do not work as well as collaborative practices. Playing the roles and watching others play the roles in a different way to normal practice helped the participants to see that there are alternative ways.

FOCUS GROUP FOLLOWING FIRST ULTRA-BRIEF INTERVENTION TRAINING FOR WARD STAFF

> *N20: we have to know what we need for them to be healthy, but at the same time as we want them to be healthy, we cannot do it by force. We need to make a plan together. We need to know what they want so that the process of treatment is easier, and they get better.*

Some staff also mentioned that awareness about the importance of collaboration due to the collaborative practice committee and research activities had increased the motivation to collaborate.

M5.5: Reduction of motivation to collaborate due to collaboration taking time.

This was an important mechanism for the resistance to two programs which aimed to improved relatedness: the primary nurse program and the idea that patients should see the same doctor in the outpatient department. Staff were weighing up the potential benefits of collaboration with the costs in terms of resources. Continuity of care means developing relationships with patients. Having a relationship with a patient means that the patient expects things from the member of staff and then they take more time.

1ST NURSING STAFF FOCUS GROUP, AFTER IMPLEMENTATION OF PRIMARY NURSE, BEFORE UBPI TRAINING.

> *N17: I think sometimes our goal for primary nurse is to develop trust. But for certain patients too much trust develops and with that demanding behaviours develop and that is a real problem. Because we are looking after them, they ask more from us.*
>
> *N20: Because they feel we are looking after them, we give a bit too much care and then they create trouble.*
>
> *N17: Like this patient, I explained about primary nurse. So she knows that she has a nurse and if she asks another member of staff, the other staff will also say you have a primary nurse. So when they come, she will demand and look for the nurse. She will follow from the beginning of the shift to the end of the shift, until she kind of interferes with our work and we are not sure whether we should push them away or how.*

There was a concern that if nurses paid attention to individual patients, they would neglect all of the other patients.

COLLABORATIVE PRACTICE MEETING 8

> *N16: We have so many patients now and we have to distribute this patient to the staff. We look after all the patients, and we must know all the patients.*

One participant also mentioned how this mechanism of weighing up the potential cost in time affected her participation in collaborative practice meetings. She discussed how she valued the committee and had the motivation to collaborate with the people involved, but also wanted to go home in time.

DR5 INTERVIEW

> *Dr 5: That's something very novel to me [involvement of patients and carers], something very new. I have never been to such a meeting but I feel it was a very good idea actually, so that we can understand what was their obstacles, what was the obstacles for them, I mean we can understand when they are taking care of the patient and what is the obstacles that they faced, so that we can contact to the carer better when we see patient.*
>
> *[Later in the interview, when discussing difficulties taking part]*
>
> *Dr5: Yeah. It is like a lot of commitments, like a lot of ward things haven't settle, we feel like so burdened. Like today we are going back after 5pm. I have to stay after 5 again [laughing]. So we try to settle our things first so that we can go back on time.*

There was also a mechanism operating in the opposite direction. The change in the incident reporting procedure meant that staff now did not need to fill as many forms if there was an incident. This meant the time lost if incident reporting was lower, so staff felt more motivated to report incidents.

The staff feeling overwhelmed by demands and expectations was an important context here (C5.5.1). Staff mentioned that staff who were retiring were not being replaced, but the number of patients had increased. They also mentioned that the complexity had increased, for example there were more suicidal patients. In the context of a high workload, the risk of letting someone down after a relationship has developed is higher. Designing a system with few expectations reduces disappointments. Another important context was the rapid turnover of patients and staff (C5.5.2). This meant that the window available to form a relationship was short and the emotional work involved in forming and closing the relationship would not be offset by the potential benefits.

> *N18: We see the patient for a week, one or two times, then as what the sister told, they get transferred or discharged. If the nurse has taken leave, when she comes back, she is like 'where is the patient?'*

This was also an important mechanism in the discontinuation of the collaborative practice committee. The time involved in initiating newer members in the process was high. As staff were transferred the investment had to be made repetitively, which meant that less time was available for the committee to move forward in the agenda. Most of the time was spent going over what had happened previously. Progress made was sometimes reversed when staff were transferred (e.g. the substance use group). This led to a reduced motivation to continue the collaboration.

M5.6: Staff were not forming relationships due to fear of feeling obliged to always do what the patient wants.

The fear of losing autonomy led to a reduced motivation to form relationships with patients and collaborate with them (described in Mechanism 2.4).

M5.7: Concerns about reductions in flexibility reducing motivation to collaborate.

Concerns about flexibility were seen in both the primary nurse program and in the program to improve the continuity of care in the outpatient department. The concern was that there would be less flexibility for leave and for shift patterns. Booking patients for appointments with a particular doctor would mean that their schedule would be fixed four months in advance. This increases the risk that patients will be let down and would mean that the doctor would have less flexibility in organising their schedule. For example, if they need to attend a particular training course or meeting or need to take leave then it will be more difficult to organise.

The context to this is that the system is heavily loaded and currently problems can be managed due to inbuilt flexibility (C5.7.1). There are more than 2000 outpatient appointments with patients per month and doctors see approximately 20 patients in a single morning. The low levels of resources means that there is a higher risk of letting someone down. The inbuilt flexibility mitigates against this. If a patient needs more time or the doctor is called to the ward, then the patients will see other doctors and no patient waits too long. In a system where the patients expect to see their own doctor, this would lead to higher waiting times for some patients and disappointments if the doctor is not there. On the wards, it was possible to implement the system, since there was agreement that the need for a primary nurse would not affect shift patterns or leave arrangements (C5.7.2). The disadvantage of this was that some patients were allocated a primary nurse who was on leave for part of their stay, which meant the nurse never got to know the patient before transfer.

M5.8: Feeling that change was 'top-down' led to a reduction in motivation to participate in the primary nurse program.

The primary nurse scheme was a larger system changes and the decision about implementation had to come from the hospital director. Individuals were not able to make the decision and implement without the whole system changing. The people who were involved in the initial brainstorming, where the ideas were formed, were not the people that had to implement them. This had a negative effect on the sense of autonomy. Some interviewees discussed this as a potential reason why the system did not work. In addition, the principal investigator was in an outsider from the university and a foreigner, which is also likely to have led to a feeling that these were changes from outside, imposed on the system.

The context to this is that the system had always been hierarchical, which leads to an assumption that all decisions are top-down (C5.8.1).

DR9 INTERVIEW

> *Dr9: Yes, they don't see the benefits and at the same time they see it as additional work. And probably added to that there is many top-to-bottom instructions coming from the government. This hospital should implement this…we should audit this… we should supervise this, and get reports done on this and that. So this top-down approach has been stressing up the staff at ground level and I feel they see this particular initiative as another top-down directive So there might be a perception, and this might result in the resistance for them to change their way of working. In fact I think if they can really understand and see the benefits that this initiative can bring to the patients and to the staff themselves, I think they will be very much accepting of this initiative.*

However, smaller changes, where decisions could be made by the people implementing the change were effective (C5.8.2). Having less doctors on the chronic wards was an example. The change was agreed by the people affected by it and implemented straight away. Adding the poster boards to the outpatient department was another example, where the actions of a single committee member made a difference.

M5.9: Having motivation towards different goals lowered motivation to collaborate.

This was mentioned in relationship to the brief period when medical officers were attached to the outpatient department for six months, rather than attached to both the ward and the outpatient department. The medical officers had different priorities to the collaborative practice committee. At the beginning of their career, one of the most important goals was to gain skills. Spending too long in a single environment led to concerns that they were not learning enough.

5TH COLLABORATIVE PRACTICE MEETING

> *Dr2: we were ok with the idea of half of us being in the clinic and half of us being in the ward because less going up and down, problems with having a family session while you are in the clinic. It is just that we realised that anything longer than 4 months, things become too mundane, so we…*
>
> *R1: you get bored?*
>
> *Dr2: yes, and we lose skills from the other place. Now it is back to what I would say is quite a messy system, because it is a little bit better.*

The staff also sometimes reported that they felt they had to prioritise documentation ahead of other things, such as talking to patients.

1ST NURSING STAFF FOCUS GROUP, AFTER IMPLEMENTATION OF PRIMARY NURSE, BEFORE UBPI TRAINING.

> *N18: It is possible to assign but another thing to spend 15 minutes 3 times per week [spent talking to the patient]. Even 5 minutes we don't have time for, to ask them what they want to do. Because even now it's more about documentation. Sometimes even with the patient, "uh, for a whole day I didn't see them" or I have forgotten, and the shift is over.*
>
> *[Discussion on other things]*
>
> *N21: it can be said that in seven hours, we spend five hours mainly documenting.*
>
> *N22: because anything undocumented is considered not done.*

Often the documentation was felt to be repetitive and not very helpful, since it was not based on understanding the patient, but it had to be done anyway.

DR6 INTERVIEW

> *Dr6: Of course working in the ward we sort of know that the staff in the ward, they don't really know about the patients. That is like not a secret at all. They just write things according to a script and that is about it. They don't really know the patient. And when they don't really know the patient, it is going to compromise the care.*

One doctor commented that staff had different priorities and that affected how much they wanted to work with patients as individuals.

DR9 INTERVIEW

> *Dr9: But at the same time the expectations of the staff are different. I think there are some staff that feel a good patient is one that doesn't cause disturbance, doesn't ask questions, a patient doesn't take up my time from writing my report. Probably that is a definition of a good patient to some of the staff. But to some other staff who are more humane in their approach, they will appreciate the patient asking questions, sharing their feelings. So I guess that contributes to how they perceive the initiative as being successful or not.*

The context to this is that one of the most important priorities for staff was not getting into trouble (C5.9.1). This was found during the initial qualitative project in 2013 and during the evaluation interviews. Staff were worried about getting into trouble and many of their actions were designed to prevent this, rather than designed to improve patient care. Several staff expressed frustration about documentation having a higher value in the system than talking to patients, but they felt powerless to change this.

Fairness in the distribution of workload was an important value in the system (C5.9.2). Staff wanted a system that was fair, and the workload was evenly distributed. The value of 'fairness' to other staff conflicted with the values associated with relatedness with patients.

COLLABORATIVE PRACTICE MEETING 8

> *Dr8: I think that is good, if you have your own set of patients as a doctor and all that, but then again when we have a shortage of manpower and there are imbalances of work, where certain patients want to see one doctor, Dr [Y] might have more patients and then Dr X might have less patients, because her rapport is better with the patients.*

Staff feeling overwhelmed by demands and expectations affected this mechanism (C5.9.3). Staff had to prioritise goals and values due to the low levels of resources, since not all of them could be achieved.

M5.10 Fear of change of any kind reduced motivation to collaborate.

Motivation to collaborate included collaborating with the committee and the changes that were being introduced. Some staff talked about a general resistance to any kind of change, which they attributed to a fear of doing new things. In a similar way, this was due to a weighing up of whether adequate resources would be available and whether workload would increase. Feeling overwhelmed by demands and expectations (C5.10.1) was an important context here as well. Some staff were not willing to take the risk of investing resources (mainly time) into a new program of unknown benefit, in the context of a low resource environment.

DR6 INTERVIEW

> *Dr6 – the barriers were from every level. Everyone refused, not to say refused, they are quite reluctant to do new things. Because I guess it is going to affect their work and life, there will be adjustments and there will be uncertainties. I think that is what is the fear.*

DR13 INTERVIEW

> *R1: Why do you feel that government staff don't like change?*
>
> *Dr13: It means its more work. You have to adapt to something new. So it means challenging and stress. I think government servant, we don't like it. We don't like changing. We like routine and like it that we are always in our comfort zone, that is the thing I feel. That is why if you introduce something new to the system there will be a lot of resistance. Unless you do it slowly and have some tactics*

The tactics mentioned in the above excerpt included rewards, such as reaching Key Performance Indicators (KPI) and forcing changes through by people higher in the system.

Outcome 6: Improved motivation, less burnout and more work satisfaction in some staff

This effect was seen in the quantitative data, in that depersonalisation and emotional exhaustion, measured by the MBI reduced. There was some evidence for it in the qualitative data as well, but staff did not mention this as much as other themes. Most of the qualitative evidence for this was from two interviews only but was added because it was felt to be an important mechanism.

M6.1: Improved autonomy led to improved motivation and work satisfaction.

Increasing autonomy led to a feeling of being trusted, which led to greater motivation. Most of the change in autonomy in this case was believed to be due to the director's program to reduce the blame culture.

D13 INTERVIEW

> *D13: I generally feel happier, I don't know the rest, but I ask the rest of them, we also prefer [the current circumstances], because even though some things we are not happy, but we are not feel that we are being force to do lots of thing.*

One participant discussed how there was a paradox operating, in that increasing autonomy increased motivation in some people, but in others, they stopped doing anything at all when they were no longer coerced. Only people with higher motivation in the first place increase their motivation towards work when autonomy is high (C5.1.1).

D13 INTERVIEW

> *D13: The thing is… there is good and bad also, because these government servant like you need to do things by force. If you don't force basically, they don't do anything. It's too much freedom, the freedom is useful only when if the person is responsible, if they are proactive, they make full use of freedom. Someone who very lazy, layback they didn't want to do anything, they take the freedom like not to do anything. So like there is pro and cons.*

M6.2: Better teamwork among medical staff led to improved motivation towards goals and values.

Having a good working relationship also led to feeling motivated and satisfied with the job, particularly when they solved problems together.

D13 INTERVIEW

> *Because boss gives me freedom and he trust me then I can do more things and plus my colleague they work with me together, because I find that some colleague I have the wavelength, we have the same idea and can work with them together, than I feel comfortable to do that so I feel like that is the motivation for me to do more works but if let say Bos force us to do it by force, even though I produce the same amount of work I'm not happy at all, so I might burnt out any time in my working life.*

M6.3: Change in the seating in the ward-round led to a greater engagement of staff.

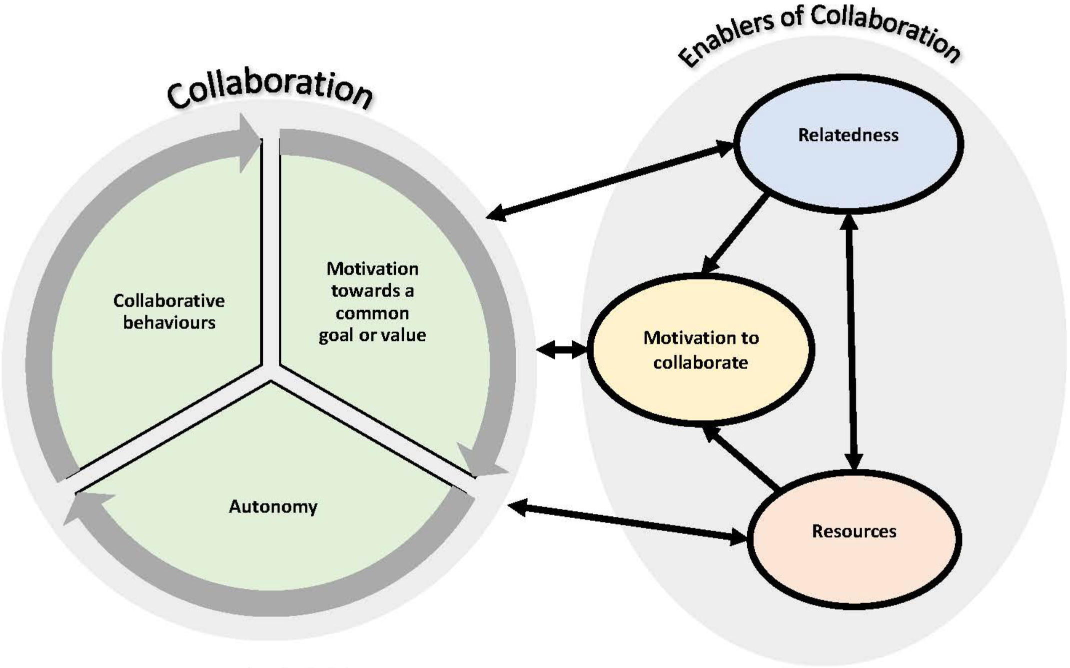
Changing the seating pattern from a lecture style to a circle was noted by some to make them feel included, which motivated them.

AH2 INTERVIEW – WHILE DISCUSSING WHY STAFF ARE NOW GIVING MORE OPINIONS

> *AH2: I still remember starting from the chair, the formation of chair. Honestly, I still remember that and that's when I start to feel like 'oh we are included in ward round'.*
>
> *R1: so do you noticed a big change after the chair formation, then people started behaving differently?*
>
> *AH2: Then we start to feel like, 'Oh it's interesting', because we feel like we are in the discussion.*

Section 6.4 DISCUSSION OF EVALUATION

In this section I consider how the findings relate to our program theory (reproduced below), the substantive theories – self-determination theory and game theory as well as other literature. The original program theory is shown again in Figure 6-3, to aid understanding.



Features that both define and enable collaboration

Features that enable collaboration

Figure 6-3 - Model previously published in the paper Shoesmith et al. (2020)

6.4.1 Outcome 1: Increased collaborative behaviours.

Quantitative results show that collaborative behaviours increased over the course of the study, with increases in the shared problem-solving, the shared decision-making and the collaboration pairs scales. Qualitative results corroborated this, with increases in asking open questions, reflective listening, sharing information, validating, asking opinions, asking for help, inviting to take part in decision-making, shared problem-solving, shared decision-making, sharing leadership, non-judgemental evaluation and learning from others. There was evidence of the following mechanisms operating:

M1.1 Improved skills in staff led to increased collaborative behaviour in staff	**Resources (skills) → collaborative behaviours**
M1.2: Staff had more knowledge about the patients, and this meant that they were more effective when participating in discussions.	**Resources (knowledge) → collaborative behaviours**
M1.3: Improved motivation to collaborate	**Motivation to collaborate → collaborative behaviours**
M1.4 Collaborative spaces led to collaborative behaviours	**Resources (collaborative spaces) → collaborative behaviours**

For staff to show collaborative behaviours they need to firstly, to be motivated to collaborate, secondly, they need to have the skills and knowledge to perform the collaborative behaviours, and thirdly, they need access to a collaborative space. Both motivation to collaborate (see outcome 5) and resources (skills and knowledge about individual patients – see outcome 3) had increased in staff over the course of the project. Increased skills in staff led to more collaborative behaviour in staff (e.g. asking open questions). Greater knowledge about patients, also made staff more competent in collaborating with each other.

These mechanisms are in line with the program theory and previous literature. Interventions to improve interprofessional collaboration can roughly be aligned with these mechanisms. Interventions aligning with Mechanism 1.1 and 1.2 (increasing skills and knowledge) include communication training, high fidelity team training[115], teaching the theory of collaboration and teamworking[265] and interventions which increase knowledge about individual patients (e.g. primary nursing[266]). Interventions aligning with Mechanism 1.3 (increasing motivation to collaborate with others) include interventions based on contact theory[267], where staff from different professional groups train together to reduce stereotype formation. There are also interventions based on structural changes that leads to more collaborative spaces, for example, introducing a multiprofessional ward round[268], which activates Mechanism 1.4. Many of these interventions activate more than one mechanism, for example training students in communities of practice, where collaborative practice is the norm[269], activates both Mechanism 1.1 (improving collaborative skills and knowledge) and Mechanism 1.3 (motivation to collaborate).

6.4.2 Outcome 2: Increases and decreases in the sense of autonomy

There was qualitative evidence that the sense of autonomy had increased over the course of the study, with a few examples of where it had also temporarily reduced. There were no reliable measures of autonomy to measure this quantitively. There was evidence of the following mechanisms in some staff:

M2.1: Change in the communication style of the doctors and senior staff led to a greater feeling of autonomy	**Collaborative behaviour → autonomy**
M2.2: Reduction in blaming led to a greater feeling of autonomy.	**Collaborative behaviour → autonomy**
M2.3: Rotating leadership opportunities led to greater autonomy.	**Collaborative behaviour → autonomy**
M2.4: Increased relatedness with patients led to a reduced sense of autonomy in some staff.	**Relatedness → decreased autonomy in staff**
M2.5: Presence of patients and carers on the collaborative practice committee made some staff feel afraid to discuss things openly	**Increased autonomy in one group → reduced autonomy of another group**

Most of the increased sense of autonomy was attributed to the deliberate attempt by the management of the hospital to reduce the blame culture, which meant that staff felt less afraid to use collaborative behaviours (e.g. report incidents) and be proactive. The change in emphasis from blaming an individual to looking for systems level changes meant that staff had a reason to report and now had a common goal with the incident reporting committee. This increase in autonomy led to improvements in motivation to collaborate and general motivation, which led to greater collaborative behaviours.

The results are in accordance with self-determination theory (SDT). Autonomy supportive environments leads to better development of autonomy and better outcomes in numerous contexts, including healthcare[82,270] education[271], sports[272] and work environments[85,273,274]. Exposure to controlling environments does the opposite and reduces internal motivation, an effect that persists for some time even after the environment changes to become more autonomy supportive[271]. Creating an autonomy supportive environment requires collaborative behaviours, such as providing choice and not using controlling language. Training in autonomy support is effective in increasing autonomy and improving outcomes[275].

Increasing the relatedness between patients and staff is likely to have improved the sense of autonomy in patients, but it sometimes had the opposite effect in staff. The context is important here, in that most of the staff had basic training in their profession (e.g. nursing training), but no formal mental health training and there is no formal supervision support system in the hospital. Training in therapeutic boundary management and using assertive communication styles is often part of formal mental health training and is supported in supervision relationships. Lack of assertiveness and using aggressive rather than assertive communication styles are both associated with burnout in nurses[276]. Training in assertiveness improves assertiveness[277] and reduces burnout[278]. Assertiveness training is also an important therapeutic intervention in patients, which helps to allow emotional closeness without risk to personal autonomy[279].

6.4.3 Outcome 3: Increased skills and knowledge

There was qualitative evidence that knowledge and skills among staff had increased. There was evidence of the following mechanisms operating:

M3.1: Practicing the skills in the workshops and observing others.	**Resources → Resources (skills)**
M3.2: Staff seeing the patient as an individual through understanding that they have different values and goals.	**Collaborative behaviour → Resources (knowledge)**
M3.3: Improved awareness through role playing	**Collaborative behaviour → Resources (knowledge)**
M3.4: The course was engaging and increased the motivation to learn, which increased learning	**Motivation towards common goals and values → Resources (knowledge + skills)**
M3.5: Staff learning from other staff and from nursing leaders	**Resources → Resources (knowledge + skills)**
M3.6: Increases in relatedness increasing knowledge about the patient	**Relatedness → Resources (Knowledge)**
M3.7: Other educational programs improving knowledge and skills	**Resources → Resources (knowledge + skills)**

The skills training which was done as part of this project appears to have been effective in increasing collaborative behaviours. Skills that had been learned on the courses were being used to some extent in the environment of the hospital, which was making a difference in collaborative behaviours.

The method of the skills training was important for the mechanism of action. The predominant training method in healthcare education in the region are didactic[280–282] and this is the predominant educational mode in the hospital. Silverman compared learning communication skills through didactic methods to learning to play tennis by talking about it, rather than doing it[259]. To master a skill, it must be repeated many times, sometimes in front of a skilled facilitator who is capable of giving helpful feedback. Skills training approaches lead to better results in communication skills training [283,284]. SDT research shows that the way of giving feedback has an effect on the result, in that if feedback is done in a way which supports autonomy and increases the perceived competence then the recipients of feedback are more likely to develop internal motivation, find satisfaction in the learning and ultimately learn more[88,89]. The feedback process in skills training involves collaborative processes, where the trainee and facilitator discuss learning goals, practise the technique, analyse the effectiveness of what happened and then plan how to do it differently next time[259]. This collaborative process leads to the creation of new knowledge, both in the trainee and the facilitator. The skill being learned must also be optimally challenging for the learner, to increase the enjoyment of learning and increase perceived competence[90].

In this system, shifting some of the professional development time towards skills training is likely to be effective, if this can be achieved. However, this is currently unlikely due to the competing demands of other programs, such as the need for house officers to practise presentation skills. Continuing the two-day and half-day program may be the best compromise until all staff have received some training.

6.4.4 Outcome 4: Improvement in relatedness in some areas.

It appears that relatedness improved between staff from different professional groups and different grades. Most staff reported no change in the relationship between people of the same professional group and grade, except for some of the doctors who reported an improvement. Most described these kinds of relationships as good from before the study started. The quantitative results had similar findings, in that then relatedness scale of the WRBNS scale and the HSPSC - Teamwork Within Units scales did not change. These scales probably reflected relatedness with close work colleagues. However, there was an improvement in the HSPSC - Teamwork Across Units scale, which most likely reflected working relationships across professional groups, which in this hospital are mainly considered to belong to separate teams.

There was evidence for the following mechanisms:

M4.1: Increased use of skills in staff led to improved relatedness between patients and staff.	***Collaborative behaviours → Relatedness***
M4.2: Increased continuity of care led to increased relatedness between staff and patients.	***Continuity of care → Relatedness***
M4.3: Improvement of communication between staff and doctors on chronic wards due to less doctors	***Decrease in the quantity of relationships → Relatedness***

The reasons for the improvement in relatedness included improved use of skills by the staff, reduced numbers of doctors on the chronic wards and the temporary improvement in continuity of care while the primary nurse system was operating. The effects of the increases in relatedness included the increase in some resources (particularly knowledge about the patient) and reduction in other resources (time). The increase in relatedness increased the motivation to collaborate (the nurses wanted to help more), which led to further increases in collaborative behaviours in both the nurse and the patient.

The primary nurse system increased relatedness while it was in operation. Other studies have shown similar effects, in that primary nursing leads to improvements in the sense of trust between nurse and patient[285]. It can also lead to increased job satisfaction and reduced staff turnover[266], quality of care[286] and fewer nurse-sensitive adverse events [287,288]. The resistance to implementation is also commonly reported, with very similar initial concerns to what was seen in our study, including fears that the workload would increase [289]. However, in other contexts, these concerns dissolve after the system is implemented[266], since the amount of work was not increased, only the allocation of work. Some describe a lower workload after implementation[290]. In our system several contextual factors were operating, which made implementation more difficult. The system is low in resources, with only 13-14 qualified nurses covering all shifts on a 25 bedded ward. The system is also extremely task focussed. The findings were similar to descriptions of nursing care from other task-focussed systems, where visible, documentable work takes priority over the 'invisible' emotional labour of forming relationships with patients[291,292]. Talking to the patient individually was unusual for the nurses and medical assistants in our system, other than the minimal amount of talk needed to perform tasks such as taking blood pressure. Introducing a system where ward staff talked to the patients for 10 minutes twice a week was an increase in work, rather than just being a reallocation of work.

Although many staff could see the theoretical advantage of better relationships with patients, there were concerns about doing this. Some were worried about feeling obliged to do everything the patient wanted, as described in the section on autonomy. Some were concerned about letting the patient down or the patient rejecting help from them if they set firmer boundaries. This may be related to unpleasant feelings aroused from the experience of rejection. This is consistent with experimental research that shows that rejection of any kind, even from strangers, leads to negative affect in the person who has been rejected as well as negative appraisals of the person who has rejected the help[293]. Healthcare staff who perceive that they are more commonly rejected by patients experience higher rates of burnout[294,295] which is likely to be due to the violation of the expectancy that the help will be accepted as well as undermining their belief in themselves as competent caregivers. This corresponds to the exclusion theory of anxiety, which posits that one of the main drivers of anxiety is the threat of exclusion from important social groups[296]. Rejection of any kind, including from strangers, has the potential to challenge our ideas about being competent or attractive to others and this is experienced as a threat to overall group belonging[296]. Minor rejection by strangers has also been shown to reduce prosocial behaviour in experimental conditions[297].

Guilt occurs when a social contract is violated and the risk of violating the social contract is high when resources are low. In one study 15% of nursing staff had quit a job in the past due to 'moral injury', which is where painful feelings occur when institutional constraints (such as lack of resources or autonomy), mean that a healthcare worker is unable to give what they feel a patient needs[298]. Mental health staff have to manage the conflicts which arise from needing to both control and care for patients[299]. Avoiding the emotional labour of forming relationships with patients is one method that healthcare staff use to protect themselves from difficult emotions[292,300,301]. This method leads to negative consequences for both the patient, and the staff member, who is unable to act on their caring and compassion values, which leads to low job satisfaction[302]. Guilt aversion is also seen to influence decision-making in experimental situations[303]. When staff have supportive relationships with colleagues however, this reduces the effect of rejection, guilt and other negative emotions[294]. Maintaining a genuine, compassionate relationship with many different patients requires flexible empathy, where emotions are experienced fully but then let go of quickly[304]. Training staff to notice and manage difficult affective states and thoughts is one way of increasing the emotional capacity of the staff[305,306]. Helping staff to identify and move towards important values that they use in their work is also important. Both acceptance and commitment therapy and cognitive behavioural therapy approaches can be used to help increase the ability to form relationships with patients without suffering burnout[307]. The ultra-brief intervention course taught some mindfulness skills, together with value clarification, which may have served this function.

6.4.5 Outcome 5: Paradoxical effects on motivation to collaborate

There was qualitative evidence that the motivation to collaborate had increased in some staff. However, there were also opposing mechanisms operating which reduced the motivation to collaborate.

M5.1: When the ward staff understood the patient better, they were more motivated to collaborate with them and wanted to help more.	**Relatedness→ Motivation to collaborate**
M5.2: Improved motivation to collaborate and proactivity due to improved autonomy.	**Autonomy → Motivation to collaborate**
M5.3: Doctors were now making a deliberate attempt to ask opinions from staff during the ward round and at other times which led to greater engagement.	**Collaborative behaviours → Motivation to collaborate**
M5.4: Increased awareness of the importance of collaboration led to greater motivation to collaborate	**Resources (knowledge) → Motivation to collaborate**
M5.5: Reduction of motivation to collaborate due to collaboration taking time. Increase in motivation to collaborate when the time needed to collaborate is reduced.	**Potential to lose resources → Lower motivation to collaborate**
M5.6: Staff were not forming relationships due to fear of feeling obliged to always do what the patient wants	**Potential to lose autonomy or relatedness → Lower motivation to collaborate**
M5.7: Concerns about reductions in flexibility reducing motivation to collaborate.	**Potential to lose autonomy → Lower motivation to collaborate**
M5.8: Feeling that change was 'top-down' led to a reduction in motivation to participate in the primary nurse program.	**Potential to lose autonomy → Lower motivation to collaborate**
M5.9: Having motivation towards different goals lowered motivation to collaborate.	**Motivation towards a different goal → Lower motivation to collaborate.**
M5.10: Fear of change of any kind reduced motivation to collaborate.	**Fear of loss of resources, autonomy, relatedness → Low motivation to collaborate**

Motivation to collaborate was increased by relatedness, autonomy and collaborative behaviour in others. It was also increased by reducing the cost of collaboration (staff were more motivated to report incidents when the time needed to fill the paperwork became less). Motivation to collaborate was reduced by threats to autonomy or resources and the other side not responding collaboratively. Higher relatedness in the context of a low resource environment led to both threats to autonomy and resources (time).

Looking through the lens of game theory we one can consider why there was resistance to the programs that increased relatedness. The interviews conducted showed that most staff have good patient care as their ultimate goal, (although there was variation in what that means to different staff). So why were the staff resistant to programs which aimed to improve the therapeutic alliance, when that is an important predictor of recovery? The gains and losses of improving relatedness with the patient can be considered in a game theory grid, which is shown in Figure 6-4. This time the grid is shown in text form rather than representing rewards by numbers. It appears that there are two solutions which give better outcomes, depending on the move chosen by the other 'player'.

		Patient	
		Attempt to collaborate with the staff	Do not collaborate
Staff	Attempt to collaborate with patient	Staff: positive emotion from relatedness, helping someone and acting in line with values; more knowledge about the patient which increases competence; less time for other things; some autonomy loss; negative emotions when unable to meet needs or setting boundaries Patient: Positive emotion from relatedness; better recovery	Staff: less time for other things; negative emotion from rejection; less job satisfaction Patient: less good recovery
	Do not collaborate	Staff: more time for other things; less job satisfaction Patient: less good recovery, negative emotions due to rejection from staff	Staff: more time for other things; less job satisfaction Patient: less good recovery

Figure 6-4 - Game theory diagram demonstrating what staff and patients can lose or gain from working collaboratively with each other

The two Nash equilibria[96] of this scenario are: 1. both partners collaborating or 2. neither party collaborating. The Pareto optimal outcome, which is best for the system, is likely to be both parties collaborating. However, when one party attempts to collaborate and the other one does not, this leads to worse outcomes for both parties. This is an example of a 'Stag-hunt' game, where maximum benefits are gained from collaborating, but this is also the riskiest strategy[308]. In this Stag-hunt, there is also a power difference, and the staff member is nearly always the one who gets to make the first move. Which pathway is chosen by the staff is likely to be partly dependent on their values[309] and how they experience the various components described in the box - for example: how the positive emotion of helping someone compares to the negative emotions of potentially letting someone down in a closer relationship; how severely they feel the negative emotions of rejection; and how much the goal of patient recovery was important to them compared to other goals such as documentation. Both the desirability of positive consequences and emotions and the avoidance of negative consequences and emotions determine how a person will ultimately decide to act[104].

The Stag-hunt pathway chosen also depends on the staff members' assessment of how likely it is that the patient will behave collaboratively. People make judgements about the likelihood of the other person collaborating, which affects their own motivation to collaborate[309,310] This could be seen in the way that the staff described categories of patient that are less likely to be capable of collaborative behaviour: chronic patients, patients with multiple admissions, less educated patients, and patients with psychotic illness. With these categories of patient, the staff member makes less attempts to collaborate with the patient and uses other strategies instead, such as coercive strategies. This effect is also seen in experimental situations, where people are swayed by 'category information' about the other player, such as stereotypes[311]. Categorising patients in this way is also likely to serve the function of reducing negative emotion from rejection, since the rejection can then be attributed to the patient rather than threatening the staff members concept of themselves[296].

The motivation to collaborate in a real interaction is not instantaneous, it is based on information gradually collected over the course of an interaction or several interactions. Within that interaction the other person looks for clues about whether the other person is a collaborator. Displays of collaborative behaviour in the healthcare staff (e.g. asking an opinion) leads to motivation to collaborate in the patient, which leads to them showing collaborative behaviour as well. This shifts the system into the Nash equilibrium where both parties collaborate. If one party shows anti-collaborative behaviour (e.g. hostility, threatening autonomy), this shifts the system towards the equilibrium where both parties do not collaborate. Experimental studies of games show that people who are characteristically collaborative will shift to non-collaborative play if they perceive the other player to be non-collaborative[310].

Some of the changes reduced the cost of collaboration, which increased the motivation to collaborate. The changes to the incident reporting system are an example of this. The decision to report an incident can be considered in a similar way, in terms of cost and benefit (see Figure 6-5) and is also a stag-hunt game. It is clear from the diagram that the best solution is for both parties to collaborate, for the staff to report incidents and for the committee to also act in a collaborative way (i.e., attempting to find ways to improve the system, rather than blaming the staff). This is the first Nash equilibrium, which is also the Pareto optimal outcome. However, if the committee is not acting collaboratively (e.g. by blaming the staff), then the most logical choice for the staff is to not act collaboratively as well, so this is a second Nash equilibrium. If the staff acts collaboratively and the committee does not, then the outcome is much worse for the staff. The reduction in paperwork associated with incident reporting also reduced the cost of collaboration. The overall effect was to push the system from the non-collaborative Nash equilibrium to the collaborative one.

		Incident reporting committee	
		Collaborate with the staff	Do not collaborate
Staff	Collaborate with incident reporting	Staff: positive emotions from helping improvement and acting in line with values; better system to work in; time lost due to filling forms Committee: Positive emotions from helping improvement and acting in line with values; better system to work in	Staff: time lost due to filling forms; negative emotions due to potential shaming by the committee Committee: Minor improvements to system, negative emotions from shaming the staff
	Do not collaborate	Staff: No time lost, no risk Committee: Frustration at lack of reporting, no improvements to system, since problems are not known	Staff: Lower risk, no time lost Committee: No improvements to system, since problems are not known

Figure 6-5 - Game theory diagram to show the costs and benefits of incident reporting

In these figures, descriptions represent the number values that are normally put in game theory diagrams. If we wished to compare the values in each cell, we one would need information about the relative utility of the person's values and different emotional states as well as information about the likelihood of the other person acting collaboratively. There is evidence that there are brain networks which do this, using cost-benefit signals from the multiple systems, including networks involved in social cognition, motivation, emotion, pain and homeostasis[312–315]. These calculations lead to the differential activation of two different brain networks, which roughly correspond to the two different states of acting collaboratively and acting individually: the default mode network, which is involved in social decision-making and is switched on when pro-social behaviour is needed;

and the task-positive networks, which are switched on when there is a need to act towards a goal[316]. The serotonin system particularly has been implicated in decisions about whether to collaborate[317,318]; experimental reductions in serotonin lead to less collaborative behaviour during both repeated prisoners dilemma games and cooperative games[317]. The dopaminergic system appears to be more involved in non-social decisions, which would correspond to our theoretical construct of motivation towards goals and values[315,318].

Training staff to recognise 'stag-hunt' situations in both collaborating with patients and with other staff may improve the ability to collaborate and know when collaboration is most appropriate. If staff are able to recognise when pro-social tendencies have been reduced by stereotypes or previous failed collaboration attempts with someone else, it may also help staff to go against their instincts and shift to the collaboration-collaboration position. Training staff in the way that their own collaborative and non-collaborative behaviour can influence the motivation of the other person is also helpful, such as the realisation that blaming people who report incidents reduces the motivation to collaborate with the incident reporting committee.

6.4.6 Outcome 6: Improved motivation, less burnout and more work satisfaction in staff

During the four years of the study there was a reduction in the emotional exhaustion and depersonalisation scales of the Maslach Burnout Inventory. This was backed up by the qualitative data. Some staff reported that they felt generally happier and more motivated over the final 1-2 years of the study period.

M6.1: Improved autonomy led to improved motivation and work satisfaction.	**Autonomy → Motivation towards common goals and values, job satisfaction**
M6.2: Better teamwork among medical staff led to improved motivation towards goals and values	**Relatedness + collaborative behaviours → Motivation towards common goals and values, job satisfaction**
M6.3: Change in the seating in the ward-round led to a greater engagement of staff.	**Collaborative behaviours → Motivation towards common goals and values**

The improvement in motivation is understandable in terms of SDT[94]. For example, one participant described increases in both autonomy and relatedness and directly explained how that had made them feel happier, more motivated and more likely to act in a proactive way. Some staff also reported that they felt more motivated after becoming more competent in using skills with patients. This has been seen in other studies, where higher levels of autonomy, relatedness and self-efficacy at work are associated with reduced burnout[204,273], including in mental health staff[273]. Burnout occurs when the job demands are high and the job resources are low[319], and satisfaction of psychological needs has been found to be the main mediator in this relationship[320]. Approach-oriented goals (e.g. aiming for success) are associated with more internalised motivation and less associated with burnout than avoidance related goals (e.g. avoiding failure)[321]. By changing the focus of the incident reporting system from blaming an individual to fixing a system, it switched the goal orientation for many of the staff from avoiding trouble (an avoidance goal) to systems improvement (an approach-oriented goal).

There was some evidence that the primary nurse system improved motivation in some staff but may have reduced it in other staff. Some studies of the primary nursing approach show that this has a positive effect on burnout and work satisfaction[322]. Another study showed no effect on burnout, but there was a large reduction in staff turnover[323] and staff experienced more autonomy in their work[324].

Section 6.5 SYSTEMS PERSPECTIVE

A systems perspective can help to illuminate some of the mechanisms seen here and why some programs were effective in this context, while others were not. It also helps to understand some of the paradoxes operating. In complex adaptive systems agents follow rules (known as schema) and this leads to emergent behaviour of the system. Changes in the rules of the agents leads to changes in the emergent behaviour. Below are some of the rules that agents follow in this system, which can be seen both in the qualitative research conducted in 2013[61,62] and in the post-intervention interviews. This list and the priority order are not the same for everyone in the system and does not contain all the rules.

1. Do the tasks given to you by your job scope, in a way that is approved by your superiors in the system.
2. Ensure all tasks are completed in the time available.
3. Do not say anything or do anything which increases the risk of criticism, hostility, or rejection from superiors in the system.
4. Ensure that all activities are documented.
5. Ensure workload is distributed fairly.
6. Maintain friendly relationships with colleagues from the same profession and grade.
7. Maintain polite relationships with patients and families.
8. Collaborate with other staff.
9. Form therapeutic relationships with patients, try to understand what their goals and values are and help them to reach them.

For many staff rule 9 was initially not present or was very low priority, whereas rule 3 was high priority. Complex adaptive systems can be changed by adjusting four different variables: 1. The common schemas shared by agents; 2. The number of organisational units; 3. Increasing connectivity between agents within the system; 4. Increasing connectivity between this system and other systems[67]. The improved sense of safety and awareness about patient centeredness and collaboration meant that the priority order of the internal rules changed. The increased skills also changed the behaviour of the agents in some areas. This led to changes in the ways that agents interacted with each other, with more shared problem-solving and decision-making and more open communication. The schema of the agents changed.

Common schemas can be adjusted to be either more rigid (reducing autonomy) or less rigid (increasing autonomy). Managers of complex adaptive systems are recommended to give agents ‘minimal specifications,’ as opposed to giving detailed instructions. This allows the optimal amount of autonomy, leading to system adaptiveness[325]. There was an increase in autonomy in some agents in the system, which was mainly attributed to a conscious attempt by the director to reduce the blame culture and changes in communication style across the organisation. The relaxing of the rules that the agents followed (particularly rule 3), meant that communication across the system increased and became more open. Participants describe communicating more openly with each other (e.g. reporting incidents, asking for help) which meant that solutions could now emerge from the interactions in the system by bouncing around ideas between agents. Increasing the number of opportunities for collaboration, for example by changing the ward round format, also reduced the rigidity in the system by increasing connectivity. The primary nurse program and skills training program led to reduced rigidity as well, since nurses now felt more motivated to follow rule 9, which led to conflicts with other rules. When the schema that the agents were following became less rigid, the system became closer to the critical zone, or the 'edge of chaos', where adaptability of the system is higher[326].

There was evidence that the change in the schema of some agents led to changes in the schema of other agents, which led to positive feedback loops and non-linear change. For example, when the staff used more collaborative behaviours, the patients collaborated more, which increased the motivation of the staff to help them. When the doctors asked people their opinions, that led to other staff also showing more collaborative behaviours, which reinforced the doctor's behaviour. The ultra-brief intervention course led to some of the participants teaching others similar techniques. There was also evidence of negative feedback loops; if the doctor did not listen to non-medical staff, it reduced their motivation to collaborate, which led to less collaborative behaviour overall. If staff experienced a member of a group of patients as being difficult to collaborate with (e.g. chronic patients, less educated patients), it changed their schema about working with this group of patients overall and made collaboration less likely. Other studies have shown these negative feedback loops working at a cultural level, with negative experiences of other professional groups changing schemas of another group, by forming stereotypes[327]. Research shows that these schemas can be shifted through positive feedback experiences in interprofessional education[267].

Complex adaptive systems are self-organising and changes emerge from within the system[328–330], but they converge to stable patterns or processes known as attractors. There are several different types of attractor, including point attractors (e.g. a pendulum eventually coming to a stop), limit cycle attractors (e.g. a pendulum swinging in a circle) and strange attractors, which have similar patterns to each other but are not exactly the same. Shifting patterns away from these attractors after they have formed is difficult, particularly if the system is far from the critical zone between order and disorder[116,330]. The two Nash equilibria in the stag-hunt game in our system act as two attractors – collaboration and non-collaboration. Once the agents in a system are reliably using one of these equilibria there is no incentive for a single agent to switch, so all agents in a subsystem tend to synchronise into either of these two attractors[331]. Change in a system happens when a new attractor forms - which is more likely as uncertainty or connectivity increase[316]. This is a state that Goldstein[331] described as 'the cusp of change' (a concept similar to the edge of chaos or the critical zone), which is shown diagrammatically in Figure 6-6. In this diagram the y-axis represents a potential or a force, (similar to the way gravity acts if the diagram is representing a pendulum swinging). In the first stage of this diagram there is a single attractor – non-collaboration. A second attractor then starts to form.

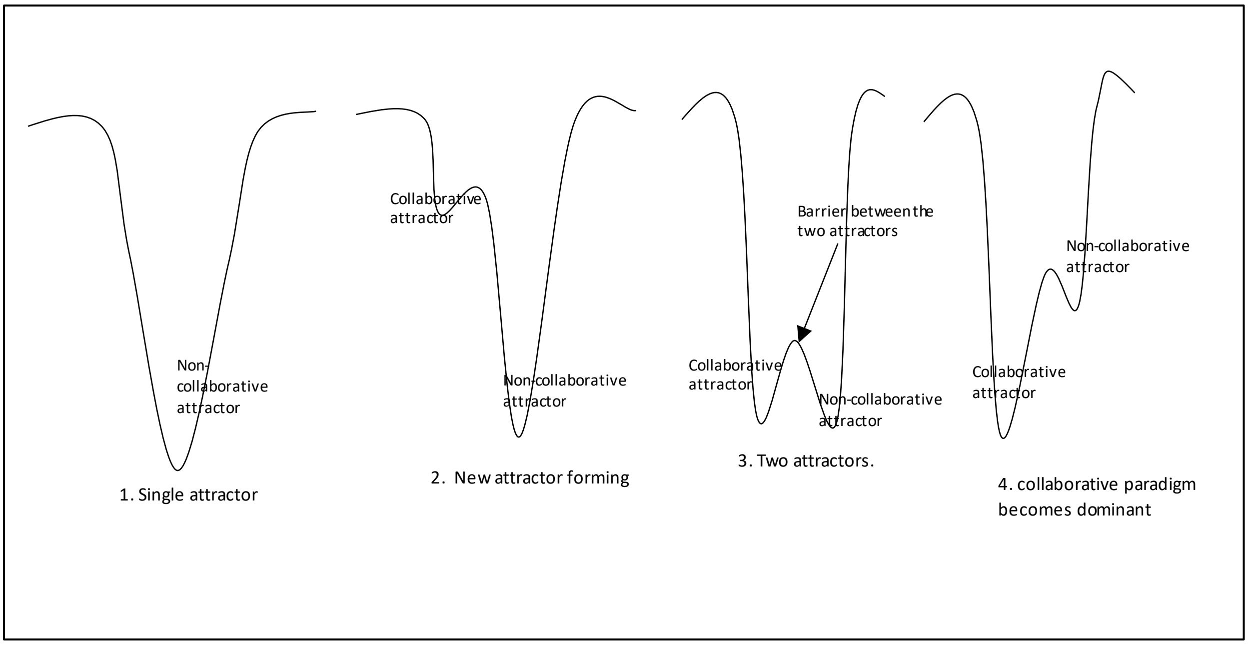


Figure 6-6 - Diagram showing the system at the 'cusp of change' (based on Goldstein 2010)

At the third stage of the diagram, there are two attractors of equal strength[332]. In our system there was an increase in connectivity, which allowed a collaborative attractor to grow. There was also an increase in complexity, for example, the understanding of patients' needs increased, as did the motivation to act on this information. Increasing uncertainty and complexity in the environment pushes the system into acting more collaboratively as well as reducing the size of the barrier between the two attractors, so the system can switch between a collaborative state and non-collaborative state more easily[316]. Eventually either the new attractor becomes dominant, the system reverts to the previous state, or the system remains in the critical zone where either way of working is possible. Ideally a mental health system should operate in this critical zone, where both collaborative and non-collaborative behaviour is possible, and the system can act adaptively to patients' needs.

In the case of the primary nurse program, the system responded by eventually stopping the program and going back to the previous attractor. In a different system, with different starting conditions and a different priority order of rules, the outcome is likely to have been different. In the system where the primary nurse system was originally developed at the University of Minnesota Hospital, the initial conditions were in some ways very similar. In this system the work was also task-focused rather than patient-centred[266] and the staff were frustrated about this, which led to a crisis. At this point the system was likely to have been close to the critical zone. The idea for the system came from interactions between staff and management during this crisis. The idea for primary nurse system in Minnesota emerged from interactions within the system, in what is described as a 'collective flash of insight', indicating that there was a collective change in schema. In our system, although the plan for the primary nurse program was developed by the committee in the hospital, most of the people carrying out the changes were not involved in the decision-making process and so the changes did not emerge from the relevant subsystems. Some did not understand the reasons for the primary nurse system at all. If we had changed the order of the process so that the ultra-brief intervention course came before the introduction of the primary nurse scheme or the notebook, then the results may have been different.

6.5.1 Summary

This chapter has described the effects of trying to implement some of the recommendations of the committee. There was change in the system over the four years of the project, with both quantitative and qualitative evidence of increased shared problem-solving and decision-making, increased collaboration between professional groups and reductions in burnout among staff. Some of this change was related to the project. Some of the changes were most likely related to other factors: the deliberate attempts by the hospital management to improve the working environment for staff and general cultural change over time. Some of the changes had paradoxical effects, for example trying to increase relatedness between staff and patients led to both increases and decreases in the motivation to collaborate with them. Interventions which aimed to improve skills were generally more effective than attempts to change working procedures.

Chapter 7. CONCLUSION

Section 7.1 SUMMARY OF RESULTS AND FINDINGS ACCORDING TO THE OBJECTIVES

This research had the following objectives:

1. To measure collaborative practice and its outcomes in the Malaysian healthcare setting.
2. To build on the qualitative evidence to describe the system of care surrounding patients with severe and enduring mental disorders and the way that the elements in this system collaborate with each other.
3. To develop a set of collaborative practice recommendations for mental healthcare in Malaysia, using consensus methods.
4. To determine the feasibility of implementing the collaborative practice recommendations in the Sabah Healthcare system.
5. To determine whether there was change in the following outcomes in the hospital during the project period: staff burnout, staff psychological needs, and staff team-working and collaboration.
6. To determine the mechanisms which lead to change in collaborative practice and outcomes for patients and staff.

The findings are summarised below, according to the objectives.

1. **Measuring collaborative practice and it's outcomes**
   A new scale to measure shared problem-solving and decision-making was developed. This scale could be used in a wide range of situations, including when there were only healthcare providers and patient present and where there are family members present, or several members of the healthcare team. Shared problem-solving was a more clearly understood concept than shared decision-making and there are currently no scales available which measure shared problem-solving.
   Several other existing scales were validated in this context, including the client satisfaction questionnaire (CSQ-8), personal wellbeing index (PWI), the healthcare climate questionnaire (HCQ-6 and HCQ-15), the collaboration and satisfaction about care decisions scale (CSCD), the relatedness and competence subscales of the work-related basic needs satisfaction scale (WRBNS) and the teamwork-across-units and Teamwork-Within-Units of the hospital survey on patient safety culture (HSPSC). Some of the subscales could not be validated in this setting, particularly scales related to autonomy – the WRBNS autonomy scale and the HSCSC communication openness scale.
2. **Describing the system of care and collaboration in the system**
   The research confirmed the previously identified components which define collaboration: collaborative behaviours, autonomy and motivation towards a common goal or value; and three more enablers: motivation to collaborate, relatedness and resources. All the qualitative data collected could be described in terms of these components.
3. **Developing collaborative practice recommendations**

Consensus methods, through a modified Delphi process including professionals, patients and carers, successfully produced recommendations for collaborative practice in the Malaysian context. The presence of patients and carers on the committees was important and gave a different perspective to that of the professionals.

4. **Implementing the collaborative practice recommendations**
   There were successes and failures in implementing the recommendations. Implementing changes which revolved around training was easier than implementing structural changes, such as the recommendation that patients should have continuity of care. Problems in implementation were compounded by staff turnover and low levels of resources. The low levels of staffing led to difficulties in training enough staff and high staff turnover affected the ability to implement new programs.
5. **Measuring change in staff outcomes**
   There was both quantitative and qualitative evidence of reduced staff burnout, increased sense of competence and increased staff team-working and collaboration. There was qualitative evidence of improvements in autonomy in staff across the system. There was an increase in relatedness in some parts of the system, particularly between doctors and ward staff on the chronic wards and between ward staff and patients.
6. **Determining the mechanisms of change**
   The mechanisms which led to increases in collaborative behaviours were increases in the motivation to collaborate, an increase in collaborative skills and knowledge about patients and an increase in collaborative spaces. Increases in relatedness, autonomy, collaborative behaviours, and knowledge all led to increases in motivation to collaborate. Fear of losing resources, autonomy and relatedness all led to reductions in the motivation to collaborate. Some of the improvement in skills were attributed to the skills training programs that were part of this research. There were multiple positive feedback loops operating, with increases in collaborative behaviours in staff leading to: increased sense of autonomy in other staff; reciprocal collaborative behaviours in staff and patients; increases in knowledge and skills; an increased sense of relatedness; increased motivation to collaborate, as well as increased motivation towards common goals and values.

Section 7.2 STRENGTHS AND LIMITATIONS

Strengths and limitations in measurement

A strength of this project was that we measured a wide range of indicators and used quantitative and qualitative evaluation techniques together. This meant that we were better able to understand the mechanisms of action of what was implemented. We started without any scales validated in this context to measure collaboration and related concepts. This was partly a strength since all the rating scales were validated or developed specifically for the context. This was also a limitation, however, as none of the scales that we used for convergent and divergent validation were a 'gold standard' since we had to use scales which had not themselves been validated. Some of the concepts could not be measured since there were no appropriate validated scales for this context. We lacked scales to measure autonomy, which was an important construct in this study since it was directly related to our program theory.

The longitudinal design of the study was a strength, because it gave time to see changes in the system which may not have been possible in a shorter-term study. Limitations were that we did not measure change in any patient related outcome in this study. The baseline that we measured, in outpatients, was not appropriate to what was eventually implemented. However, measuring outcomes in inpatients would have been difficult and been ethically challenging since many of them would not have had the capacity to consent. The response rate for staff was less than 50% and there was inconsistency in response over the four data collection time-points, which reduced the quantitative data available for longitudinal analysis and reduced the reliability of the findings. However, the findings from different scales were consistent with each other and confirmed by qualitative data.

Strengths and limitations in committee functioning

The strengths were that a wide range of people participated in the two committees in this study, including patients, carers and staff from various professional groups and grades. The two-stage process allowed recommendations to be made which were suited to a local level and then generalised to a national level. The use of Delphi process meant that all members could state their opinions without feeling inhibited. However, there were limitations; the hospital level committee would probably have worked better if there had been greater patient representation. Although we attempted to find patient representatives through advertisements in the waiting room, we did not get volunteers. We also did not have representation of all groups in the Delphi committee, particularly nurses and medical assistants, although they were well represented in the hospital level committee. The hospital committee had a large turnover, which meant that towards the end, the committee were not the same people who had developed the ideas. For this reason, some of the changes still felt top-down, although they originated from the hospital committee.

There were some advantages and disadvantages with me being a participant and a partial outsider, both culturally and from the university rather than the hospital. I was working sessionally in the hospital as a psychiatrist and I believe that gave me a better understanding of the system than a researcher who was a complete outsider would have. I had an insider knowledge about mental disorders and their treatment, which meant that I was able to understand the issues and provide training. Being a partial outsider gave me a wider perspective than a full insider and some of the staff may have felt safer to express themselves, since I was not part of the hospital hierarchy. However, some of the committee may have been reluctant to express themselves with me present.

Some of the committee became active as researchers and co-authored some of the published papers that we wrote. The committee was not involved in writing the final report, since many of the active members had been transferred, and because this is a PhD report, which needs to be my own work rather than the work of a group. This meant that this report is mainly my voice, which may mean that biases have been introduced. Attempts have been made to mitigate these potential biases by presenting the results and evaluation to the hospital staff and requesting feedback from the hospital director and other colleagues.

Section 7.3 RECOMMENDATIONS

Recommendations for clinical practice and management

The collaborative practice recommendations from the Delphi committee are in the Appendix. Further lessons have been learned after attempting to implement some of these recommendations, which are listed below:

- The task of caring for people with mental disorders is complex and emotionally demanding. This study showed that staff need training for this task, including training in collaborative skills, such as shared problem-solving and decision-making. This training needs to include an awareness of the emotions associated with caring and ways of managing some of these emotions. Forming caring relationships with patients also requires supportive relationships from colleagues and management, adequate professional autonomy and time. If this training or support is not given, then the staff will avoid forming caring, collaborative relationships with patients. This training should be a part of basic medical and nursing training. Staff working with people with acute mental disorders need specialist training in this.
- Brief skills training is effective in increasing the use of collaborative skills. Skills training that is interactive, with chance to practice the skills in front of a trained facilitator, should be incorporated into the continuous professional development program for all staff.
- Instituting change in a system where people have low levels of autonomy and more rigid following of internalised rules is difficult. Increasing the autonomy of the people in the system, by reducing the use of punitive behaviours and increasing the use of collaborative behaviours, is one way of improving communication across the system. Increased autonomy and connectiveness has the effect of making the system less resistant to change, which increases the adaptiveness of the system.
- Patient involvement in decision-making and priority setting at hospital level and national level is likely to lead to improved quality of care. The use of the Delphi process showed that useful patient involvement can be achieved at a low cost.
- Creating collaborative spaces increases connectivity and leads to improved planning. Improving existing collaborative spaces to make them more collaborative can have the same effect, for example by changing the furniture, or training staff in collaborative behaviours, such as shared decision-making.
- Staff transfers need to be carefully considered, with the effect on the wider system taken into consideration. Frequent staff transfers reduce collective knowledge in the system and prevents communities of practice from forming. This leads to loss of resources and reduces system adaptiveness.

Recommendations for further research

- Further research on shared problem-solving is needed, to better understand whether this affects patient outcomes. The shared problem-solving and decision-making scale requires further reliability and validity studies.
- The Ultra Brief Psychological Intervention Course requires an effectiveness study, to find the effect on staff and patient outcomes. Funding has already been secured for a realist evaluation of the program among district hospital medical officers.

- Further research would be useful to generalise the model of collaboration and collaborative practice recommendations to other disciplines and other settings with similar contextual factors.

Section 7.4 REFLECTIONS ON THE PROCESS OF THE RESEARCH

This research was much more difficult than I was expecting it to be. When planning the research, I was expecting a roughly linear process, with scales developed and validated, a model agreed on, then implemented and evaluated. What actually happened felt messy and disordered through a lot of the process. The original plan had been to create a model of community-based collaborative practice, and I envisaged something similar to the UK care program approach system or another version of case management. The process did not go in the direction that I expected. Using a committee to make decisions, with a fluctuating, unstable membership, meant that I had little control over what went in the guidelines or was implemented. Staff were suddenly transferred, often with little warning, including the hospital director, which led to many disappointments as things that were implemented were frequently reversed. There were many tensions and paradoxes operating which created some of the non-linearity: between continuity of care and flexibility, between collaborative work and individual work, between service and training and between individual needs and group needs. Managing the different strands of the project was very difficult, sometimes with multiple process happening simultaneously, for example managing data collection at the same time as organising meetings and implementing changes.

This project was complexity theory in action, with the project pushing systems (including myself) closer to the critical zone at the edge of chaos. This was anxiety provoking, but gave rise to new ideas and innovations, which would not have come out of a linear, ordered project. Problems in developing a shared decision-making scale led to a shift in focus to shared problem-solving, a new way of measuring collaborative behaviour. The problems in implementing both the clinic notebook and the primary nurse system led to the ultra-brief intervention course, a new approach to increasing the access to psychological interventions. The paradoxes and tensions which operated as we tried to implement the recommendations led to a deeper understanding of the mechanisms of collaboration.

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APPENDICES

Appendix A. PUBLISHED PAPER - BARRIERS AND ENABLERS TO COLLABORATION IN THE MENTAL HEALTH SYSTEM IN SABAH, MALAYSIA: TOWARDS A THEORY OF COLLABORATION

The data for this paper were collected prior to the PhD period. It is included to help explain the context for the study and the program theory, which is central to the PhD study. This paper was originally published under a Creative Commons licence (Attribution CC BY 4.0) in the British Journal of Psychiatry Open[61]. This is a multi-authored study and the attribution statement is included in the introductory section of this thesis.

BJPsych open
BJPsych Open (2020)
6, e4, 1–10. doi: 10.1192/bjo.2019.92

Barriers and enablers to collaboration in the mental health system in Sabah, Malaysia: towards a theory of collaboration

Wendy Shoesmith, Awang Faisal Bin Awang Borhanuddin, Emmanuel Joseph Pereira, Norhayati Nordin, Beena Giridharan, Dawn Forman and Sue Fyfe

Background

The systems that help people with mental disorders in Malaysia include hospitals, primary care, traditional and religious systems, schools and colleges, employers, families and other community members.

Aims

To better understand collaboration between and within these systems and create a theoretical framework for system development.

Method

A total of 26 focus groups and 27 individual interviews were undertaken with patients, carers, psychiatric hospital staff, primary care and district hospital staff, religious and traditional healers, community leaders, non-governmental organisation workers, and school and college counsellors. Grounded theory methods were used to analyse the data and create a theory of collaboration.

Results

Three themes both defined and enabled collaboration: (a) collaborative behaviours; (b) motivation towards a common goal or value; and (c) autonomy. Three other enablers of collaboration were identified: (d) relatedness (for example trusting, understanding and caring about the other); (e) resources (competence, time, physical resources and opportunities); and (f) motivation for collaboration (weighing up the personal costs versus benefits of acting collaboratively).

Conclusions

The first three themes provided a definition of collaboration in this context: 'two or more parties working together towards a common goal or value, while maintaining autonomy'. The main barriers to collaboration were lack of autonomy, relatedness, motivation and resources, together with the potential cost of acting collaboratively without reciprocation. Finding ways to change these structural, cultural and organisational features is likely to improve collaboration in this system and improve access to care and outcomes for patients.

Declaration of interest

None.

Keywords

Collaboration; global mental health; grounded theory; health care systems; Malaysia.

Collaborative practice is defined by the World Health Organization as 'when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care'.[1] Collaborative practice includes collaboration between healthcare providers and patients or families, between different professions, between different agencies (for example between healthcare services and social services) and between different parts of the healthcare system (for example between primary care and secondary care). Collaborative practice improves several outcomes in healthcare including: patient and carer satisfaction,[2,3] functioning,[4] symptoms,[3–5] access to care, reduced total costs,[6,7] length of hospital stay,[6] hospital admissions,[6] stress levels among staff[8] and mortality.[6,8,9] Although collaboration is a central component of many effective interventions in psychiatry, the concept is inconsistently defined and there is no widely accepted conceptual framework. A literature review of theories of collaboration described five concepts related to collaboration: sharing (for example sharing of resources, shared decision-making), partnership, interdependency, power and processes. Most studies reviewed considered only one type of collaborative relationship (for example interprofessional relationships)[10] and general theoretical frameworks that incorporate the patient perspective, the interprofessional perspective and the wider community in the collaboration are lacking, especially from non-Western and lower- and middle-income countries.

Sabah is a Malaysian state on the island of Borneo, with a population of approximately 3.8 million. It is socioeconomically and culturally different from the rest of Malaysia, with over 60 different ethnic and linguistic groups, a large Christian population and the highest prevalence of poverty.[11] Sabah has less health professionals than many other parts of Malaysia, with approximately 0.4 psychiatrists per 100 000 population (compared with 5/100 000 in Kuala Lumpur and a median of 8.2/100 000 in higher-income countries).[12] Services in the state are largely centralised in a 308-bedded psychiatric hospital and patients in Sabah often seek religious or traditional help before accessing formal healthcare services.[13] Most staff in the health service have not had formal training in interprofessional collaborative practice and it is not generally part of the working culture or medical and nursing school curricula.[14] This study was part of a project to create a new model of collaborative practice for the Malaysian psychiatric system. In this first stage we aimed to understand the enablers and barriers to collaboration and to create a conceptual framework to help improve collaboration across the system.

Method

In this study, grounded theory methodology was used as part of the first phase of a multiphase action research study, so that the theory generated could be used to guide action, using a method similar to that described by Teram *et al.*[15] The focus in this first phase was to create a theory that could guide the formation of a new model of collaborative care in the system and the interviews and focus groups included exploration of ideas about how the system could be improved as well as what was currently happening in the system. In later stages of the study, a 'collaborative practice committee' (which included 11 of the staff who had been originally interviewed, other staff, patients and carers) was formed to act on the research findings and create recommendations to improve collaborative practice in the hospital, which were then reviewed by a nationwide Delphi panel. Some of these recommendations were later implemented in the hospital. These recommendations will be reported on separately.

Data collection

Data were collected in 2013 and 2014 in Sabah, Malaysia. Semi-structured interviews and focus groups were conducted with healthcare providers (psychiatric services, district hospitals and primary care), patients, carers and community members (religious professionals, traditional healers, non-governmental organisation (NGO) workers, school and college counsellors and village leaders). Participants were interviewed in a focus group where possible, but if this was difficult or inconvenient for the participant then they were interviewed individually. A total of 134 people were interviewed in 27 individual interviews and 26 focus groups of two or more people. Details of the participants are shown in Table 1.

A mixture of purposive sampling, theoretical sampling and snowballing was used to recruit participants. Patients and carers were recruited purposively, through recommendation from clinical team members, with consideration given to ensuring that different groups were represented (for example patients with varying length of involvement with services). Posters were also placed in the waiting room, inviting patients to come and give their feedback about the hospital to the research team, but there was no spontaneous response to these. Most patients and carers were interviewed in the psychiatric hospital and were paid a travel allowance, but five were interviewed at home. Staff were mainly selected through purposive sampling, to ensure that each type of professional group was interviewed. Some of the sampling was theoretical, with participants chosen specifically to elaborate emerging categories. Most staff were recruited by the researcher or other staff asking them face to face. In total, 66 staff were interviewed in the psychiatric hospital, with 5 interviewed in district hospitals and 5 interviewed at a primary care conference. Community members were initially selected purposively and then by snowballing, where participants were asked about other people and organisations working with people with mental disorders. Community members were all interviewed in the community.

Table 1 Details of participants

Participants	*n*
Patients	20
Family members	11
Staff	76
Psychiatric hospital	66
Nurse	23
Medical assistant	13
Specialist	5
Medical officer	6
Occupational therapist	3
Physiotherapist	4
Social worker	1
Counsellor	1
Pharmacist	4
Healthcare assistant	6
Primary care	5
District hospital	5
Community	27
Village leaders	8
School counsellors	5
Religious professionals	7
Traditional healers	3
Non-governmental organisation workers	4
Total	134

The decision about the selection of categories of participants was made by team discussion before study commencement and the study stopped when all these categories had been interviewed and core categories were saturated. Decisions about further interviews to explore emerging themes and data saturation was also made by team discussion. No participants refused to participate or dropped out at the point of consent; however, since many participants were recruited through third parties (for example hospital staff referring other hospital staff), it is difficult to calculate a true refusal rate.

Interviews and focus groups lasted between 30 min and 2 h and were conducted in Malay (38 interviews/focus groups) and in English (15 interviews/focus groups). Most interviews and focus groups included only study participants, but five carer interviews took place at home, with community mental health team members present for part of the time. The themes to be explored were developed prior to the interviews/focus groups starting (initial interview questions can be found in supplementary File 1 available at https://doi.org/10.1192/bjo.2019.92). Initial coding was conducted concurrently with data collection and the interview questions altered to explore emerging categories in more detail. Laminated cards with the names of different professional groups (for example 'occupational therapist') and other groups that are part of the system (for example 'patient', 'family', 'traditional healer', 'employer') were used as prompts for the interviews and focus groups. Participants were asked to arrange the cards to demonstrate the relationship they had with the different groups and were prompted to discuss the relationships as they arranged the cards, including details about the ways that they worked together with each group and their opinion about what was helping or hindering their collaboration with different groups.

Data analysis

All interviews were audio recorded and transcribed verbatim by the interviewer or research assistant. Brief field notes were also made during the interview. Analysis was conducted in NVivo version 10 using the grounded theory method as described by Urquart.[16] Interviews were analysed in their original language. During the open-coding phase, the meaning of each phrase was discussed, and a detailed code applied in English. All extracted meanings were coded, with some segments coded multiple times. The detailed codes were regularly inspected and grouped together to form higher-level codes, for example codes 'bravery in going against hierarchical beliefs', 'taking initiative' and eight other codes were merged together under the code 'proactivity and assertiveness', which was eventually merged with other codes to form the code 'sharing responsibility and accountability'. The constant comparison method was used to compare data within a code and recode or regroup if necessary.[17] All major themes and subthemes were saturated. The relationship between themes was established by re-examining the data where more than one of the main themes were coded. The COREQ checklist was used to write the research report.[18] In line with the grounded theory method, the theory was corroborated and expanded by comparing with other theories in the literature (see supplementary File 2 and supplementary Table 1 for more detail).[19] One major theme was added and another renamed during this literature review stage, with the term 'relatedness' derived from self-determination theory.[20]

Reflexivity and strategies to ensure trustworthiness of interpretations

The majority of interviews were conducted by A.F.B.A.B. (a male linguist and masters student, trained in interview skills by W.S.) and W.S. (a female, UK-trained academic psychiatrist with 7-years post-qualification experience, 6-years clinical work in the hospital and a working relationship with some staff participants). The research interests, assumptions and biases of the principal investigator (W.S.) developed from experience of working in a different system. The assumptions were that a collaborative approach led to better patient care and that collaboration within the system was currently inadequate. Ten of the community interviews were conducted by two research assistants, (social science graduates from the community area and trained in interview skills by W.S.). The participants were told that the purpose of the interview was to better understand what was happening in the mental health system and to find ways of improving collaboration.

The interviews were coded by W.S. and A.F.B.A.B. working together. As the coders were of different cultural and professional backgrounds, greater level of reflexivity resulted as assumptions and biases were more apparent. Memo-ing, journaling and regular team discussions and supervisions were also used to improve reflexivity and some memo examples are provided in supplementary File 3. Repeat interviews were not conducted, but some hospital staff were asked for clarification if important content was difficult to hear on the recordings. Participants were offered the opportunity to read their transcript during the consent process; however, none of them made such a request. Member checking was done by discussion of the findings with the 'Collaborative Practice Committee', which was formed to act on the research findings and met between 2016 and 2018.

Ethical considerations

All participants gave written informed consent. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All procedures involving human subjects/patients were approved by the Medical Research and Ethics Committee, Ministry of Health Malaysia (NMRR-13-308-14792).

Results

There were two core results categories: (a) collaboration and (b) reactions to symptoms. Reactions to symptoms has been published separately.[13] Data from the various stakeholders coalesced around six themes related to collaboration. There were three features that both defined and enabled collaboration: collaborative behaviours (theme 1); motivation towards a common value or goal (theme 2); and autonomy (theme 3). If any of these features were absent the situation was not collaborative. As the three defining features all mutually reinforced each other, they were also considered to be enablers of collaboration. The other three themes: relatedness (theme 4); resources (theme 5) and motivation to collaborate (theme 6) were considered to be enabling features rather than defining features, as they facilitate collaboration, but they are not required for it (see Fig. 1). The relationships between themes are shown in Appendices 1 and 2.

Themes that both defined and enabled collaboration

Theme 1 (defining and enabling feature): collaborative behaviours

Behaviours defined as collaborative are identified as subthemes shown in Appendix 2. These behaviours included accepting and valuing others' contributions, learning from each other and sharing information, creating and respecting role boundaries and creating goals and a common vision. Sharing was a critical aspect of collaborative behaviour; sharing information, decision-making, responsibility and accountability and sharing experiences, rewards and frustrations were discussed as present or absent in relationships within the system. These behaviours are considered defining and enabling, because when used, further collaboration is generally stimulated. Each collaborative behaviour subtheme was linked with some or all of the five other themes as shown in Appendix 2.

Theme 2 (defining and enabling feature): motivation to reach a common goal or value

Motivation to reach a common goal or value was both a defining feature and enabler of collaboration and the lack of this motivation was a barrier to collaboration in this system. Participants mentioned that either they or others were not always motivated to create the best possible outcomes for patients. This was related to the following subthemes (a) general motivation, (b) priorities, (c) goals and values.

General motivation. General motivation was related to drive and energy and usually mentioned in relationship to burnout, stress and mental health problems in staff, families or patients. Causes of low motivation described included high workload leading to poor care, lack of resources, lack of autonomy, lack of collaboration from others, lack of progress towards a goal, not working in accordance with values, being asked to do work outside of role, being treated badly by others, lack of support and mental health problems.

Priorities. Conflicting priorities included mental health not being prioritised among community members and in primary care. Staff reported that they were expected to implement an ever-increasing number of programmes without extra resources, particularly in primary care.

Goals and values. Goals of different professional groups, patients and families were sometimes conflicting and were seldom discussed between them.

> '… just to make patients not being a problem. That's the general objective. We want to treat symptoms but not solving the actual problems…. we are managing them so that they wouldn't be a problem for their family members, they eat well, they don't disturb anyone … I think that's the aim of most families. We are not into making them productive citizens of the country.'
> (District Hospital Doctor 1, senior general doctor in a rural area)

Different values were also a cause of frustration and lack of collaboration. Values of autonomy, personal growth and self-actualisation conflicted with values of stability, security and control (such as nursing staff being unable to introduce new activities on the ward because that would reduce monitoring). Values related to caring also conflicted with values related to achievement (of measurable targets).

> 'It is so target orientated. You have got 100 targets, 101, and if you miss them, it is like, "why didn't you achieve the target?" It doesn't make sense to me you know. That is why we are losing our holistic patient care.'
> (Community Matron 1, senior nurse with supervisory and administrative responsibility working in a rural health centre)

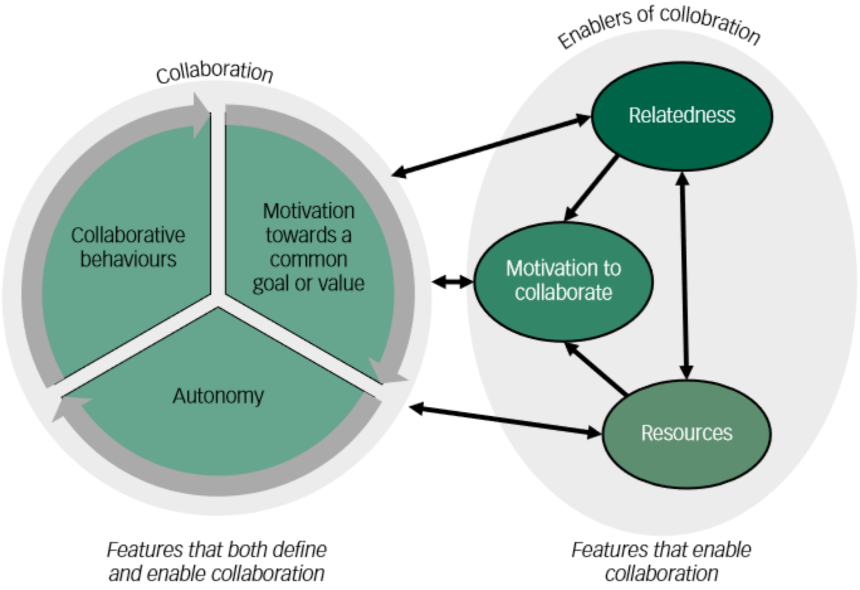

Fig. 1 Factors that define and enable collaboration.

This community matron and several other participants described how not being able to work in a way that was consistent with values (such as caring) led to a loss of motivation in general.

Theme 3 (defining and enabling feature): autonomy

Autonomy was considered a defining feature of collaboration because if participants were not acting autonomously, then they were cooperating or complying rather than collaborating (for example patients taking medication because they feel they must). Lack of autonomy, power differences and hierarchy were identified as a major barrier to collaboration by the majority of staff and patients. Almost all participants identified the same power structure, with the doctor at the top, the patient at the bottom and the nursing staff and family somewhere in the middle. They described a centralised, target-driven culture, which gave a feeling of disempowerment to even senior staff and undermined autonomy.

Barriers and enablers to autonomy. Appendix 3 summarises the enablers and barriers to autonomy, which consisted of the subthemes behaviours, feelings and thoughts.

The patient below illustrates all these elements.

Interviewer:	'Have you ever told the doctor that you want to change something, your opinion?'
Patient:	'Never, maybe next time I will tell them that I want to increase my medication.'
Interviewer:	'Why did you feel you could not speak out before?'
Patient:	'I was scared that the doctor would be angry.'
Interviewer:	'Has the doctor ever been angry?'
Patient:	'No.'
Interviewer:	'But you are afraid that it might happen?'
Patient:	'Yes'.
Interviewer:	'And you don't feel brave enough?'
Patient:	'I keep things secret, I lie to the doctor that I always take my medicine. But … it is my fault … I take more medicine sometimes to sleep, because it is hard to sleep.'

(Patient 4, out-patient with one previous admission, treated for 3 years)

The patient is not expressing her opinion (a behaviour) because she is afraid that the doctor will be angry (a feeling). The feelings are likely to be related to a stereotype because the doctor has never been angry with her and she meets a different doctor each visit. Underlying this feeling may be assumed rules: 'the doctor makes the decisions', 'I am expected to follow orders without questioning or complaining' (beliefs). The doctor and patient are unable to collaborate, and the outcome is that she sometimes runs out of medication and is too worried to ask for more.

Consequences of lack of autonomy. Participants from all categories described the hierarchical culture sometimes being detrimental to patient care and a cause of frustration, loss of motivation, poor communication and harsh treatment, which affected staff, patients and carers. The most notable consequence of the lack of autonomy of non-medical staff, patients and carers in the hospital was the way decisions were made. Most staff interviewed described a style of decision-making where the person lower in this hierarchical structure gives information, but not opinions or ideas to the person higher in the hierarchy.

> 'It is always the doctor that makes the decision, if he isn't too sure he will talk to a specialist…They will always ask "how is the condition of the patient?", then go away…they also ask about their progress on the ward, but I have never known them ask "what do you feel should be done?" They don't ask that.'
>
> (Nurse 11, senior nurse working in an acute ward)

This was also seen in the way decisions were made with patients (see the Sharing decision-making and creating a plan section in Appendix 2).

> 'Normally they [the doctors] review the patient on the ward, the patient comes in, they ask the patient about how they are today and if they are hearing voices, that they are not seeing anything, when they are finished, the patient leaves, then they write the plan on their own.'
>
> (Nurse 9, junior nurse describing decision-making between doctors and patients)

Several staff described how poor decisions were sometimes made because of this decision-making approach and they wanted system-level culture change.

> 'I feel that the culture of not wanting to ask our opinion, I feel it reduces the quality of patient care. They should ask the ward nurse, MA [medical assistant] about their opinion. Because more heads are better than one head. Because I have been working here for 16 years and although there have been changes, the culture is still the same. If this culture continues, there will be no improvement.'
>
> (Medical Assistant 1, senior paramedically trained staff, working in an acute psychiatric ward)

The exception to this was the staff working outside of the hospital (for example in the community mental health team) and allied health staff, who reported that they did give opinions. Doctors reported sometimes wanting opinions from others, but not being given them.

Comparisons between different parts of the system. The lack of autonomy that patients faced within the psychiatric system were also present in the family environment. There appeared to be an expectation that families would act in a patriarchal way towards patients. Participants, including patients, implied that one of the most important roles of the family was to 'control' or 'supervise' the patient.

> 'The family must be together to help the patients, the patient has to be led and they need to cooperate to take care of the patient.'
>
> (Village leader 3, rural village leader, with more than 20 years of experience)

Patients are often assumed to be unable to make their own decisions, for example the family can sign the patient into a rehabilitation centre for 2 years, and the patient is not allowed to leave.

> 'If the student wanted to leave, and their parents who took them here, so their parents need to agree on this. We cannot let them just go like that. Because their parents send them here so we need to respect the decision of their parents.'
>
> (NGO staff 3: working in the rehabilitation centre, not mental health qualified)

Patients did not describe diminished autonomy in their relationships with religious professionals and nearly all these relationships were described in very positive terms. In contrast, patients frequently described low levels of autonomy in relationships with Bomoh (traditional healers), with patients sometimes describing things being done to them with little explanation.

> 'For me it is the religious professionals [who are more effective]. With the Bomoh you just stay quiet, even if they slap you, you just stay quiet.'
>
> (Patient 18, receiving treatment from the hospital for more than 20 years)

Enablers of collaboration

Theme 4 (enabling feature): relatedness

This theme emerged from codes relating to care, caring, supporting, understanding and being connected to others. The subthemes are detailed in Appendix 4. From the descriptions of patients, families and staff, it appeared that relationships between hospital staff and patients and carers were usually friendly, but surface level, where problems were not discussed in-depth.

> Interviewer: 'So is there anyone who knows you, that is close with you or discusses her problems with you?'
> Carer: 'No one. They recognise me from the door, they call my wife, that is all.'
> (Carer 7: husband of an in-patient, admitted 2 months earlier)

> 'The only thing is that in our set up, because we don't really understand the patient in detail and their needs, like for example we are not really deep enough to understand their problems so not really able to help them in a very structured manner.'
>
> (Specialist 2, working in both out-patient and in-patient settings)

Surface-level relationships, where patients do not discuss problems with staff, sometimes lead to stress and aggression:

> 'Stressed patients rarely discuss it with us, but they will show it by becoming aggressive.'
>
> (Medical Assistant 1, senior paramedically trained staff, working in an acute psychiatric ward)

Most patients and carers saw no one in the healthcare system regularly. They described seeing a different doctor every time, both in the psychiatric hospital and in primary care. There was no primary nurse or nurse who knew them well during hospital admissions. Few patients used the names of the staff who had treated them. Carers particularly talked about feeling unsupported, with staff only speaking to them on admission and discharge, but little other contact. The exceptions were when the family were asked permission for electroconvulsive therapy and using clozapine.

The excerpt below, from an interview with junior doctors demonstrates how difficult emotions, associated with relatedness, may become a barrier to relatedness. One of the junior doctors described using numbing as a distancing strategy, which avoids relatedness. The other one describes how relatedness between peers is helping them to manage these feelings.

> MO5: 'There are things that sometimes make me very frustrated, especially when I treat them with tender, loving care with maximum medication, but yet they still relapse, they are still doing the same old, when they come in it is always the same old presentation, so I remember my senior told me that I would feel angry, you will feel frustrated, but eventually you will feel that it is ok.'
> MO2: 'You will feel numb'.
> MO5: 'I haven't feel the numb yet. But I feel from here because we have a lot of support from each other, so if there is any problems we can always, I mean for me, I always voice out, I always tell out, so I listen to a lot of different opinion and I learn at the same time about how to handle such stressful situation, I feel it is quite good lah.'
>
> (Junior doctor interviews (MO5 and MO2): both junior doctors working in in-patient and out-patient departments)

Comparisons between different parts of the system. There were parts of the system where relatedness was higher, particularly between doctors and in-patients; between the community mental health team, patients and carers; and between patients and some of the other people who help psychiatric patients.

In contrast with the health system, school and college counsellors described how they often case manage patients and sometimes form close supportive relationships. Some of the religious professionals also described forming close relationships with the people they were treating, with home visits, regular follow-up and intensive involvement at times of crisis. The patients and carers also reported feeling close to religious leaders. One pastor described how he filled in the gaps of the psychiatric system:

> 'I mean even when people have already started to see a psychiatrist how often do they see them? But in between, although they take the medication, they still have elements of depression, difficulty coping with emotions and stuff. That is when, even though they are on medication, they still come for counselling with the pastors, just to talk.'
>
> (Pastor 2, pastor from large city church)

Theme 5 (enabling feature): resources

Resources were enablers of collaboration and lack of resources were described by many participants as the biggest barrier to collaboration in the healthcare system. We coded competency, time, physical resources, opportunities and collaborative spaces as subthemes. This is summarised in Appendix 5. Lack of resources affected most other features, for example lack of time and training in collaborative skills in staff reduced collaborative behaviours. Lack of the other features further reduced resources, for example lack of collaborative behaviours reduced interprofessional learning.

Theme 6 (enabling feature): motivation to collaborate

This theme was related to the process of weighing up whether the potential benefits of collaboration was worth the extra cost and risk that collaboration sometimes entails. It was added after the literature review stage as it was inadequately represented by the other themes and there was adequate data to support the theme. The subthemes were costs of collaboration and benefits of collaboration. Many participants could describe theoretical advantages of collaboration and believed that the whole system would work better if people collaborated better, but also described how the costs of collaborative behaviour (for example lost time) were often greater than the benefits. Some staff described how attempting to collaborate through patient referral with another party had not been effective and this reduced motivation to collaborate again.

> 'Sometimes I feel, I refer the patient to the, for example like [name of professional group] I don't much have hope, even though I refer, for the sake of referral, most of the patient will still be the same… so actually not so beneficial.'
>
> (MO2, junior doctor experienced in psychiatry)

For some staff, accountability and risk of blame were some of the main costs of collaborative behaviour, in that any proactivity increases the potential to get into trouble.

> 'We already set our mind not to speak… If the ideas are accepted, if there are problems, we will get the backlash. If it is just getting scolded, then never mind, but if it is disciplinary action…'
>
> (Nurse 4, junior nurse, working in out-patient department, previously worked on wards)

Discussion

Defining collaboration

Six features enable collaboration in this system: collaborative behaviours, autonomy, motivation towards a common goal or value, relatedness, resources and motivation to collaborate. The first three of these features define collaboration, in that if any of them are absent the situation is not collaborative. From these three themes, we can define collaboration in this system as: two or more parties working together towards a common goal or value, while maintaining autonomy. Working together involves the sharing of information, ideas, opinions, resources, activities, power, rewards, accountability and responsibility, as described in theme 1.

Autonomy, hierarchy and boundaries

Our definition has differences from other definitions of collaboration, which often do not include autonomy, or stress that collaboration involves interdependence and not autonomy.[10] Conversely, Wood & Gray,[21] considered autonomy to be essential to collaboration and that when autonomy is lost it is a merger, not a collaboration. In our study, autonomy was often lacking from one or both parties and these situations cannot be described as collaborative. The defining role of autonomy in collaboration initially appears to be paradoxical, since collaboration also involves interdependence and reduced personal choice. However, autonomy and interdependence do not have to be opposed to each other.[22] Many definitions of autonomy are based around being able to act in line with internalised values.[23] If common goals are in line with the values of all parties, they can work together while maintaining autonomy. Some of our participants are not able to work in line with their own internalised values (such as caring), which they experienced as threatening to their autonomy and stressful.

The hierarchical culture in the healthcare setting was a barrier to autonomy and was therefore one of the major barriers to collaboration. Power distance is an indication of hierarchical culture and some studies show it to be particularly high in Malaysia.[24] High perceived power distance has been shown to reduce incident reporting rates and this is likely to be mediated by reduced psychological safety.[25] Our study shows that many staff and patients in this system often do not feel psychologically safe enough to speak out if they believe a decision is wrong. Working together, while maintaining autonomy, requires the negotiation and respecting of boundaries and roles.[26] However, overly rigid boundaries and respect for hierarchy sometimes reduce autonomy in this system and are likely to be preventing optimal outcomes for patients.

Costs versus benefits of collaboration

Many of our participants wanted change but felt powerless to change the system. For example, in this system both doctors and nurses are aware that collaborating will lead to a better outcome for the patients (a shared goal that both want) and more job satisfaction. However, both parties also believe that the individual costs of attempting to collaborate without reciprocation are too great (described in theme 6). The system is in what is known in game theory as a 'Nash equilibrium', whereby neither party is collaborating, since both parties believe that the other party will not collaborate.[27] Both parties are frustrated, but neither will collaborate while they are in the equilibrium.

Relatedness

One potential way out of this Nash equilibrium would be to increase relatedness, since repeated interactions allow different equilibria to form as each party is able to develop trust that the other party will act collaboratively.[28] The role of relatedness in psychiatry is well established, in that the therapeutic alliance with a healthcare professional is one of the best predictors of outcome in psychiatric illness.[29] The organisational literature puts a high value on trusting relationships in collaboration and recognise that these take time to develop.[30] The staff interviewed rarely discussed topics related to the therapeutic alliance and there appears to be a lack of awareness of its importance (see Appendix 4, barriers to relatedness). Most staff in the system have not received specific training in mental health and had trained in settings that are geared towards the treatment of short-term episodes of physical illness, where relationships are less critical to the outcome. It also appears that some staff are unsure about how to negotiate and maintain boundaries, while having a genuine, caring relationship with a patient. Reorganising systems to improve continuity of care and training staff in these skills is likely to improve outcomes.

Resources

One of most frequently mentioned barriers was a lack of resources, which meant that participants did not have the time to collaborate. The system is under pressure, with high numbers of patients for the number of staff. This reduces the ability of the people in the system to improve anything, causing a powerlessness that leads to a loss of motivation. Change may improve efficiency in the long term, but normally needs increased resources in the short term.[30] This short-term loss of efficiency is much more difficult to tolerate in an overloaded system. While more resources are available outside of the hospital, for example school counsellors, these people are rarely involved in planning patient care. The lack of time for collaboration means that those resources outside the hospital system are not fully utilised.

Implications

Low levels of autonomy, relatedness and resources are the main barriers to genuine collaborative relationships in this system. The low level of collaboration in the system appears to be causing poor outcomes for some patients and their families, reducing job satisfaction in staff and underutilising the value of the relationships with religious and community leaders and school counsellors. The features that influence collaboration are all intimately connected to one another and any successful solution will probably need to act on all these features at the same time. Changing one of these features alone may not achieve significant change, but training of staff in collaborative skills and reorganising systems to improve continuity of care would be useful first steps towards improving collaboration in the system. Many staff are aware of the problems and have some ideas about how to fix them but feel powerless to change anything. The inertia in the system means that paradoxically culture change may need to be imposed through a top-down approach, to create conditions where autonomy and relatedness are possible and collaborative behaviours are supported and encouraged.

Strengths and limitations

The strengths of this study were the number and wide range of people interviewed and that collaboration was considered from multiple perspectives. The use of cards with different roles during the interview allowed participants to focus on relationships and allowed conversations to progress to a greater depth and level of candour. Limitations included that the principal investigator worked in the hospital and had a relationship with many of the participants in this study. This may have created biases and limited what some of the participants were willing to talk about, but also meant that the research team had a more in-depth understanding of the system.

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First received 31 Jan 2019, final revision 13 Nov 2019, accepted 14 Nov 2019

Funding

This project was supported by a grant from the Ministry of Health, Malaysia (no. NMRR-13-30814792).

Data availability

W.S. and A.F.B.A.B. had full access to all data. W.S. currently has the data and has ongoing access. Other authors had access to the coding tree and important non-identifiable data. Selected, non-identifiable data are available from the authors on request.

Author contributions

W.S.: designed the research protocol, wrote the proposal, undertook data collection, data analysis, drafting the paper and submitting the paper. A.F.B.A.B.: undertook data collection, data analysis, review and critical appraisal of the final article. E.J.P.: helped organise interviews, undertook regular discussion and reflection on findings, helped to draft, review and critically appraise the final article. N.N. is the principal investigator from the Ministry of Health and undertook design of the research protocol, organised logistics and finance, undertook regular discussion and reflection on findings, reviewed and critically appraised the final article. B.G.: was a PhD supervisor for this project, undertook design of the research protocol, regular discussion and reflection on findings, reviewed and critically appraised the final article. D.F.: PhD supervisor, undertook design of the research protocol, regular discussion and reflection on findings, reviewed and critically appraised the final article. S.F.: PhD supervisor, undertook design of the research protocol, regular discussion and reflection on findings, reviewed and critically appraised the final article.

Acknowledgements

We would like to thank the Director General of Health Malaysia for permission to publish this paper. We would like to thank all the participants of this study as well as research assistants Yaniermaida Bt Takim, Nurul Amira Bt Mohd Zaid, Kalsia Binti Matrin and Marliza Yugam, who helped with the early part of the study; and colleagues Loo Jiann Lin and Sandi James, who reviewed the manuscript and provided feedback.

Supplementary materials

Supplementary material is available online at https://doi.org/10.1192/bjo.2019.92.

Appendix

Appendix 1 Relationship between themes (also see Appendix 2 that shows relationships with collaborative behaviours)

Relationship between...	Examples
Relatedness and resources	Staff not knowing patients well reduces their competence to work with a particular patient (for example they are unaware of their educational needs). Time used inefficiently, since the same information is collected from the patient repetitively. Low resources means staff do not have time to gain an in-depth understanding of patients. Lack of mental health training leads to difficulties managing boundaries and the difficult emotions associated with relationships, leading to distancing strategies.

(*Continued*)

Appendix 1 (*Continued*)

Relationship between…	Examples
Relatedness and motivation towards goal/value	Caring about a patient increases motivation towards common goals and values. Relatedness reduces burnout in staff and increases motivation. Working towards goals/values together increases relatedness.
Relatedness and autonomy	Relatedness increases autonomy in both parties, by reducing hierarchy reinforcing stereotypes. Autonomy of staff allows them to work in line with relatedness-based values (for example caring).
Resources and autonomy	Lack of time and resources reduce the autonomy of staff to be able to act in line with their values. If staff are able to make decisions autonomously, they can be more efficient.
Resources and motivation	Low resources (time, training, physical resources) means people get frustrated and give up. Staff are unable to work towards goals if resources are too low for goals to be reached. Low motivation means resources do not improve – staff, patients and carers are not engaged and stop learning and building.
Relatedness and motivation to collaborate	Staff that do not trust each other do not believe the other person will reciprocate if they attempt to collaborate.
Resources and motivation to collaborate	Attempting to collaborate risks losing resources (for example time), without getting any closer to goals. Low resources reduce the risk-taking in attempting to collaborate.

Appendix 2 Collaborative behaviours and relationship with other themes (theme 1)

Collaborative behaviour	Examples and relationship with other themes
Accepting and valuing the contribution of the other	Asking for help, referring to each other, valuing and appreciating each other. Hospital staff referred to each other. Staff sometimes mentioned feeling devalued or not listened to when attempting to make contributions. Relationship with: autonomy↔, relatedness↔, resources↔, motivation to collaborate↔
Creating goals and a common vision	Described theoretically by some participants as being important for collaboration. Participants did not describe a regular process by which this happens, and some reported that it does not happen in the hospital. 'I think what we lack is that we sometimes don't see a common vision for our patient, and I think also each person understands mental illness in a different way, so that is where the main obstacle comes…Because we come from different backgrounds. How to unite these people of different backgrounds will be one major challenge.' (Specialist 3) Relationship with: motivation towards common goal/value↔, relatedness↔
Creating and respecting boundaries and roles	Inside the hospital strong role boundaries were described, which were sometimes rigid – for example the role of doctor as 'decision-maker' (see Theme 3). Some participants, particularly school councillors reported that their role was not understood or respected. Some crossing of role boundaries by doctors, was causing frustration. 'We did an assessment…the patient didn't have a problem that needed chest physio…So when I discussed with the doctor he was harsh and said to just do it. Although the patient from the assessment really didn't need it.' (Physiotherapist 1) Relationship with: autonomy↔+–, relatedness↔+–, resources↔+–, motivation to collaborate↔+– ('Respecting boundaries' was one of the ways that autonomy was maintained, but sometimes in conflict with other collaborative behaviours, for example maintaining boundaries sometimes reduced sharing of information, resources and responsibility)
Sharing information and learning from each other	Communication was frequently one way, with just a brief referral form. Information was sometimes not shared, for example primary care staff not being aware that a patient had been admitted or discharged. From primary care interview: Family medicine specialist 1: 'The department sends back a small slip saying, "thank-you for your referral we are currently seeing and following up this patient".' Student health centre doctor: 'If you are very lucky, you will get that.' Family medicine specialist 2: 'If you are very fortunate.' Student health centre doctor: 'Most of the time nothing.' Family medicine specialist 1: 'Normally no diagnosis.' Staff discussed training community members and psychoeducation of patients and families. Traditional healers wanted hospital staff to learn about them. Some staff discussed learning from each other, mainly from staff of the same profession. Relationship with: autonomy↔, relatedness↔, resources↔
Sharing decision-making and creating a plan	Included eliciting opinions, sharing opinions, listening and coming to a decision together. Shared decision-making was described outside the hospital (for example in families making decisions about seeking help for the first time) between members of the same profession (normally between specialists) and in the community mental health team, but decision-making inside the hospital was rarely shared (see theme 3). Relationship with: motivation to common goal/value↔, autonomy↔, relatedness↔, motivation to collaborate↔, resources←,→+–
Sharing responsibility and accountability	Included proactivity and assertiveness, autonomous helping and following the agreed plan. Staff in the same profession helped each other if one of their colleagues needed help. Some staff deliberately withheld ideas and were not proactive, to avoid blame (see Theme 6). Relationship with: autonomy↔+–, relatedness↔+–, motivation to collaborate↔+–
Sharing experiences, rewards and frustrations	Sharing feelings of enjoyment, stress or frustration. From junior doctor interview: 'Take for example, some of the staff nurse, they do offer some consolation, "it is ok, this patient is always like this".' (MO1) Relationship with: motivation towards common goal/value→, relatedness↔, motivation to collaborate→
Sharing activities and resources	Community participants described joint events, between the hospital and non-governmental organisation workers, religious leaders and other community leaders. Community mental health staff described joint home visits. Relationship with: resources↔, relatedness↔, motivation to collaborate↔

→, collaborative behaviour increases the feature; ←, feature increases the collaborative behaviour; +–, relationship is both positive and negative (further information on relationships in supplementary File 3).

Appendix 3 Enablers and barriers to autonomy (theme 3)

	Enablers	Barriers
Beliefs	Assumed rules (for example 'Patients should be given choices'). Beliefs about competence (for example 'Educated patients are able to understand'). Stereotyping (for example 'Nurses are friendly'). Beliefs about independence and personal responsibility.	Assumed rules (for example 'The doctor should make the decisions', 'The family should supervise and control the patient'). Beliefs about lack of competence (for example 'The doctor knows more than me'). Stereotyping (for example 'Doctors are fierce'). Beliefs about dependency.
Feelings	Confidence, bravery, respect, feeling respected, acceptance, feeling accepted, feeling responsible, feeling recognised, feeling connected.	Fear, feeling looked down on, fear of punishment or social disapproval if not following assumed rules. Descriptions of pride and anger in the person higher in the hierarchy (by the person lower in the hierarchy).
Behaviours	Collaborative behaviours: shared decision-making; respecting, accepting and validating the contribution of the other; respecting boundaries and roles; sharing information; sharing responsibility and accountability.	People perceived to be higher in the hierarchy: monitoring, restricting, contingencies (punishments or rewards), giving directives, leaving out of decision-making and non-collaborative communication (for example not listening). People perceived to be lower in the hierarchy: ingratiating, not expressing opinions or ideas, not making requests and not setting boundaries with people higher in the hierarchy. Physical cues, symbols and non-verbal communication (for example the number of doctors in the ward round intimidating the patient).

Appendix 4 Benefits, enablers and barriers to relatedness (theme 4)

Subtheme	Examples
Components of relatedness	Caring, support, trust, depth of relationship and acceptance.
Benefits of relatedness	Understanding each other, understanding roles, understanding the situation and problems to be solved, increased autonomy in the relationship, feeling supported, open communication, increased influence, enjoyment of the relationship, taking responsibility and better outcomes. 'For example, the nurses are my friends and that makes it easier to discuss patients. Not like gossip, but for the benefit of the patients.' (Occupational Therapist 1)
Enablers of relatedness	Having a relationship with the same person (for example seeing the same doctor on each visit), collaborative behaviours, competency in relatedness, feeling supported, proactivity (for example home visits, calling a patient who does not come for an appointment), regularity and frequency of meetings and accessibility (for example being able to contact when needed)
Barriers to relatedness	(a) Resources (described in theme 5). (b) Avoidance of difficult emotions associated with relationships, for example patients described how shame about the illness, guilt about being a burden and fears about rejection lead to deliberate distancing from others. Carers described disappointment, sadness, frustration, guilt, shame and anger associated with the relationship with the patient. Staff described sometimes how being unable to provide adequate care for a patient that they cared about (normally because of lack of resources) leads to feelings of shame in the staff involved. (c) Lack of support. For example staff reported feeling blamed by people higher up in the hierarchy, rather than being supported by them to form closer relationships with patients. (d) Fears about managing boundaries. For example staff reported a fear of families or patients become dependent or 'spoiled' if they showed too much care. (e) Relatedness not being valued. For example staff described a task-oriented system, where relationships mattered less than tasks, routines and targets. Few staff discussed the benefits of a therapeutic alliance with patients.

Appendix 5 The effect of resources on collaboration (theme 5)

Subtheme	Examples
Time	Healthcare staff report not enough time for collaboration. Sometimes related to autonomy in staff (time spent meeting and documenting targets meant less time to spend with patients). 'We don't spend more than 5 min. It's always less than 5 min…We do not give them the room or the time and opportunity for them to describe their topic. So usually we don't spend a lot of time. I think this is 2 main questions that we ask, "do you sleep well?" or "do you have a good appetite?" then that's it, finish. It's more like fire fighting.' (District hospital doctor 1)
Competencies	Mental health competencies – perceived lack of knowledge in one party reduced collaborative behaviour (for example patients not getting involved with decisions about their care, because they believed the doctor knows more). Specialised competencies – the competencies of a particular profession (for example staff reported that collaborative practice was difficult because of a lack of psychologists). Situation specific competencies – knowledge about a particular patient or a particular community. Lack of relatedness reduced this type of competency. Collaborative competencies – for example staff described lack of skills in collaborative behaviours in others.
Physical resources and opportunities	Resources and opportunities needed to meet goals. Inadequate resources leads to loss of motivation, which reduces collaboration. For example lack of work opportunities for patients causes loss of motivation in staff and patients and reduces collaboration to reach the goal of returning to work.
Collaborative spaces	Current collaborative spaces: meetings, ward rounds. Suggested ways to improve collaboration: computer system, patient handheld records, organisation into teams. Current collaborative spaces only experienced as collaborative by higher-level staff. Lower-level staff and patients did not attend or did not experience as collaborative.

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Appendix B. PUBLISHED PAPER - VALIDATION AND ADAPTATION OF THE MALAY VERSION OF THE MASLACH BURNOUT INVENTORY

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Validation and adaptation of the Malay version of the Maslach Burnout Inventory

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Abstract. This study aimed to validate and improve the Malay version of the Maslach Burnout Inventory. This is a widely used measure of staff burnout, which has previously been translated into Malay. Methods: The Malay version of the Maslach Burnout Inventory- Human Services Survey was pilot tested, altered, backtranslated and pilot tested again. The questionnaire was tested with all clinical staff in a psychiatric hospital in 2015. After analysis, the questionnaire was altered and tested again in 2016. Results: Four items (items 5, 11, 18, 20) were altered from the original after pilot testing, since it was clear that respondents were misinterpreting them. The questionnaire was returned by 154 out of 301 staff in July 2015 and by 121 out of 309 staff in July 2016, with 58 staff returning questionnaires in both years. Analysis of the data from the first year showed a Cronbach Alpha of less than 0.7 for the Emotional Exhaustion and Depersonalisation scales. Four items were dropped from the emotional exhaustion scale, due to non-loading onto the scale on PCA and low item-total correlation. Two items from the depersonalisation scale were retranslated. In the second year, the Cronbach's Alpha was now good for the emotional exhaustion scale (0.84), acceptable for the depersonalization scales (0.70) and acceptable for the personal accomplishment scale (0.79). Burnout negatively correlated with the Work Related Basic Satisfaction of Needs Scale, but did not correlate with the scales designed to measure collaboration. Conclusion: The original version of the scale was not reliable for all three subscales. The modified version of the scale was reliable and had both discriminant and convergent validity.

1. Introduction

The concept of burnout was first described by Freudenberger in 1976, who recognised the syndrome in himself and others that worked in under-resourced public healthcare clinics in New York [1]. He described character changes in staff who were normally dedicated, where they became disengaged, irritable, cynical, uncaring, rigid and obstructive to change. Burnout can be described as a set of physical, cognitive and behavioural symptoms which occur as a result of prolonged stress. Burnout in healthcare staff is related to negative outcomes in patients and high rates of staff absenteeism, turnover and mental health problems [2]. Burnout has been shown to be more common in staff working in mental health fields than staff working in other specialties [2],[3].

This study was part of a larger action research study to improve collaboration across the Malaysian mental health system. This part of the study aimed to validate and improve the Malay version of the

Maslach Burnout Inventory – Human Services Survey [4], so that it could be used to measure the effectiveness of an intervention to improve collaboration. This is a widely used measure of staff burnout, which has 22 items and three subscales: emotional exhaustion (9 items), personal accomplishment (8 items) and depersonalization (5 items). This three factor structure has been widely replicated and has a better model fit than a one or two factor model in most studies [5]. However, many of the validation studies have shown that the scales need modification in order to achieve model fit, particularly in non-Western cultures [5]–[7]. It was previously translated into Malay and tested on ten bilingual Malay and English speakers in a pilot study. This showed a Cronbach's alpha>.8 for all subscales and good agreement between Malay and English versions of the same rater [8]. It had been tested on a sample of healthcare workers, which showed acceptable reliability of with Cronbach's Alpha of 0.849, 0.773 and 0.732 for emotional exhaustion, depersonalization and personal achievement subscales [9]. Five items had not loaded onto the correct factor on principal component analysis (items 6, 13, 14, 16 and 20). The scale has not been tested in Sabah (which is culturally and linguistically different to Peninsular Malaysia) at the time of the study.

2. Methods

Pilot testing and translation: The Malay version of the Maslach Burnout Inventory questionnaire was pilot tested on five healthcare staff from a range of specialties, who were fluent in both English and Malay. The staff were interviewed after filling the questionnaire and asked about their interpretation of the questions. The items which were being misinterpreted were retranslated, back translated and pilot tested again. The process was repeated until the items were no longer misinterpreted.

Other instruments were given alongside the MBI, which were used to meet the wider objectives of the study and to assess convergent and divergent validity. These were:

- The Work related Basic Need Satisfaction scale (WRBNS) [10], an 18 item scale built on need satisfaction theory, which has three subscales: autonomy, competence, and relatedness. Need satisfaction has been shown to be negatively correlated with burnout, particularly the emotional exhaustion and depersonalisation components [11]–[13].
- Other instruments given to measure teamwork, communication and collaboration: communication openness, teamwork across units and teamwork within units scales of the Hospital Survey on Patient Safety Culture (HSPSC) [14], Collaboration and Satisfaction About Care Decisions scale (CSCD) [15] and the Leeds Attitude to Concordance (LAC) Scale [16],[17]). These scales were expected to have weaker correlations with the dimensions of the MBI than the WRBNS scale.

Sampling: All hospital staff were surveyed for two consecutive years in 2015 and 2016. The questionnaires were sent through the hospital mail system to all staff and were filled anonymously. Each staff was given a random ID number, which was at the top of each questionnaire, but was not known to the researcher analysing the data. This allowed staff to be compared between years.

Data analysis: SPSS version 21 was used to conduct the analysis. In 2015 reliability analysis (Cronbach's alpha) and principal component analysis were conducted. The results from promax rotation are reported, since the principal components were correlated. The results were used to alter the questionnaires. Some items that performed very poorly (item-total less than 0.4 or item loading on the correct factor less than 0.4 or cross loading) were dropped and some items were retranslated. After the data collection was repeated in 2016, analysis of Cronbach's alpha was repeated. Confirmatory factor analysis (CFA) was done on the 2016 data, using AMOS software vs 25. Fit was considered acceptable if fit scores met the following criteria: comparative fit index (CFI)>0.9, goodness of fit index (GFI) >0.9, root mean square error of approximation (RMSEA)<0.8 [18].

The project had ethical approval from the Malaysian Ministry of Health Ethics Committee NMRR-13-30814792 and reciprocal ethical approval from the Curtin University Human Research Ethics Commitee (HRE2018-0287).

3. Results

3.1. *Pilot Testing*

Four items were being badly misinterpreted or the respondents found them very difficult to understand (items 5, 11, 18 and 20). These items were changed after discussion with the scale developers (see Appendix).

3.2. *Demographics*

The MBI was completed by 142 out of 301 staff in July 2015 and by 121 out of 309 staff in July 2016 (see **Table 1**). There was no significant difference in any variables between years on X^2 test.

Table 1. demographics of participants (numbers of each staff group)

	Year		Total
	JUN 2015	JUN 2016	
Age			
Under 25	26	15	38
26-35	59	48	102
36-45	20	20	37
46-55	28	26	46
over 55	18	12	25
Sex			
Male	52	50	96
Female	87	68	144
Professional group			
Attendant	45	32	70
Doctor	2	3	8
Nurse	57	51	97
Medical assistant	29	24	49
Other	16	8	21
Medical or nursing post graduate training in psychiatry			
Yes	18	17	32
No	127	104	214
Years of experience in mental health			
<1	9	3	11
1-5	64	58	111
6-10	25	20	44
11-20	17	15	29
>20	32	24	49

3.3. *First Data Collection 2015*

In 2015 the Cronbach's alpha was poor for the emotional exhaustion (0.69), poor for the depersonalization scales (0.63) and good for the personal accomplishment scale (0.83).

On PCA three factors explained 48% of the variance. Two items were not loading (MBI 6 and 11) and four were loading onto the wrong factor (MBI 4, 13, 20, 14) (table 2). In addition, these six items had a low item-total correlation of less than 0.4.

Table 2. PCA of MBI in 2015 (factor loading on PCA)

Item	Subscale	PA	DP	EE
MBI7	PA	.783		
MBI4	**EE**	**.768**		
MBI9	PA	.750		
MBI19	PA	.713		
MBI17	PA	.686		
MBI21	PA	.621		
MBI18	PA	.538		
MBI12	PA	.461		
MBI10	DP		.868	
MBI15	DP		.755	
MBI5	DP		.717	
MBI20	**EE**		**.707**	
MBI13	**EE**		**.644**	
MBI22	DP		.524	
MBI16	**EE**			
MBI3	EE			.800
MBI1	EE			.744
MBI6	EE			.672
MBI8	EE			.669
MBI2	EE			.643
MBI14	**EE**			**.408**
MBI11	**DP**			

After discussion with the scale developers four items from the emotional exhaustion scale were removed (items 13, 14, 16 and 20). This scale already had nine items, so removing four of them would still leave five items. Item 13 ‘I feel frustrated by my job’ had been difficult to translate, because the word for frustrate (*kecewa)* has other meanings, including ‘fail’ and ‘disappointed’. It loaded onto the depersonalisation scale, rather than the emotional exhaustion scale. Item 14 ‘I feel I'm working too hard on my job’ had loaded positively onto the Personal Accomplishment scale. Item 16 ‘Working with people directly puts too much stress on me’ was dropped because it was not loading on any scale. Item 20 ‘I feel like I'm at the end of my rope’ had been translated to mean ‘I am approaching my goal’ in the original translation- the opposite of the intended meaning. This was retranslated to mean ‘I feel like I can't stand any more’. This loaded onto the depersonalisation factor rather than the emotional exhaustion scale.

The psychometrics of the five item version of the emotional exhaustion scale was the better than other versions of the scale with more items, in that the Cronbach’s alpha was the highest and principal component analysis showed all of the items loading in the correct factor with no cross loading or non-loading items. For the two poorly fitting items on the depersonalization scale (items 11 ‘I worry that this job is hardening me emotionally’ and 22 ‘I feel recipients blame me for some of their problems’), the items were not removed, since that scale only had five items. These items were retranslated.

3.4. Second Data Collection 2016

The Cronbach’s Alpha in 2016 was improved and was now good for the emotional exhaustion scale (0.84), acceptable for the depersonalization scales (0.70) and acceptable for the personal accomplishment scale (0.79).

On CFA, the fit indices were lower than the acceptable cut-off scores: $X^2 = 353$, DF=132, RMSEA= 0.119, GFI=0.72, CFI=0.69. Items were deleted sequentially, based on the standardised factor loading score and cross correlations, until the fit indices were acceptable. Model fit was achieved, but only after eliminating several items 6 and 8 from the emotional exhaustion scale, items 11 and 15 from the depersonalisation scale and item 4, 9, 12 and 21 from the personal accomplishment scale (see figure 1).

The five item and nine item versions of the MBI emotional exhaustion scale correlated well ($r(128) = .88$, $p < 0.001$) and the equation $y=0.4+0.63X$ was derived and used to transform the EE mean to allow comparisons with international data.

Means for the three scales are shown in Table 3. There were no significant differences in the means between 2015 and 2016 using either unpaired t-tests with the whole sample or with paired t-tests, when only the 54 staff who had completed the questionnaire both years were included. There were no significant differences between the different staff groups.

The pattern of correlations with other scales is shown in table Table 4. The burnout subscales correlated most strongly with the Work Related Basic Satisfaction of Needs Scale, had weaker correlations with the teamwork scales and was not correlated with the collaboration and satisfaction about care decisions scale or the Leeds attitude to concordance scale.

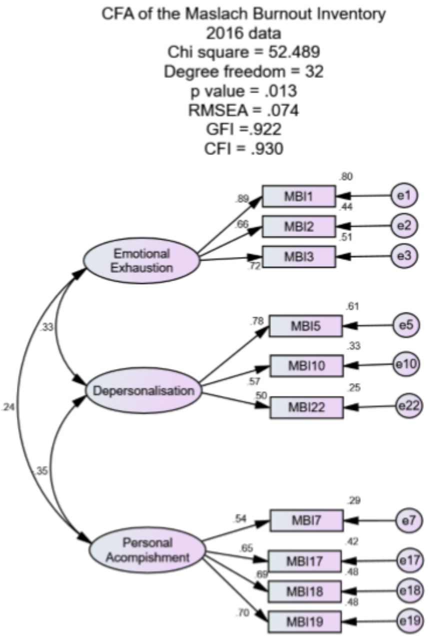

Figure 1. CFA of the 18 item version of the MBI after elimination of eight items.

Table 3. Means of the three subscales.

Year		EE (5 item version)	Transformed mean for EE*	DP	PA
JUN 2015	Mean	12.54	19.27	4.49	32.30
	N	128		128	128
	SD	6.47	9.63	5.23	10.53
JUN 2016	Mean	13.49	20.78	5.89	32.63
	N	122		122	121
	SD	6.77	10.11	6.02	9.29
Total	Mean	13.00	20.01	5.18	32.46
	N	250		250	249
	SD	6.62	9.87	5.66	9.93

*for comparison with international data

Table 4. Pattern of correlations of the three subscales of the MBI (2015 and 2016 data together).

	EE	DP	PA
MBI- Emotional exhaustion subscale	1	.237**	0.045
MBI- Depersonalisation subscale	.237**	1	-.324**
MBI- Personal accomplishment subscale	0.045	-.324**	1
Work related Basic Need Satisfaction scale	-.180**	-.424**	.237**
Collaboration and Satisfaction About Care Decisions scale (2015 only)	-0.085	-0.098	0.008
HSPS- teamwork within units subscale	-.282**	-.149*	0.101
HSPS- teamwork across units subscale	-.171**	-.144*	0.022
HSPS- communication openness subscale	-.173**	-0.091	-0.026
Leeds Attitude to Concordance scale	0.030	-0.068	0.039

**. Correlation is significant at the 0.01 level (2-tailed).

4. Discussion

The Malay version of the 22 item Maslach Burnout Inventory was not found to be adequately reliable or valid. Several of the items were difficult to translate and there were problems interpreting some of the items on pilot testing, with one item interpreted as having a meaning opposite to the original English version. This is likely to be due to the use of a culturally specific idiom. Four items were removed, producing an 18 item version that was tested in 2016 and found to have acceptable reliability, similar to that found in previous studies [5]–[7],[9]. The pattern of correlations was as expected for the three subscales.

The 18 item version did not have acceptable fit on CFA, which may have been partly due to a low sample size [19]. Fit was achieved after eliminating seven items. Non-fitting on confirmatory factor analysis has been found in many studies of the MBI and this has been overcome by either allowing cross correlation of error terms or by eliminating items [5]–[7].

Initial problems in the reliability indicate that some items were interpreted differently across language and cultures. Responding to an item involves several processes: interpreting the question, retrieving information from memory, forming a judgement and formatting the response [20]. Values are different between cultures and when respondents go through the judgement process for each item they incorporate these values. People from different cultures use different cognitive processes while interpreting the item. An example from our study is item 14 ‘I feel I'm working too hard on my job’, which loaded positively onto the personal accomplishment scale, rather than loading onto the emotional exhaustion scale. This may be because the respondents see working too hard as a personal accomplishment in this culture. It is notable that the same item loaded onto the personal accomplishment scale in the in the previous Malysian study [9] and in the Korean validation study [7], which may be due to similar cultural values. All of the items which had loaded onto the wrong scale in the previous Malaysian validation study were also problematic in this study (items 6, 14, 13, 16 and 20) [9].

Limitations: The questionnaire was only tested on mental health staff, who may have different cultural values and cognitive processes to other kinds of staff and may not be generalisable. Sample size is likely to have affected the CFA and this needs to be repeated.

5. Conclusions

Considerable changes needed to be made to the translated Malay version of the MBI to correct for problematic translation relating both to culture and idiomatic language. After these changes were made, the MBI was deemed valid and reliable to be used in a hospital setting in Sabah, Malaysia. Idioms should be avoided in new scale development, particularly if they are to be used cross culturally.

6. Acknowledgements

We would like to thank the Director General of Health Malaysia for permission to publish this paper. This project was supported by a grant from the Ministry of Health, Malaysia NMRR-13-30814792. We would like to thank all the participants of this study. There are no conflicts of interest.

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Appendix C. PUBLISHED PAPER - CREATION OF CONSENSUS RECOMMENDATIONS FOR COLLABORATIVE PRACTICE IN THE MALAYSIAN PSYCHIATRIC SYSTEM : A MODIFIED DELPHI STUDY

This paper was originally published under a Creative Commons licence (Attribution CC BY 4.0) in the International Journal of Mental Health Systems[240]. This is a multi-authored paper, and the attribution statement is included in the introductory section of this thesis.

Shoesmith *et al. Int J Ment Health Syst* (2020) 14:45
https://doi.org/10.1186/s13033-020-00374-7

International Journal of
Mental Health Systems

GUIDELINE **Open Access**

Creation of consensus recommendations for collaborative practice in the Malaysian psychiatric system: a modified Delphi study

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Abstract

Background: There is strong evidence that collaborative practice in mental healthcare improves outcomes for patients. The concept of collaborative practice can include collaboration between healthcare workers of different professional backgrounds and collaboration with patients, families and communities. Most models of collaborative practice were developed in Western and high-income countries and are not easily translatable to settings which are culturally diverse and lower in resources. This project aimed to develop a set of recommendations to improve collaborative practice in Malaysia.

Methods: In the first phase, qualitative research was conducted to better understand collaboration in a psychiatric hospital (previously published). In the second phase a local hospital level committee from the same hospital was created to act on the qualitative research and create a set of recommendations to improve collaborative practice at the hospital for the hospital. Some of these recommendations were implemented, where feasible and the outcomes discussed. These recommendations were then sent to a nationwide Delphi panel. These committees consisted of healthcare staff of various professions, patients and carers.

Results: The Delphi panel reached consensus after three rounds. The recommendations include ways to improve collaborative problem solving and decision making in the hospital, ways to improve the autonomy and relatedness of patients, carers and staff and ways to improve the levels of resources (e.g. skills training in staff, allowing people with lived experience of mental disorder to contribute).

Conclusions: This study showed that the Delphi method is a feasible method of developing recommendations and guidelines in Malaysia and allowed a wider range of stakeholders to contribute than traditional methods of developing guidelines and recommendations.

Trial registration Registered in the National Medical Research Register, Malaysia, NMRR-13-308-14792

Keywords: Collaborative practice, Delphi method, Consensus methods, Malaysia, Mental health, Guidelines, User participation

Background

Collaborative practice is defined by the World Health Organisation as: "when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care" [1]. Collaborative practice is a broad term, which includes collaboration between the patient and healthcare staff, collaboration between the

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different members of the multidisciplinary team, collaboration between primary care and mental health staff and collaboration between healthcare staff and other members of the community. The complexity of severe mental problems mean that the good care is normally team based, with several different professions working together to help the patient. In the care of people with mental health problems, collaboration between service users and healthcare providers allows them to work towards common goals and this partnership has been shown to be one of the most efficacious components of many treatments [2–6]. Evidence that some of these collaborative models are more effective than usual care is strong, particularly collaborations between primary care and mental health services, where more than 80 randomised controlled trials have demonstrated clear improvements in outcomes with no increase in costs [7].

Developing collaborative practice in Malaysia was considered important because qualitative research showed that interactions were often hierarchical, rather than collaborative [8]. This was sometimes having a negative effect on patient care, for example nurses not telling doctors if they believed a treatment plan would not work and patients not discussing with their doctors if they had stopped medication due to side effects. Service provision was often siloed, for example there was little communication between the psychiatric hospital and community health clinics [8, 9]. There was also a large treatment gap of more than 90% in primary care [10]. Most collaborative models of care were developed in Western cultures. Cultural factors affect the way that people work together, and a model of care developed in a Western setting may not be the best model of care for an Asian context. These models are complex, with many elements and it is difficult to know what the most important elements for effectiveness are.

Developing complex models of care and interventions requires a different approach to developing simple interventions. Consensus methods offer a way of creating guidelines where the proposed intervention is complex and in situations where there is no strong evidence [11, 12]. Consensus methods include Delphi methods, nominal group techniques and the consensus development conference [12]. Delphi methods have been used extensively in higher-income countries and some low-income countries as a way of improving mental health services [13, 14] as well as a way of developing culturally appropriate responses [15]. The Delphi method involves sending a panel a series of items to rate and comment on. The panel never meet in person and all their ratings and comments remain anonymous. After the first round, the panel are sent the ratings and comments of the other panel members and the process is repeated in a series of rounds until consensus is reached [16]. In this study the Delphi method was chosen as a way of generalising recommendations developed by a local hospital level committee so that they would be useful for the whole of Malaysia. The Delphi method was chosen because it has been shown to be a reliable way of reaching a consensus [17], the anonymity makes it easier for people to express ideas if there is any perceived hierarchy and because we wished to get opinions from different geographical areas of Malaysia, where face-to-face meetings can be difficult and expensive.

This exercise aimed to answer the question: 'What will improve collaboration in the Malaysian Mental Health System?' The aim was to find a common vision of what would be effective, whether or not it was implementable at the current time, in view of the fact that Malaysia is a rapidly developing country and has very different levels of resource availability across the country [18]. A clear view of a desirable future is helpful in creating momentum and allowing people to work together.

Methods

Framing the research question and creating the first set of recommendations

The research question had originally come from a qualitative research project, which explored collaboration in the mental health system in Sabah, Malaysia. The first set of recommendations were produced by a local level committee in a psychiatric hospital, who met face to face, in the state of Sabah on the island of Borneo. This committee consisted of mental health staff and service users and had a total of eight meetings to produce the first set of recommendations. The committee were asked to create a set of recommendations for the hospital, based on qualitative research that had been conducted looking at collaborative practice in the hospital [8, 19]. Information from searches of research databases was also regularly presented at these meetings, where research questions arose from the discussion, focusing mainly on systematic reviews and meta-analyses (searches included the Cochrane Library, Embase, MEDLINE, Web of Science, Scopus, Psychinfo and Google Scholar). All these meetings were recorded and all but one of them was transcribed and coded, using the coding template derived from the original grounded theory study. The meeting minutes and items for the recommendations were created from this thematic analysis and then discussed at the next meeting. Some of the recommendations were implemented in the hospital and the results discussed at the meetings. Further discussion of the functioning of this committee and implementation of the recommendations will be discussed in separate papers.

Formation of the panel

People with a special interest in mental health systems and collaborative practice in Malaysia were identified. Most of the people suggested for the Delphi panel had been originally suggested by the hospital level committee, mentioned above, but others were found through reviewing the literature and by referral of other people recruited to the panel. Patient and carer representatives were identified through a snowballing mechanism, whereby opinion leaders were asked if there were any patients or carers who were active in support groups or in advocacy. Invitations to participate in the Delphi panel were sent to a total of 36 people, using a mixture of What's App messaging, emails, phone calls and face to face discussions. The people invited included psychiatrists, psychologists, counsellors, psychiatric nurses, primary care doctors, public health professionals, NGO representatives and service users.

Determination of the expert panel size

It was aimed to get approximately twenty members of the panel, in order to ensure that all members could be communicated with individually if needed. A panel size of approximately twenty has reasonable stability and scores have been shown to correlate well with larger panel sizes [13].

Creating the questionnaire

An initial questionnaire was developed using Google forms about the model of collaborative care developed in Sabah. A five-point Likert scale was used to assess each of the items. This questionnaire was piloted by sending to two members of the research team (SF, DF) who were not involved in the development of the questionnaire and were not from a mental health background and a psychiatrist who was not involved in the study or in the panel.

Information provided to panel members to aid their judgements

The items were proceeded by an introduction to the concept of collaborative practice and a brief explanation of the results of the qualitative research. Most of the items were accompanied with a brief explanation or a link to other materials. All of the additional material had been agreed upon by the hospital level committee. The accompanying material was designed to be informative without creating a large reading burden for the members of the Delphi panel.

Administering the questionnaire

Three Delphi rounds were conducted February 2018, July 2018 and February 2019. The questionnaire was sent to the panel of experts, providing an anonymous on-line mechanism for them to review and comment on the collaborative care model. Panel members were given approximately 1 month to complete each round, with several reminders sent during this period. Panel members were not reimbursed for their time. Panel members who completed round one, but did not complete round 2, were given the opportunity to take part in round 3, after informing them about previous results.

Analysing rounds and providing feedback to the panel

An a priori decision was made that items were considered to have reached consensus if no members of the panel disagreed with an item and if the interquartile deviation was less than one [20]. The items were changed or removed if consensus had not been reached and the panel asked to re-rate the items and comment on them in the next round. The panel were sent anonymised ratings and comments from the previous round, which were displayed before asking the panel members to rate the item again. Where consensus had been reached, but comments were made suggesting minor changes to wording, the changes were made, and the panel was asked to comment. The panel was also asked to suggest any additional items during the first round of the Delphi process, and these were rated during the second round. The original hospital level committee discussed changes to the items before sending out for the final round as a way of reducing biases. The Delphi panel were also asked to rate and make comments about the process and changes were made to the process of subsequent rounds based on these comments.

Reporting results

Written comments were imported into NVivo version 10. Initial open coding was conducted, followed by amalgamation of codes into higher level categories. WS conducted the initial coding and SF also examined the raw data and checked agreement with the codes. Comparison between patient/NGO comments and healthcare staff comments was conducted using a matrix coding query. The area of difference are highlighted in this paper in order to better understand how service user input into guideline development is important. Reporting was done using the CREDES statement for Delphi studies [21].

Ethics and consent

The study was approved by the Medical Research and Ethics Committee, Ministry of Health Malaysia (NMRR-13-308-14792). All hospital level committee members signed written informed consent forms to agree for the recording of the meetings to be used for the purpose of research. All Delphi panel members agreed to participate electronically, after personalised contact (through emails, messages and sometimes phone calls) to explain the process.

Results

This paper will focus mainly on the Delphi panel, the functioning and effectiveness of the hospital level committee will be discussed in a separate paper.

Composition of the hospital level committee and the Delphi panel

Table 1 shows the composition of the hospital level committee and the Delphi panel. There were 33 people who had attended the meetings of the hospital level committee, who were all based in one psychiatric hospital in Sabah. Twenty-two people agreed to take part in the Delphi panel, from different parts of Malaysia, and different institutions, including hospitals, universities and government institutes. Ten people did not reply, one declined because they felt it was not related to them and one suggested another person. Eighteen completed round one, 11 completed round two and 14 completed round three (three participants who did not complete round two subsequently completed round three). Four more patients were recruited during the first round, suggested by one of the Delphi panel members, who felt there were inadequate numbers of patients in the panel and was a member of a social media-based support group.

Table 1 Composition of the hospital committee and Delphi panel (participants that completed at least one round)

	Hospital level committee	Delphi panel
Academic psychiatrists	1	1
Assistant medical officer	7	
Carer	2	
Carer and psychoeducation officer		1
Child and adolescent psychiatrist	1	1
Clinical Psychologist	1	1
Community and liaison psychiatrist		1
Community and rehabilitation psychiatrist		1
Community psychiatrist		1
Counsellor	1	
Dietician	1	
Forensic psychiatrist	1	
General psychiatrist	2	3
Healthcare assistant	2	
Liaison psychiatrist		1
Medical Anthropologist		1
Mental health NGO		1
Mental health NGO and patient		1
Medical officer	4	
Nurse	7	
Occupational therapist	1	
Patient	1	4
Public health specialist	1	
Total	33	18

Quantitative analysis of items by the Delphi panel

Table 2 shows a list of items, together with the mean response for each round and the interquartile deviation (IQD). Where items had reached consensus in the first round, there are no round 2 results shown. The items were categorised under themes: autonomy, relatedness, resources, collaborating outside the hospital and decision making. At the end of round one, 39 items had been endorsed and ten rejected. The ten rejected items were rewritten and nine new items were added before round two (see Fig. 1). All items except for two had reached consensus after two rounds. The two items which had not yet reached consensus were rewritten and then a third round conducted, with only these two items to rate. One of these items was the title. For this item, the respondents were given a choice of three titles and asked to give the preferred title and asked if they were acceptable. The chosen title was the preferred title and was considered acceptable by all participants. The full version of the recommendations can be found in Additional file 1. A full account of how the committee changed the items is in Additional file 2.

Analysis of comments from Delphi panel

Most of the comments that both service users and staff made were broadly supportive of the guideline statements. The differences between the ways that staff and service users commented is highlighted.

Autonomy

All the respondents agreed with the need to empower patients and staff. Some service users described feeling intimidated and the difficulties that patients sometimes had in expressing themselves with doctors. Three new items were added after round one after suggestions from the panel, about ways to choose a meeting chair, giving leadership opportunities to staff and ensuring there was time for questions at the end of meetings.

Relatedness and continuity of care

Seeing a regular doctor appeared to be particularly important to service users. Service users commented extensively about this, illustrating with stories of difficulty in the system due to problems in continuity of care.

Table 2 Means and interquartile deviations of items

	Item	Round 1		Round 2	
		Mean	IQD	Mean	IQD
Title	Working Together: A Consensus on Collaborative Practice in the Malaysian Mental Health System	4.4	0.5	4.2	0.5
Autonomy					
1.1	The suggested process of collaborative problem solving and decision making should be considered as a way of empowering patients, carers and staff and improving the quality of decision making (as described in section 6 on previous page)	3.8 *3 disagree*	1	4.7	0.5
1.2	All staff should be trained in assertiveness, validation*, empathy and giving feedback* appropriately	4.7	0	4.8	0
1.3	Staff need to pay careful attention to furniture and subtle cues that may make people feel intimidated. In meetings we suggest that the seating should be as close as possible to circular, with no back row, if space allows	4.4	0.6		
1.4	The chair of the meeting should play a facilitator role and take care not to dominate	4.4 *1 disagree*	0.5	4.7	0.5
1.5	The chair of the meeting should be someone who has good meeting skills and skills in listening and validating, understands the topic and the context of the meeting and should be chosen with the agreement of the other members of the meeting. The chair should not be chosen purely on the basis of grade and profession			4.4	0.5
1.6	The meeting chair needs to create a non-judgmental, validating environment	4.3 *1 disagree*	0.5	4.8	0
1.7	The meeting chair needs to pay careful attention to power imbalances and make a special effort to elicit and validate opinions from people that may be feeling intimidated	4.5 *1 disagree*	0.5	4.6	0.5
1.8	Providing paper to people who might normally feel intimidated can encourage them to express themselves	4.3 *1 disagree*	0.5	4.3	0.5
1.9	Breaking up into smaller groups in larger meetings helps more voices to be heard and allows people to speak that normally feel intimidated	4.4 *1 disagree*	0.5	4.4	0.5
1.1	Staff in leadership roles should be mentored and trained in democratic and transformational leadership styles	4.6	0.5		
1.11	All staff should be given some leadership opportunities appropriate to their skills and experience. Junior staff should be given opportunities to chair meetings and mentored in this by more senior staff			4.7	0.5
1.12	The people involved in a meeting should be asked if they have any questions or feedback at the end of a meeting			4.8	0
Relatedness					
2.1	Systems should be designed so that there are as few transitions between healthcare providers as possible. If possible patients should see the same doctor on each visit	4.7	0.1		
2.2	A "primary nurse" system should be used for inpatients (see Additional file 2: Appendix S1)	4.8	0		
2.3	Systems should be designed in ways that optimize relatedness between staff	4.9	0		
2.4	Representatives (people that represent longer term committee members) should only be sent to patient care planning meetings or other hospital meetings when they are aware of the issues or are planning to join a hospital committee in the long term	4.4	0.5		
Resources					
Resources: staff competence and education					
3.1	All staff should be trained in the following areas: [insert list				
a	Interprofessional working	4.6	0.5		
b	Meeting skills	4.6	0.5		
c	Assertiveness skills	4.8	0.1		
d	Validating other people's opinions and giving feedback	4.8	0.1		
e	Reflective practice	4.6	0.5		
f	Collaborative decision making and problem solving	4.6	0.5		
3.2	Training in collaborative competencies should be skills based and include role playing sessions and reflective components	4.5	0.5		
3.3	Most nursing and other professional staff working in psychiatric institutions should be interested in working in psychiatry and either have post-basic training in psychiatry or be undergoing this training	4.8	0		
3.4	Staff should be mentored. Staff with post-basic psychiatry training can mentor staff that do not have post-basic training	4.9	0		

Table 2 (continued)

	Item	Round 1		Round 2	
		Mean	IQD	Mean	IQD
3.5	Specific staff should be allocated to work in psychiatry in district hospitals and primary care, to allow these staff to develop the required competencies	4.6	0.5		
3.6	Higher authorities in the health service should ensure that there is an appropriate skills mix, i.e. that there are adequate numbers of all professional groups, including clinical psychologists and social workers	4.6	0.5		
Resources: service user competence and education					
3.7	The use of the Ministry of Health's "Patient's Unvoiced Needs" program, is recommended	4.6	0.5		
3.8	Each patient should have a written care plan, which they can share with all people involved in their care	4.6	0.5		
3.9	Education and support groups should be set up for patients and carers, including groups led by patients and carers. Brochures and promotional materials about existing groups should be made available in clinics and wards to ensure that patients, carers and staff are aware of their existence	4.8	0		
3.10	Patients and carers who are able and willing to help others should be trained to work as peer support workers and educators			5	0
3.11	Peer support workers and educators should be paid an honorarium for the time spent doing the work			4.4	0.5
3.12	Education for both the public and professionals should involve patients and carers as educators			4.8	0
3.13	Written materials should be available in doctor's rooms or waiting room for patient and carer education, which should also be available on line. Patients and carers should be invited to write some of these materials if they are interested in doing this	4.7	0.1		
3.14	Information displayed on the wall of the clinic should be related to mental health, particularly ways to improve mental health and wellbeing. Information displays need to be clear, positive and sensitive to what patients may find distressing	4.6	0.5		
3.15	Mental health education videos should be shown in the waiting area of the clinic as well as being available online. These videos should show positive, hopeful, non-stigmatising views of mental illness	4.6	0.5		
3.16	A resource room or area should be available near the waiting room, which contains educational materials (brochures, books, videos). This should be staffed by someone capable of giving education to patients and carers, e.g. a staff member or peer educator	4.3	0.5		
3.17	We recommend that patients be given a clinic book. This book can be used for the following: Individualised care plans, recovery goals, relapse plans, education, psychological work—e.g. CBT formulation, pages to write down things that they would like to discuss with the doctor	4.7	0.1		
Resources: time					
3.18	Staffing calculations and rotas should take account of the time needed for collaboration	4.4	0.5		
3.19	Psychiatric appointment time should be at least 30 min for a follow up appointment and 90 min for a new patient appointment			4.5	0.5
3.20	Care needs to be taken in deciding how to use multi-professional meeting time. Topics of discussion should be limited to the things that concern most of the people attending the meeting	4.4	0.5		
3.21	Each member of staff should participate in only a limited number of hospital committees and junior staff should sometimes be appointed as committee members	4.6	0.5		
Resources: infrastructure					
3.22	Better physical resources are likely to improve collaborative practice	3.9	0.5		
Collaborating with people outside the hospital					
4.1	The bureaucratic processes should encourage collaboration, rather than create barriers to collaboration	4.5	0.5		
4.2	A 'Friends of the Hospital' group should be set up, together with a directory of services outside the hospital	4.4	0.5		
4.3	Specific mental health staff should form relationships with other people outside the hospital that help our patients	4.5	0.5		
4.4	Existing collaborative networks between primary care and people in the community should be used to help plan care for our patients (see Additional file 2: Appendix S1)	4.7	0.0		
4.5	Patients who are not directly under the psychiatric hospital, should be given the option of being treated in primary care (rather than district hospitals)	4.3 *2 disagree*	0.5	4.9	0.0
4.6	First-responder training programs in mental health should be provided for other people that help our patients	4.6	0.5		
4.7	Other people that help our patients need to know referral pathways and who to call if they are uncertain about what to do	4.7	0.3		
The decision-making process					
5.1	Inviting to take part in problem solving and decision making	4.7	0.5		

Table 2 (continued)

	Item	Round 1		Round 2	
		Mean	IQD	Mean	IQD
5.2	Identifying stakeholders	4.7	0.4		
5.3	Defining the problem			4.8	0.0
5.4	Finding common goals and values			4.8	0.0
5.5	Sharing of knowledge, opinions and concerns	4.6	0.4		
5.6	Making the final plan	4.4	0.4	4.5	0.5
		2 disagree		*1 disagree*	
	Consensus reached round 3: Mean 4.6, IQD 0.5				
5.7	Implementing the decision and making clear that the decision can be reviewed	4.8	0.0		

There are no round two results, where consensus was reached in the first round

IQD interquartile deviation

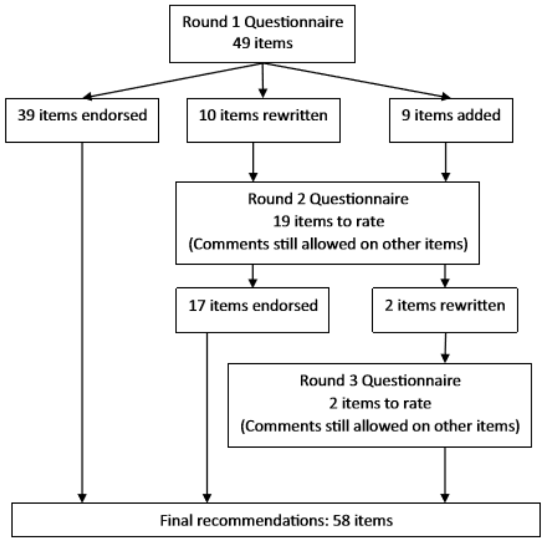

Fig. 1 Flow diagram showing number of statements in each round

> *D8: I have experience seeing the same doctor from 2011 to 2014 and it really helps me a lot! Now I have to see different doctors at every visit, and I feel lazy to tell my stories again and again. The communication is just superficial, I tell the surface stories and the doctor gives surface suggestions. No chance to explore further. After all, why share so much if I may not see him again?*

> *D18: As a patient, I felt truly disconnected from my treatment plan because it was handled by different doctors. After moving to a hospital that assigns patients to the same doctor throughout their treatment process, I began to feel a sense of connection. My doctor knows my story from the beginning, so I didn't have to keep repeating the same story. Repeating my story to different doctors when I was unstable prevented me from seeking help because I had the idea that nobody cares.*

Staff also agreed that this was important, but some had concerns about whether it was feasible for patients to regularly see the same doctor. Having a 'primary nurse' on the ward (a nurse case manager who cares for a patient throughout the length of their stay) also appeared to be more important to service users than staff.

Resources

Staff regularly mentioned resources, particularly not having enough staff in the system, not having enough time and how lack of resources made it difficult to implement some of the collaborative practice interventions. Service users focussed on the quality of staff and the problems associated with having undertrained staff, some commenting on how bad experiences with staff could hamper recovery.

Service users emphasised how people that had used the system were a useful resource and several of them commented on how they wanted to contribute, for example in producing educational materials. Service users placed a high value on help from people who had gone through similar experiences and some commented that service users could understand better than hospital staff. Three additional items were added after round two, which were related to peer support workers.

Working with people outside the healthcare system

All comments agreed that there was a need for better collaboration with people outside the hospital. There was concern about working with *Bomoh* (traditional healers) from some panel members:

> *D11: Ambiguity will arise when we work with Bomohs. Does this mean that we accept what they are doing? Does this mean that we from the scientific "community" agree with supernatural existence as what is practiced by Bomohs? Clear rules should be set before working with unregistered authorities. Because it can always backfire on us.*

Some described out that the contribution of people outside the health system needed to be valued more and this may require a change in attitude from some of the staff.

> *D16: The doctors and hospital staff must be open to this idea and must realize that everyone has their own area of expertise and knowledge. Sometimes because doctors and those from the medical field feel or regard themselves as the 'experts' it may hinder from us achieving this goal as they might not want to listen or take in the opinion of others.*

Decision making

This was the area with the most initial disagreement, particularly about the involvement of other people in decision making. Some panel members were concerned that involving other people in decision making might cause problems in confidentiality, be impractical and delay decision making The wording was changed to make it clear that this should be done with the permission of the patient, was optional and the time spent should be proportional to the difficulty and implications of the decision being made. There were also some concerns about patients that may not be able to make decisions for themselves, so further clarification was given on this in Additional file 2: Appendix S1. Additional items were added about defining the problem and setting goals, following suggestions from the panel.

Ratings and comments on the delphi process

Table 3 shows the ratings of panel members, regarding the Delphi process. These ratings were done at the end of round one.

The comments on the Delphi Process were generally positive, with panel members glad to have been given the opportunity to take part.

> *D6 (staff): It was a good opportunity to learn from other professionals as well as patients and caregivers.*

Some members described feeling confused by some of the items and that not enough context was given to them in round one. A further introduction with more context was written for round two.

Service users described feeling empowered by the process, felt that their voices were being heard and that they were contributing.

> *D8: I feel I am involved in nation-building and we are all working towards a better Malaysia, better society and better standard of living. Process is long but it is unavoidable. It is good that you give us a reasonable timeframe to allow us to take part according to our pace.*

Some commented that certain professions were missing (e.g. family medicine specialist, social worker) and some members felt that the balance between service users and professionals was not enough:

> *D16: Thank you so much. I do feel that this is a great way to get our voices heard. However, the mix is not balanced hence the answers will always lean to a medical model rather than a social model and will again fall back to what the mental health professionals feel, think and want and do not fully represent what the patients and carers fully need and want.*

Table 3 Participants experience of the Delphi process

Round 1	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I understand the rationale for the Delphi process	8	7	0	0	0
Filing the form was easy	3	10	0	2	0
Filling the form took longer than I expected	1	2	6	2	4
The Delphi process is a useful way to make new guidelines	4	8	3	0	0
Round 2					
I understand the rationale for the Delphi process	6	1			
Filing the form was easy	2	5			
Filling the form took longer than I expected	2	3	1	1	
The Delphi process is a useful way to make new guidelines	4	3			

Discussion

This process has created a set of recommendations, which aim to improve the general environment of the psychiatric system so that collaboration is more likely. The recommendations include ways to empower and improve autonomy, improvements in continuity of care and ways to enhance and make the best use of scarce resources. This is particularly important in Malaysia, where care is often fragmented [9] with low continuity of care [8], decision making is often hierarchical rather than collaborative [8], resources are limited [18, 22] and the treatment gap is large [10]. It is possible to implement many of these recommendations with the existing levels of resources. Although some of these recommendations are not feasible in many areas of Malaysia with the current level of resources, this exercise allowed consensus to be reached on what was desirable. Many of these recommendations already have empirical evidence to support them, which is briefly reviewed below.

Autonomy

Responses by Delphi panel members demonstrated how low levels of autonomy negatively affects patient care. A large meta-analysis of 184 studies based on self-determination theory showed patient autonomy to be associated with mental health and physical health outcomes. This effect is likely to be motivated by perceived competence, whereby patients that feel more in control of their lives are more likely to feel competent in the management of their health [23]. The effects of interventions that aim to improve autonomy have been found to be greater in marginalised and disempowered groups such as people with low income or education levels [24, 25].

Relatedness

The responses from service users on the Delphi panel highlight how inadequate continuity of care (e.g. patients seeing a different doctor on each visit) has a negative effect on care. Continuity of care is well studied and has been shown to be related to improved health outcomes [26], improved satisfaction [26, 27], improved cost effectiveness [26], decreased hospitalizations [27], decreased emergency department visits [27], and increased probability of receiving preventive services [27], particularly in patients with chronic diseases. A study using the French National Health Insurance database to follow up 14515 people with mental disorders for 3 years found relational continuity of care was related to reduced risk of death in people with mental disorders [28]. A UK longitudinal study examining the relationship between continuity of care in 5552 individuals with severe mental illness over 11 years showed that people with lower continuity of care had worse outcomes, with a large effect size of 1.75 (*Cohen's d*) for the relationship between continuity of care and patient outcome [29]. Relatedness among staff is also important and a UK study of over 7000 health staff in 400 different healthcare teams showed that working in well-functioning teams led to lower levels of staff stress, lower death rates and higher levels of innovation [30].

Resources

The original qualitative research showed that the level of resources limited collaboration, including the mental health and collaborative competencies of staff and service users, time and physical resources [8]. Meta-analytic evidence shows that interventions that improve the competence of healthcare staff, including educational meetings [31] and training in patient centeredness [32], improve patient outcomes. These interventions are more effective if the training involves mixed didactic and interactive elements [31]. Training of mental healthcare staff also reduces burnout [33] and the use of restraint [34]. Empathy training is effective in improving empathic responding in healthcare staff [35].

Psychoeducation programs that improve patient understanding of their illness improves patient outcomes, including compliance, relapse and satisfaction with services [36]. Individualised care planning improves the ability of patients with chronic illnesses to manage their condition as well as reducing depression [37] and qualitative evidence suggests that many patients value and use written care plans [38]. Discharge planning processes reduce the length of hospital stay, readmissions and improves patient satisfaction [39]. Handheld records have been shown to improve communication and patient knowledge in other disciplines [40, 41]. There is evidence that peer support interventions can improve patient outcomes, including reducing inpatient service use [42]. Research in Malaysia has shown that approximately 20% of patients have unvoiced needs following a doctor's appointment [43] and a waiting room intervention led to reductions in unvoiced needs [44]. Waiting room interventions that help patients to identify their informational needs improve aspects of the consultation, including asking questions, patient satisfaction and pre-consultation anxiety [45]. Waiting room poster displays and educational brochures are read by patients in other contexts [46, 47], but there is currently little research into how these interventions affect health outcomes.

In the Malaysian setting a typical outpatient appointment lasts approximately 5–10 min and committee and panel members discussed how this resulted in patients feeling rushed. There is evidence in primary care that longer appointment times improve the detection of psychiatric problems [48]. There is little research into the optimum appointment length in psychiatry. In the US setting, appointments with psychiatrists are often reduced to a 15 min 'medication check', with the expectation that the patient will be seeing another professional for psychological interventions. This has led to dissatisfaction from both psychiatrists and patients and concerns that care is substandard [49]. In the Malaysian setting, patients are normally not seeing any other professional for psychological treatment and most patients are seen by inexperienced medical officers, rather than psychiatrists, so longer times are likely to be needed to provide adequate care.

Participants in this research commented on the way that physical infrastructure affected collaboration, for example the institutional feel of the wards reducing the sense of autonomy. Building design influences the way that people interact with each other [50–52] and architecture has the potential to increase or reduce the sense of power imbalance [53]. In a psychiatric setting, meeting spaces need to feel private and psychologically safe for patients and staff [53]. Hospital information systems can also improve collaboration in healthcare settings [54], improve communication between healthcare providers and service users [55] and improve accessibility of healthcare, leading to improved patient outcomes [56–59].

Collaboration with people outside the hospital

Communities play a large role in mental health care in lower and middle income countries [60, 61] and partnership with communities is a strategy that has been successfully employed in Malaysia to improve mental health [62]. Training community members to provide initial help to people with mental disorders helps improve confidence, intention to help others and helping behaviours, however it is not yet clear whether these programs help improve mental health outcomes in people with mental health problems [63–65]. A systematic review of religious interventions concluded that they were effective [66] and in Malaysia religious professionals and traditional healers sometimes refer patients to services if they feel that the problem is a mental health concern, rather than a spiritual issue [19]. Interagency collaboration is considered best practice in the field of mental health, but the evidence that it is effective in improving patient outcomes was considered weak by a Cochrane review [66]. This is likely to be due to the complexity of these kind of interventions, where conducting a randomised control trial is difficult. However, a systematic review has shown that interagency collaboration has been shown to lead to better child welfare outcomes where there is parental drug use [66]. There is strong evidence that collaborations between primary care and specialist mental health staff are effective in treating people with mental disorders [7]. Treating patients with common mental disorders in primary care rather than secondary care has been recommended by the World Health Organisation for many years, since primary care is more accessible and acceptable to patients [61].

The decision-making process

The process for shared decision making and problem solving that we have recommended has similarities and differences with processes for doctor-patient relationships previously described in the literature [67–73]. The step of 'identifying stakeholders' is unusual in models of doctor-patient decision making, since most models only concern the doctor and patient. In Malaysia decisions are frequently made outside of the doctor-patient dyad, with family and other community members often involved in decision making, even after the patient has left the doctors office [19]. Programs that aim to improve shared decision making have been shown to improve patient satisfaction and collaboration with the treatment process, but most studies do not show improvements in symptoms or behavioural outcomes [24, 74, 75].

Complex multicomponent interventions

It appears that complex programs, which involve several of the components of collaborative practice (e.g. programs that increase patient education, autonomy and relatedness together), have an effect on more outcomes than programs which only introduce one component (e.g. only training in shared decision making) [7, 24, 76]. It is possible that the components of collaborative practice work synergistically, where several elements working together have a greater effect.

Limitations

There are limitations to the way that we carried out this study. The first was that some groups were only represented in the original hospital committee, but not in the Delphi panel, particularly nursing and allied health staff. Service users were also underrepresented, particularly in the original hospital level committee and the service users on the committee are unlikely to have represented the views of all service users. Secondly, there was quite a large drop-out rate from the professionals in the Delphi panel. This is likely to reflect the reality of working in mental health in Malaysia, where it is extremely difficult to fulfil core work duties within working time and there is rarely time to do anything outside of core duties. This may have improved if panel members had been paid an honorarium for their time.

Strengths

This study has shown that the Delphi method is a feasible method of making recommendations in mental health in Malaysia. A search of the literature did not reveal any other studies using this method in mental health in Malaysia, other than one pan-Asian study [77]. This method used minimal budget and has led to a more diverse group of people being involved in forming recommendations than is the case with traditionally used methods of decision making, which often only involve people in positions of power, who live in a small geographical area. This study attempted to give voice to those who have traditionally been left out of decision making. The World Health Organisation recommended in 2001 that "Communities, families and consumers should be included in the development and decision-making of policies, programmes and services" [78] and formal collaborations with service users is one of the WHO quality indicators [79]. This is not currently common practice in Malaysia [80] and is not one of the quality indicators commonly used [81]. This study has demonstrated the usefulness of involving consumers in forming recommendations, in that the perspective that they gave, and their priorities were different from the priorities of people that worked in the system. This was particularly the case with continuity of care, which appeared to be high priority for service users. This study demonstrated some of the difficulties of recruiting service users to committees in a setting where patriarchal attitudes to patients are prevalent [82], service user involvement is not common practice and there are still very few consumer groups. However, the process highlighted the existence of informal social media-based groups of mental health service users that are now growing and empowering users, one of which was eventually used to help recruit the patients and carers to the Delphi panel.

Future directions

It is hoped that over time some of these recommendations will be implemented and incorporated into quality indicators of the Malaysian healthcare system. Further research is now needed into the effectiveness of some of these recommendations, in the context of Malaysia. Systems based research in lower and middle income countries is currently lacking, but was rated as high priority in study of researchers and stakeholders in low and middle income countries [83]. Research in lower and middle income countries is needed, particularly into the effectiveness of patient and staff empowerment, shared decision making, improving relatedness in the system, written care plans and information, increasing the provision of certain types of training and collaborating with the wider system.

Conclusions

This study sought to build evidence on interventions which will help to improve patient care through improving collaborative practice in Malaysia. This has shown that the modified Delphi method is a feasible method in Malaysia and led to participation of a more diverse group of people than traditional methods of decision making. It also demonstrated the importance of involving service users and the challenges in doing this when it is not yet part of the culture. These recommendations could potentially be part of level III evidence [84], in the formation of clinical practice guidelines for complex systems level interventions, where higher level evidence is currently weak in Malaysia.

Supplementary information

Supplementary information accompanies this paper at https://doi.org/10.1186/s13033-020-00374-7.

Additional file 1. The full guidelines.

Additional file 2. Detail about how items were modified and Delphi panel comments for each round.

Acknowledgements

We would like to thank all of the members of the Hospital Mesra Bukit Padang Collaborative Practice Committee and the Delphi Committee: Adam Abdullah, Ahmad Qabil Bin Khalib, Segeran Ramodran, Atiqah Chew Abdullah, Brenagempli Anak Jampong, Cassie Ellena Chew, Cornelius John, Emmanuel Joseph Pereira, Lee Shea Wah, Ng Boon Seng, Norhayati Nordin, Razifah Adbul Rahman, Shahlini Selvarajoo, Sughashini Subramaniam, Ebba Gondilou, Geo Allen George, Julius Jalani, Lee Sang Choon, Mary Malanjun, Matron Nurzelah Abdullah, Ong Kok Loong @ Mohd Benyamin Abdullah, Rewajoh Lahai, Zaidin Endut, Rommy B. Ramlee, Nurmina Nawali, Sharifah Aini Yusoff, Sidik Singkak, Kulnah Ambor, Masnah Ajis, Umi Izzatti Saedon, Tang Poh Yee, Siti Hazrah, Nurul Nadia Ismail, Marhani Midin, Low Lee Lan, Abdul Kadir Abu Bakar, Anita Abu Bakar, Ang Kim Teng, Amalina Abdullah, Ahmad Rostam Md Zin, Abdul Rasyid Sulaiman, Shazwani Rhosky binti Fadzir, Wan Zakirah bt. Wan Zakaria.

Authors' contributions

WS: designed the research protocol, wrote the proposal, recruited and organised both committees, drafting the paper and submitting the paper. SHC: helped organise the hospital level committee, undertook regular discussion and reflection on findings, reviewed and critically appraised the final article. BG: was a PhD supervisor for this project, undertook design of the research protocol, regular discussion and reflection on findings, reviewed and critically appraised the final article. DF: PhD supervisor, undertook design of the research protocol, regular discussion and reflection on findings, reviewed and critically appraised the final article. SF: PhD supervisor for this project, undertook design of the research protocol, regular discussion and reflection on findings, analysis of the data, reviewed and critically appraised the final article. All authors read and approved the final manuscript.

Funding

The funding for the qualitative research that formed the initial phase of this project was supported by a grant from the Ministry of Health, Malaysia (no. NMRR-13-308-14792).

Availability of data and materials

The anonymised, raw data from the Delphi Committee and the changes made to each item are available in Additional files 1, 2.

Ethics approval and consent to participate

See "Methods" section.

Consent for publication

We would like to thank the Director General of Health Malaysia for permission to publish this paper.

Competing interests

The author declares that they have no competing interests.

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Received: 12 March 2020 Accepted: 30 May 2020

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Publisher's Note

Appendix D. MODEL OF SHARED DECISION-MAKING

Poster presented a the 50th Asia-Pacific Academic Consortium for Public Health Conference. (September 12-14, 2018)

Development of a Model of Shared Decision Making Suitable for the Malaysian Psychiatric Setting

Wendy Diana Shoesmith[14], Awang Faisal Bin Awang Borhanuddin[1], Norhayati Nordin[2], Ahmad Faris Abdullah[1], Sue Fyfe[3], Beena Giridharan[4], Dawn Forman [35]

[1] Universiti Malaysia Sabah
[2] Hospital Mesra Bukit Padang
[3] Faculty of Health Sciences, Curtin University, Perth, Australia
[4] Curtin University, Sarawak, Malaysia
[5] University of Derby, UK

Introduction

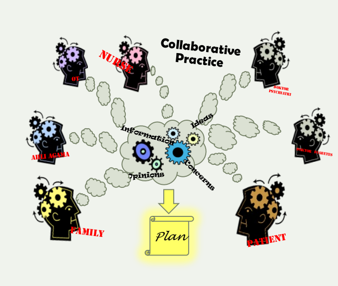
Collaborative practice is when as "when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care"[1].

Working collaboratively leads to better outcomes for patients as well as reducing costs, length of hospital stay and stress levels among staff[1–6].

Shared decision making is central to collaborative practice, but most models of shared decision making have been developed in a Western context.

OBJECTIVE

This was part of a larger action research study to produce a model of collaborative practice suitable for the Malaysian setting. A model of collaborative decision making, which was suitable for the context was needed as a part of this.



Methods

Study Design – Action Research

The results of qualitative research were used to create a model of shared decision making suitable for the Malaysian setting. This project has already been presented[7], methods and key findings of this research are summarised here.

Fifty three interviews and focus groups were carried out in 2013 with: 20 Patients, 11 Family members, 62 Hospital staff, 10 Primary care staff, 36 other community members that help our patients (e.g. NGO staff, Ketua Kampung). A semi structured interview was used. Laminated cards were used as visual cues to allow participants to describe relationships with different groups and how decisions are made. Interviews were transcribed verbatim and coded. A grounded theory approach to analysis was used, using N-Vivo software. Lack of ***autonomy, relatedness, motivation*** *and* ***resources*** *were the main barriers to collaborative behaviour in this system.*

The barriers to shared decision making were extracted from the these findings. Steps in the process of collaborative decision making were written, which overcame the barriers.

Results

Barriers to Shared Decision Making	Quotes	Process of collaborative decision making
Patients, families and non-medical staff often felt that it was not their place to be involved in decision making and they may get into trouble for doing this.	*Nurse 4: "We as nurses, we have an idea, but it is hard to speak.. We are afraid to speak because the one who makes the decision is the doctors.. So our ideas cannot be used. We already set our mind not to speak. We have to keep quiet, even though we think that the doctors are making wrong decisions".*	**1. Inviting into the process of collaborative decision making.**
Patients, families and non-medical staff were frequently excluded from the decision-making process and were not present when decisions were made.	*Interviewer: "Do they ask the patient their opinion? [about the treatment plan]"* *Nurse 9:"No, not like that. The patient comes in, they ask the patient about how they are today and if they are hearing voices, seeing anything. When they are finished, the patient leaves, then they write it on their own".*	**2. Identifying stakeholders and making decisions at the optimal time, with stakeholders present if possible.**
Patients, carers and non-medical staff felt that they did not have enough knowledge to be involved in decision making. They did not know the options.	*Patient 12: "When they ask and they give us options, then it is easier to answer. But when we ask by ourselves, we are bit scared...afraid of offending him [the doctor]..then there will be no options. Because once we come in here what we want is to get out of here."*	**3. Sharing of knowledge and discussion of options.**
Patients, carers and non-medical staff were asked for information but not concerns, ideas or opinions.	*MA1: "They [the doctors] ask about how the patient is on the ward. After that they discuss among themselves. They don't ask our opinion other than that."*	**4. Weighing up of opinions and incorporating all opinions into the final decision, including opinions of people not physically present or not able to make decisions.**
Families, traditional healers and religious leaders played a significant part in decision making outside of the consultation. Patients sometimes not present when decisions made.	*Carer 9: "For me, before I make any decision, whatever the doctor's advice is, I will meet with my closest family and ask for opinion or permission.. if they say OK I will follow. In the village I will meet with the village head...family, then village head."*	
Patients frequently felt that the doctors decision was final and cannot be discussed or changed.	*Patient 17: "I just follow whatever the doctor says, but in fact I don't take it at all [the prescribed medication]. I feel that if I said it, the doctor would ask me to take the medicine. I am just waiting for a time when the doctor gives an official stamp to say that I can stop my medicine".*	**5. Implementing the decision and making clear that the decision can be reviewed.**

Conclusions

This recommended process of collaborative decision making designed for the Malaysian context has key differences to other shared decision models, found in the literature:

1. Most published models of shared decision making from the literature only involve doctor and patient. In this context decisions often involve more people, and the opinions of other people should be discussed even if those people are not physically present. If their opinions are not discussed, there is a higher risk of the decision being changed by the patient later.
2. The process of shared decision making needed to take into account the greater sense of hierarchy. Doctors need to be more explicit in inviting patients to take part in decision making and make it clear that the plan can be reviewed.

This process is currently being reviewed by a Nationwide Delphi Committee, as the next step in the process of making a new model of collaborative care for Malaysia.

Contact

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Universiti Malaysia Sabah
Email: wshoesmith@ums.edu.my

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Acknowledgements

This project was supported by a grant from the Ministry of Health, Malaysia NMRR-13-30814792. We would like to thank the Director General of Health Malaysia for permission to publish this research and all the participants of the research.

Appendix E. OTHER DISSEMINATION ACTIVITIES

Leadership and Evaluation Issues in IPE in Sabah, Malaysia. Book chapter in: Leading Research and Evaluation in Interprofessional Education and Collaborative Practice. Publisher Palmgrove Macmillan (2016). *Wendy Diana Shoesmith, Waidah Sawatan, Ahmad Faris Bin Abdullah, Sue Fyfe.*

Enablers and Barriers to Collaboration in the Malaysian Psychiatric System. 29th World Congress of the International Association for Suicide Prevention (IASP) and the 21st Malaysian Conference of Psychological Medicine (MCPM) (2017). *Wendy Diana Shoesmith, Awang Faisal Bin Awang Borhanuddin, Ahmad Faris Abdullah, Norhayati Nordin, Beena Giridharan, Dawn Forman, Sue Fyfe.*

Psychological Interventions for Psychosis: Forming a Collaborative Partnership. Invited symposium speaker at the 22nd Malaysian Conference of Psychological Medicine (MCPM). (19th - 21st July 2018). *Wendy Diana Shoesmith, Sandi James*

Development of a Model of Shared Decision-making Suitable for the Malaysian Psychiatric Setting, 50th Asia-Pacific Academic Consortium for Public Health Conference. (September 12-14, 2018). *Wendy Diana Shoesmith, Norhayati Nordin, Ahmad Faris Abdullah, Beena Giridharan, Sue Fyfe, Dawn Forman.*

Creating the Conditions for Collaboration in the Mental Healthcare System: the Sabah Experience. Invited symposium speaker at the 23rd Malaysian Conference of Psychological Medicine (MCPM) and the 1st International WPA Psychotherapy Conference. (11th -13th July 2019).

Collaborative Practice in Mental Health. Invited symposium speaker at the 1st International Borneo Healthcare & Public Health Conference AND 4th Borneo Tropical Medicine and Infectious Disease Congress (3rd – 5th September 2019).

Reactions to the Symptoms of Mental Disorder in Sabah. Plenary lecture at 7th Asian Congress of Health Psychology 2019 (19-21 September 2019).

Workshop on Collaborative Management of Psychotic Symptoms. Invited to lead a workshop at 7th Asian Congress of Health Psychology 2019. Workshop was to teach skills in forming collaborative partnerships with patients, carers, and other health staff (19th -21st September 2019).

Appendix F. Theoretical frameworks considered

FOLLOWING THE QUALITATIVE RESEARCH

Theory or concept	How it expands the theory
Group flow[333,334]	This theory concerns the enjoyment of the collaborative process itself. Synchronization of individuals leads to a shared identity. In Mazzola & Cherlin's (2009) theory of collaboration in relation to Jazz music, they discussed the concepts of 'group flow leading to a distributed identity' as being components of collaboration. 'Flow' can be described as a state of intense enjoyment where a person is fully absorbed in what they are doing. 'Group flow' is where a group of people are synchronised and performing optimally, which leads individuals to enter their own flow state. This leads to intense feelings of enjoyment and closeness to other members of the group [335]. A few respondents did describe enjoyment of working in a team and suggested a shared identity.
Transaction cost theory	Each interaction comes at a cost – in the case of the mental health system the cost is mainly time- too much time in meetings.
Resource dependence theory[336]	Each organisation is dependent on other organisations for resources. The power of one organisation over another is proportional to how much they depend on the other's resources. This can be seen on the ward, where patients describe having to ask nurses for basic needs, such as time outside the dormitory and phone calls. Dependency is also part of what creates the power in the doctor-patient relationship. Dependency was put as a separate factor in the 'autonomy' factor, in the theory of collaboration.
Agency theory[337,338]	This theory addresses conflict of interest problems that occur when a 'principal' (like a client) and an 'agent' (who makes decisions on behalf of the principal) have different goals or desires. In our case the 'principal' is normally the patient or family. The 'agent' is the healthcare provider. An example of this is where a healthcare provider has the goal of not getting in trouble, rather than the goal of providing the best possible care for the patient. This theory also addresses issues of different tolerance to risk. This can be seen in the decisions made about continuing high dose treatment in patients with side effects. The patient is willing to risk relapse, because they are the one that experiences the side effects. The healthcare provider or family face little risk if the patient continues treatment but does face risk if the patient relapses.
Paradox lens[339]	Collaboration needs to be looked at from the point of view of paradox. Attempts at collaboration nearly always result in a number of paradoxes, where improvements in one part of the system leads to problems in another. Studying these paradoxes can lead us to a better understanding of collaborative processes.

Appendix G. ETHICS LETTERS

The Medical Research and Ethics Committee of the Ministry of Health was the main ethical body overseeing the work. The Human Research Ethics Office at Curtin University gave reciprocal permission. The letters from the Medical Research and Ethics Committee of the Ministry of Health between 2013 and 2020 are shown over the page.

JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(Medical Research & Ethics Committee)
KEMENTERIAN KESIHATAN MALAYSIA
d/a Institut Pengurusan Kesihatan
Jalan Rumah Sakit, Bangsar
59000 Kuala Lumpur
Tel. : 03 2282 9082/03 2282 9085
03 2287 4032/03 2282 0491
Faks : 03 2287 4030

Ruj. Kami : (5) dlm.KKM/NIHSEC/800-2/2/2 Jld 2P13-480
Tarikh : 29 Julai 2013

Dr Wendy Diana Shoesmith
Jabatan Perubatan Komuniti dan Keluarga
Universiti Malaysia Sabah

Puan,

NMRR-13-308-14792
THE DEVELOPMENT AND TESTING OF A MODEL OF COMMUNITY BASED COLLABORATIVE CARE FOR PATIENTS WITH SEVERE AND ENDURING MENTAL DISORDERS IN MALAYSIA: PHASE 1.

Dengan hormatnya perkara di atas adalah dirujuk.

2. Bersama dengan surat ini dilampirkan surat kelulusan saintifik dan etika bagi projek ini. Segala rekod dan data subjek adalah SULIT dan hanya digunakan untuk tujuan kajian dan semua isu serta prosedur mengenai *data confidentiality* mesti dipatuhi. Kebenaran daripada Pengarah hospital di mana kajian akan dijalankan mesti diperolehi terlebih dahulu sebelum kajian dijalankan. Puan perlu akur dan mematuhi keputusan tersebut.

3. JEPP mengambil maklum bahawa permohonan pembiayaan projek melalui geran penyelidikan KKM akan diuruskan oleh pihak Urusetia NIH dan kelulusan permohonan geran adalah tertakluk kepada keputusan Panel Penilai Geran Penyelidikan KKM-NIH.

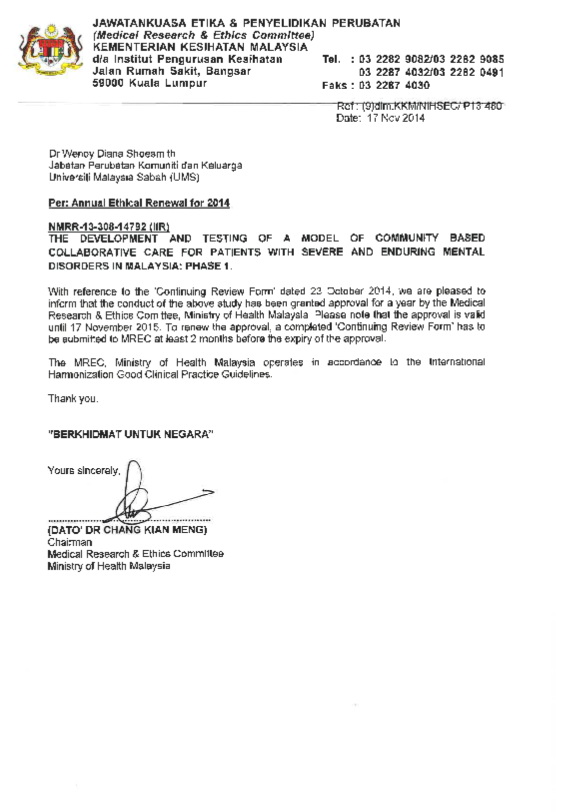
4. Adalah dimaklumkan bahawa kelulusan ini adalah sah sehingga 29 Julai 2014 dan Puan perlu menghantar '*Continuing Review Form*' setiap tahun bagi memperbaharui kelulusan etika. Pihak Puan juga perlu mengemukakan laporan tahunan, laporan tamat kajian dan juga laporan mengenai "*All adverse events, both serious and unexpected*" kepada Jawatankuasa Etika & Penyelidikan Perubatan, KKM.

Sekian terima kasih.

BERKHIDMAT UNTUK NEGARA

Saya yang menurut perintah,

(DATO' DR CHANG KIAN MENG)
Pengerusi
Jawatankuasa Etika & Penyelidikan Perubatan
Kementerian Kesihatan Malaysia



JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(Medical Research & Ethics Committee)
KEMENTERIAN KESIHATAN MALAYSIA
d/a Institut Pengurusan Kesihatan
Jalan Rumah Sakit, Bangsar
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Tel. : 03 2282 9082/03 2282 9085
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Faks : 03 2287 4030

Ref : (9)dlm.KKM/NIHSEC/ P13-480
Date: 17 Nov 2014

Dr Wendy Diana Shoesmith
Jabatan Perubatan Komuniti dan Keluarga
Universiti Malaysia Sabah (UMS)

Per: Annual Ethical Renewal for 2014

NMRR-13-308-14792 (IIR)
THE DEVELOPMENT AND TESTING OF A MODEL OF COMMUNITY BASED COLLABORATIVE CARE FOR PATIENTS WITH SEVERE AND ENDURING MENTAL DISORDERS IN MALAYSIA: PHASE 1.

With reference to the 'Continuing Review Form' dated 23 October 2014, we are pleased to inform that the conduct of the above study has been granted approval for a year by the Medical Research & Ethics Committee, Ministry of Health Malaysia. Please note that the approval is valid until 17 November 2015. To renew the approval, a completed 'Continuing Review Form' has to be submitted to MREC at least 2 months before the expiry of the approval.

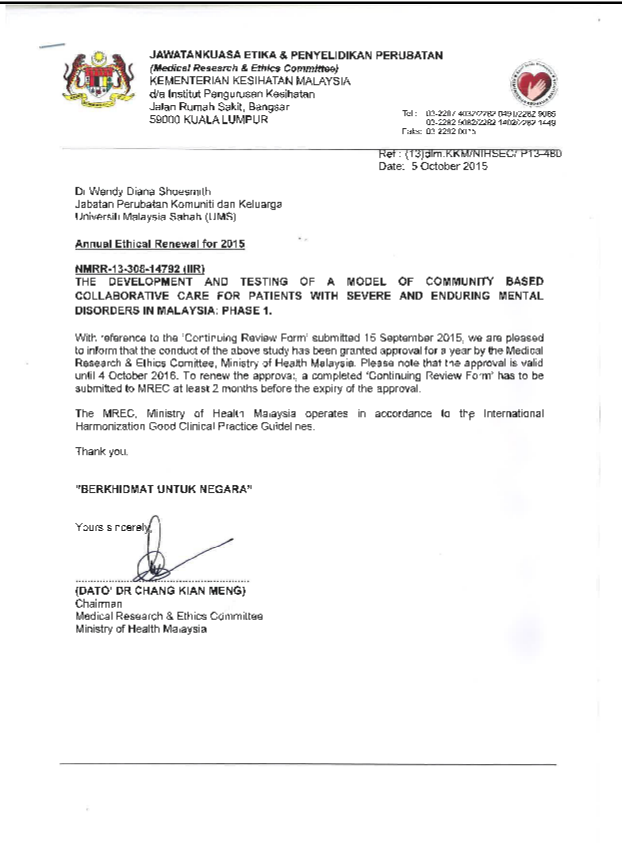
The MREC, Ministry of Health Malaysia operates in accordance to the International Harmonization Good Clinical Practice Guidelines.

Thank you.

"BERKHIDMAT UNTUK NEGARA"

Yours sincerely,

……………………………………
(DATO' DR CHANG KIAN MENG)
Chairman
Medical Research & Ethics Committee
Ministry of Health Malaysia



JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(Medical Research & Ethics Committee)
KEMENTERIAN KESIHATAN MALAYSIA
d/a Institut Pengurusan Kesihatan
Jalan Rumah Sakit, Bangsar
59000 KUALA LUMPUR
Tel : 03-2287 4032/2282 0491/2282 9085
03-2282 9082/2282 1402/2282 1449
Faks: 03 2282 0015

Ref : (13)dlm.KKM/NIHSEC/ P13-480
Date: 5 October 2015

Dr Wendy Diana Shoesmith
Jabatan Perubatan Komuniti dan Keluarga
Universiti Malaysia Sabah (UMS)

Annual Ethical Renewal for 2015

NMRR-13-308-14792 (IIR)
THE DEVELOPMENT AND TESTING OF A MODEL OF COMMUNITY BASED COLLABORATIVE CARE FOR PATIENTS WITH SEVERE AND ENDURING MENTAL DISORDERS IN MALAYSIA: PHASE 1.

With reference to the 'Continuing Review Form' submitted 15 September 2015, we are pleased to inform that the conduct of the above study has been granted approval for a year by the Medical Research & Ethics Comittee, Ministry of Health Malaysia. Please note that the approval is valid until 4 October 2016. To renew the approval, a completed 'Continuing Review Form' has to be submitted to MREC at least 2 months before the expiry of the approval.

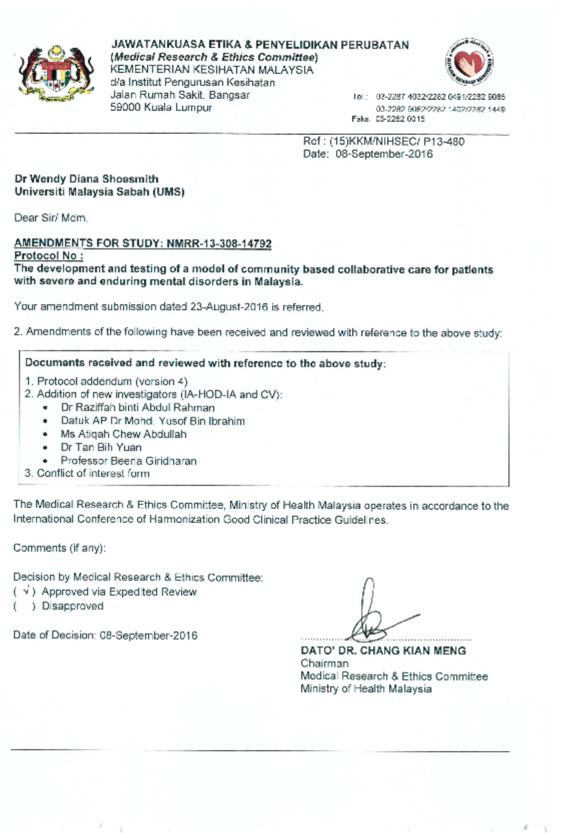
The MREC, Ministry of Health Malaysia operates in accordance to the International Harmonization Good Clinical Practice Guidelines.

Thank you.

"BERKHIDMAT UNTUK NEGARA"

Yours sincerely,

……………………………………
(DATO' DR CHANG KIAN MENG)
Chairman
Medical Research & Ethics Committee
Ministry of Health Malaysia



JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(*Medical Research & Ethics Committee*)
KEMENTERIAN KESIHATAN MALAYSIA
d/a Institut Pengurusan Kesihatan
Jalan Rumah Sakit, Bangsar
59000 Kuala Lumpur
Tel.: 03-2287 4032/2282 0491/2282 9085
03-2282 9082/2282 1402/2282 1449
Faks. 03-2282 0015

Ref : (15)KKM/NIHSEC/ P13-480
Date: 08-September-2016

Dr Wendy Diana Shoesmith
Universiti Malaysia Sabah (UMS)

Dear Sir/ Mdm,

AMENDMENTS FOR STUDY: NMRR-13-308-14792
Protocol No :
The development and testing of a model of community based collaborative care for patients with severe and enduring mental disorders in Malaysia.

Your amendment submission dated 23-August-2016 is referred.

2. Amendments of the following have been received and reviewed with reference to the above study:

Documents received and reviewed with reference to the above study:
1. Protocol addendum (version 4)
2. Addition of new investigators (IA-HOD-IA and CV):
    - Dr Raziffah binti Abdul Rahman
    - Datuk AP Dr Mohd. Yusof Bin Ibrahim
    - Ms Atiqah Chew Abdullah
    - Dr Tan Bih Yuan
    - Professor Beena Giridharan
3. Conflict of interest form

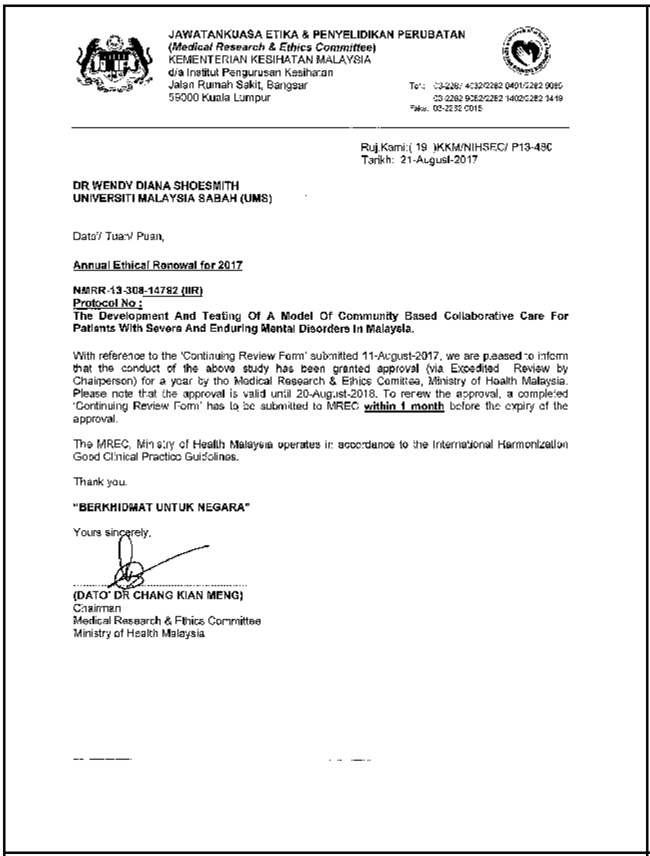
The Medical Research & Ethics Committee, Ministry of Health Malaysia operates in accordance to the International Conference of Harmonization Good Clinical Practice Guidelines.

Comments (if any):

Decision by Medical Research & Ethics Committee:
(√) Approved via Expedited Review
(   ) Disapproved

Date of Decision: 08-September-2016

……………………………………
DATO' DR. CHANG KIAN MENG
Chairman
Medical Research & Ethics Committee
Ministry of Health Malaysia



JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(*Medical Research & Ethics Committee*)
KEMENTERIAN KESIHATAN MALAYSIA
d/a Institut Pengurusan Kesihatan
Jalan Rumah Sakit, Bangsar
59000 Kuala Lumpur

Tel.: 03-2287 4032/2282 0491/2282 9085
03-2282 9082/2282 1402/2282 1449
Faks: 03-2282 0015

Ruj.Kami:(19)KKM/NIHSEC/ P13-480
Tarikh: 21-August-2017

DR WENDY DIANA SHOESMITH
UNIVERSITI MALAYSIA SABAH (UMS)

Dato'/ Tuan/ Puan,

Annual Ethical Renewal for 2017

NMRR-13-308-14792 (IIR)
Protocol No :
The Development And Testing Of A Model Of Community Based Collaborative Care For Patients With Severe And Enduring Mental Disorders In Malaysia.

With reference to the 'Continuing Review Form' submitted 11-August-2017, we are pleased to inform that the conduct of the above study has been granted approval (via Expedited Review by Chairperson) for a year by the Medical Research & Ethics Comittee, Ministry of Health Malaysia. Please note that the approval is valid until 20-August-2018. To renew the approval, a completed 'Continuing Review Form' has to be submitted to MREC **within 1 month** before the expiry of the approval.

The MREC, Ministry of Health Malaysia operates in accordance to the International Harmonization Good Clinical Practice Guidelines.

Thank you.

"BERKHIDMAT UNTUK NEGARA"

Yours sincerely,

(DATO' DR CHANG KIAN MENG)
Chairman
Medical Research & Ethics Committee
Ministry of Health Malaysia

JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(*Medical Research & Ethics Committee*)
KEMENTERIAN KESIHATAN MALAYSIA
d/a Institut Pengurusan Kesihatan
Jalan Rumah Sakit, Bangsar
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Ref : KKM/NIHSEC/ P13-480 (21)
Date: 27-August-2018

DR WENDY DIANA SHOESMITH

DR AHMAD QABIL BIN KHALIB
HOSPITAL MESRA BUKIT PADANG

Dear Sir/ Mdm,

AMENDMENTS FOR STUDY: NMRR-13-308-14792 (IIR)
Protocol No :
The development and testing of a model of community based collaborative care for patients with severe and enduring mental disorders in Malaysia.

Your amendment submission dated 10-August-2018 is referred.

2. Amendments of the following have been received and reviewed with reference to the above study:

Documents received and reviewed with reference to the above study:
Amendment Application Form vs 2
Declaration of Conflict of Interest (COI) vs 3 (corrected)
Protocol amendment update vs 5 (changes to original protocol highlighted)
Continuing Review Form 2018
Patients's information sheet

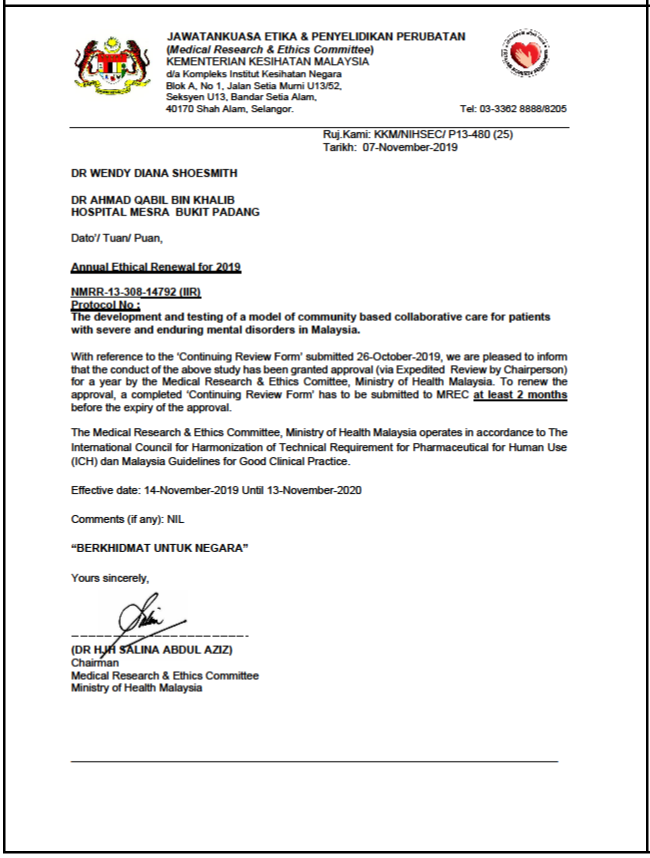
The Medical Research & Ethics Committee, Ministry of Health Malaysia operates in accordance to the International Council for Harmonization of Technical Requirement for Pharmaceutical for Human Use (ICH)

Comments (if any):

Decision by Medical Research & Ethics Committee:
(√) Approved via Expedited Review
( ) Disapproved

Date of Decision: 25-August-2018

DR HJH SALINA BT ABDUL AZIZ
Chairperson
Medical Research & Ethics Committee
Ministry of Health Malaysia



JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
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Ruj.Kami: KKM/NIHSEC/ P13-480 (25)
Tarikh: 07-November-2019

DR WENDY DIANA SHOESMITH

DR AHMAD QABIL BIN KHALIB
HOSPITAL MESRA BUKIT PADANG

Dato'/ Tuan/ Puan,

Annual Ethical Renewal for 2019

NMRR-13-308-14792 (IIR)
Protocol No :
The development and testing of a model of community based collaborative care for patients with severe and enduring mental disorders in Malaysia.

With reference to the 'Continuing Review Form' submitted 26-October-2019, we are pleased to inform that the conduct of the above study has been granted approval (via Expedited Review by Chairperson) for a year by the Medical Research & Ethics Comittee, Ministry of Health Malaysia. To renew the approval, a completed 'Continuing Review Form' has to be submitted to MREC **at least 2 months** before the expiry of the approval.

The Medical Research & Ethics Committee, Ministry of Health Malaysia operates in accordance to The International Council for Harmonization of Technical Requirement for Pharmaceutical for Human Use (ICH) dan Malaysia Guidelines for Good Clinical Practice.

Effective date: 14-November-2019 Until 13-November-2020

Comments (if any): NIL

"BERKHIDMAT UNTUK NEGARA"

Yours sincerely,

(DR HJH SALINA ABDUL AZIZ)
Chairman
Medical Research & Ethics Committee
Ministry of Health Malaysia

Appendix H. SCALE DEVELOPMENT PROCESS

Table 0-1 - Overview of scale development and field testing

	Process	Comments	
25.6.14	Translation from English of WRBNS, UWE, LACS (translation by AF - linguist)		
16.7.14	Back translation Bahasa Malaysia - English WRBNS, UWE, LACS (NP – linguist)		
17.7.14	Revision of scales following back translation (WS and AF)	UWE-II hard to understand. Translation for 'health and social care professional' changed. Translation of 'team' in ATHT-QC backtranslated as group, so another word used.	Changes to WRBNS14, UWE-II, ATHT-QC, LAC4.
Sept 2014	Discussion with a group of six healthcare staff in Derby (DF) about CDM (vs6) and IDM	Questionnaire too long when asked to think of four different decisions in the last month.	Decided to only ask about one decision.
Nov 2014	Field test of English version of CDM and IDM (vs7) (CA)	Problems with not understanding bipolar scales.	Layout changed
Nov 2014	Field test of Bahasa Malaysia versions of CDM, IDM and CSACD on three hospital staff (vs7) (ICU).	Able to understand without much difficulty. They didn't like the initial open question, which asked them to describe a decision. They wanted tick boxes.	
11.11.14	Field testing of whole staff questionnaire on colleague (ACA)	Whole questionnaire is too long.	Changes to MBI5,9,11,18; WRBNS1,11,13,18; LAC4,6,8,9,18
20.11.14	Translation of HCQ, CollaboRATE, IDM, CDM, ECI (AF)		
23.11.14	Backtranslation (VS) of items that had been changed of MBI, HCQ, CollaboRATE, IDM, CDM, CSACD	Translation of MBI9 is still wrong	
24.11.14	Revision (AF)		Changes to LAC6
25.11.14	Field test on 3 patients	Patients were asked to fill first section before seeing doctor second section after. They all started filling the second section before they had seen the doctor. Patients spending a long time on demographics on first page. On CDMvs7 scale patients answering "agree" for every question- when asked why "because the doctor was good" – halo effect. Many problems with third item of collaboRATE, HCQ items 4 and 6	Added list of possible decisions-checklist. collaboRATE translation changed. HCQ changed items 4 and 6

27.11.14	Field test on three patients and three carers	PWI – some ticking only 10. Font too small collaboRATE scale item 3 still not understandable. List of decisions working well. CDMvs6 scale - some referring to decisions made months ago, rather than today. Confusion about some items. Problems with number scale – only using numbers 2 and 4 or 3 and 5 – they each chose two different numbers to indicate if the event had happened or not. ECI – took a long time > 40 minutes	Try training in Likert scale. Drop collaboRATE Added today to all questions about decisions made today. Changes to CDM (see vs9) ECI dropped.
2.12.14	First day of data collection	CDMvs9 item 9.2 and 9.10 causing confusion patients unsure who were the other people that should be involved in decision-making.	One word in CDMvs9 item 9.2 changed. (See vs10) Examples of people present were added CDMvs9 item 9.2 and 9.10
28.12.14	Analysis of data following data collection	Patient and carer responses are correlating well on most questionnaires. Problems with CDM: Patient and doctor responses are not correlating on the CDM. Many patients and doctors ticking 'agree' for every item. Data for CDM is skewed to the right. Discussion among research team – some patients were not clear who the 'we' in the questions referred to – i.e., did not know that it referred to the doctor and themselves.	Decision taken to re-write and field test again the CDM. Changed CDM scale to passive tense (vs11).
26.1.15	Field test of new version of CDM (vs11) on two patients	Passive tense not working. Questions starting with 'there was a discussion about' were confusing – one patient agreed with every item, because there had been a discussion. He was only processing first few words of each sentence. Difficulties with question 2, unable to distinguish between being invited to make a joint decision and making a joint decision.	Decided to change passive tense to question format (vs12)
3.2.15	Field test of CDM (vs12) on five patients. Asked specifically if they preferred a Likert scale or an anchored scale.	All but one preferred the Likert scale. 'Was there a discussion' was still causing problems. Patients agreeing if there was any discussion about anything.	Decided to use Likert scale.
5.2.15	Field test of CDM (vs13) on one patient.	Patient had problems knowing what a decision was. They were aware of problem to be solved rather than decision to be made.	Since many patients were not clear what decision-making was, decided to change the focus of questionnaire from decision-making to problem solving (vs14). Name changed to collaborative problem-solving scale
10.2.15	CPS vs13 tested on one patient and one hospital staff member.	Still problems understanding item 2 "We discussed whether the problem needed to be solved at this time." Staff member also reported it felt like three things were being asked at once.	Dropped item two. Reverted back from question form to the original 'we' form. Removed all multiclause statements – e.g. changed 'We discussed whether we agreed on

			how to solve the problem' to 'We agreed on how to solve the problem', since that was how these statements were being interpreted.
16.4.15	Whole questionnaire with CPSvs14 tested on one staff member	Problems with word 'professional', which in the Malaysian context only includes people above certain grade. Does not include most of nursing staff. Problems with word for 'staff' which does not include higher level staff. CDM and IDM now working better. 'Decision-making' is mainly associated with doctors, so problem solving is better. List of problems to solve is appropriate. If we ask about collaboration in general will not tell us in depth what is happening – need to ask about each collaboration pair one by one.	Add in a list about how much collaboration is happening with who. Collaborative pairs (CP) scale written.
20.4.15	Whole questionnaire tested on one staff member.	Many suggestions about how to make items easier to understand – minor grammatical changes.	After discussion with research team, minor changes to WRBNS2,10,15,17,18 MBI1,6,13,18,14,17 UWE1 LAC3,4,5,14,15,16,20
2.6.15	Whole questionnaire tested on one staff member	On CDM scale he thought about all decisions that he had ever made at the same time, rather than thinking about a specific decision – he answered 'happened' to all of them. No variation. On question about involvement of others, he only thought about professionals, not about people affected by the decision.	Changed scale to frequency-based scale. Split CPS9 and CPS10 into two separate scales
3.6.15	Tested on two hospital doctors from a different specialty	Found questionnaire easy to understand but long and sometimes repetitive.	
5.6.15	Four patient's self-filled. Two patients used an interview approach.	Only patient filled in easily when the self-filling approach was used. Other patients filling in without thinking. The two patients that were interviewed both filled appropriately.	Decided to use an interview approach to improve validity.
17.6.15	Staff questionnaire sent out to all hospital staff	Main complaint was that the staff questionnaire was too long.	Decision that the questionnaire length for both patients and staff needed to be cut.
8.10.15	Analysis of HCCQ, PWI	HCCQ-6 works as well as the full length HCCQ. PWI scores are too high – perhaps due to priming effect of question just prior to PWI, about satisfaction of hospital in general.	Decision to use HCCQ-6 in next patient data collection. Removed satisfaction of hospital in general question.
20.10.15	Field test on three patients whole questionnaire with CPSvs16	Could understand questionnaire well, but one patient had no problem to be solved. Questionnaire works better if I ask the patient who are the people affected and who are the people important in decision-making first	Need to include option of 'no problem' in problem list. Need a question to ask patients to write other people involved in decision-making before answering questions about their involvement in decision-making.
27.10.15 – 12.11.15	Second data collection patients and carers		

July 2016	Second data collection in staff

Appendix I. DEVELOPMENT OF THE COLLABORATIVE DECISION-MAKING SCALE

This is an expansion of some of the supplementary materials in Shoesmith (2022)[340]

Appendix table 1 - Development process from the research to the first draft

1st attempt-WS	**Our qualitative data**	**Our draft model**	**Elwyn 2013 (CollaboRATE scale)**	**Elwyn 2012**	**Consensus oriented decision making. Hartnett 2010.**	**Stacy 2010**	**Frosch 2009**	**Simon et al., 2010**	**Simon 2006**	**Elwyn 2000**	**Towle 1997**
Reviewed by SF			**Scale development -CollaboRATE**	**Literature review**	**Book-Literature review**	**Systematic review and theory analysis**	**Literature review**	**SDM-9 scale**	**Scale development SDM-9**	**Focus group**	**Literature review**
			Doctor-patient	***Doctor-patient***	**Management**	**Doctor-patient**	**Doctor-patient**	**Doctor-patient**	**Doctor-patient**	**Doctor-patient**	**Doctor-patient**
a. We made it explicit that a decision needs to be made (eg we need to decide what to do about…)	Patients, families and non-medical staff often felt that it was not their place to be involved in decision making and they may get into trouble for doing this.	Inviting into decision making.		**Choice talk** Step back Offer choice Justify choice - preferences matter Check reaction Defer closure	1. Framing the topic	Equipoise (recognize decision to be made)	Defining/explaining the medical problem*	My doctor made clear that a decision needs to be made.	Formulation of equality of partners	Implicit or explicit involvement of patients in decision-making process.	Develop a partnership with the patient.
b.							Discussing the ability to make a decision†	My doctor wanted to know exactly how I want to be involved in making the decision	Disclosure that a decision needs to be made	Checking process: acceptance of process and decision-making role preference, involving the patient to the extent they desire to be involved.	Establish or review the patient's preferences for role in decision-making.
4. We discussed who were the most appropriate people to be involved in decision making.	Patients, families and non-medical staff were frequently excluded from the decision making	Identifying stakeholders and making decisions at the optimal time, with stakeholders present if possible.									
c. We discussed whether this was the correct time to make the decision.											

	process and were not present when decisions were made.										
1. We identified all the available options.	Patients, carers and non medical staff felt that they did not have enough knowledge to be involved in decision making. They did not know the options.	Sharing knowledge, concerns and opinions	Explanation	**Option talk** Check knowledge List options Describe options – explore preferences Harms and benefits Provide patient decision support Summarize	2. Open Discussion		Presenting options for the medical problem*	My doctor told me that there are different options for treating my medical condition.	Presentation of the treatment options	Portrayal of equipoise and options.	Identify choices and evaluate the research evidence in relation to the individual patient.
2. We discussed the pros and cons of each of the options.					4. Collaborative Proposal Building		Discussing risks, benefits and costs of options†	My doctor precisely explained the advantages and disadvantages of the treatment options.	Informing on the options' benefits and risks		
3. We helped each other understand all of the information needed to make the decision						Knowledge transfer and exchange	Clarifying understanding	My doctor helped me understand all the information.	Investigation of patient's understanding and expectations		
										Identify preferred format and provide tailor-made information.	Establish or review the patient's preference for information, e.g. amount and format.
d. We all expressed our preferences. Views and opinions more widely used than preferences	Patients, carers and non medical staff were asked for information but not concerns, ideas or opinions.		Preference elicitation	**Decision talk** Focus on preferences Elicit preferences Move to a decision Offer review	3. Identifying Underlying Concerns	Expression of values/preferences	Expressing values and preferences related to potential health outcomes and options	My doctor asked me which treatment option I prefer.	Identification of preferences	Checking process: understanding of information and reactions (e.g. ideas, fears, and expectations of possible options).	Ascertain and respond to patients' ideas, concerns, and expectations.

5.											
e. We discussed what we thought would be the preference of the people that were not present at the discussion.	Families, traditional healers and religious leaders played a significant part in decision making outside of the consultation. Patients sometimes not present when decisions made.	Incorporating all opinions into the final decision, including opinions of people not physically present or not able to make decisions.									
e.1.											
e.2 All of our preferences were incorporated into the final decision. Views and opinions more widely used than preferences.			Preference integration		5. Choosing a Direction	Deliberation	Making a recommendation	My doctor and I thoroughly weighed the different treatment options.	Negotiation	Make, discuss or defer decisions.	Present (or direct to) evidence, taking into account the above steps, and help the patient reflect upon and alternative decisions with regard to their values and lifestyles.assess the impact of
f					6. Synthesizing a Final Proposal	The decision	Making or deferring a decision	My doctor and I selected a treatment option together.	Shared decision		
f.1											
f.2											
6.								My doctor and I reached an agreement on how to proceed			Make or negotiate a decision in partnership, manage conflict.
k. We decided who would do what to implement the decision.	Patients frequently felt that the doctors decision was final and that they could not	Implementing the decision				Implementation of the decision			Arrangement of follow-up	Arrange follow-up.	Agree upon an action plan and complete arrangements for follow-up.
7. We decided how and when the decision would be reviewed.					7. Closure						

	change it. They sometimes dropped out of treatment if they did not agree with a decision.										

Appendix table 2 - Development process from the first draft to the first data collection point

9th revision	8th revision	7th revision	6th revision	5th revision	4th revision	3rd revision	2nd revision	1st attempt-WS
Version used in first day of data collection 2.12.16.	**Revised following field testing**	**Revised following testing by AC in Malay 11.11.14**	**Revised following review by healthcare staff in Derby 23.8.14**	**Revised by KW**	**Reviewed by JS**	**Reviewed again by WS, after drafting our model from qual results**	**Reviewed by AF and WS**	**Reviewed by SF**
a. We made it clear that a decision needed to be made (for example someone said: “We need to decide about……”).	a. We made it clear that a decision needed to be made (eg we need to decide what to do about…).	a. We made it clear that a decision needed to be made (eg we need to decide what to do about…).	a. We made it clear that a decision needed to be made (eg we need to decide what to do about…). Points 1 and 4 can be combined	a. We made it clear that a decision needed to be made (eg we need to decide what to do about…). OR we agreed that a decision needed to be made.	a. It was made clear that a decision needs to be made (eg we need to decide what to do about…)sounds like there is always a leader in decision making	a. It was made clear that a decision needs to be made (eg we need to decide what to do about…)	a. We made it explicit that a decision needs to be made (eg we need to decide what to do about…) explicit not widely used, hard to translate.	a. We made it explicit that a decision needs to be made (eg we need to decide what to do about…)
b. We confirmed that we wanted to make the decision together (for example someone said: “Shall we make the decision together?”).	b. We confirmed that we wanted to make the decision together.	b. We confirmed that we wanted to make the decision together.	b. We confirmed that we wanted to make the decision together.	b. We agreed that we would make the decision together. Agreement may be passive or active.	b. We agreed that we would make the decision together.	b. We discussed how each of us wanted to be involved in decision making. Asking how they If one party decides that the other should make the decision alone, it is not joint decision making.	b.	b.

4.	4. We discussed who else might be important in decision making or be affected by the decision made.	4. We discussed who else might be important in decision making or be affected by the decision made.	4. We discussed who else might be important in decision making or be affected by the decision made.	4. We discussed who else might be important in decision making or be affected by the decision made.	4. We discussed who else might be important in decision making or be affected by the decision made.	4. We discussed who else might be important in decision making or be affected by the decision made.	4. We discussed who were the most appropriate people to be involved in decision making. Might not be clear to the patient/carer what this means. May not be clear that they are asked if they want to be involved in decision making	4. We discussed who were the most appropriate people to be involved in decision making.
c. We talked about whether this was the correct time to make the decision.	c. We discussed whether this was the correct time to make the decision.	c. We discussed whether this was the correct time to make the decision.	c. We discussed whether this was the correct time to make the decision.	c. We agreed that this was the correct time to make the decision. Agreement may be passive or active.	c. We agreed that this was the correct time to make the decision.	c. We discussed whether this was the correct time to make the decision.	c. We discussed whether this was the correct time to make the decision. Move up, so related to whether stakeholders present	c. We discussed whether this was the correct time to make the decision.
1. We talked about the options.	1. We identified all the available options.	1. We identified all the available options.	1. We identified all the available options.	1. We identified all the available options.	1. We identified all the available options.	1. We identified all the available options.	1. We identified all the available options.	1. We identified all the available options.
2. We talked about the pros and cons of the options.	2. We discussed the pros and cons of each of the options.	2. We discussed the pros and cons of each of the options.	2. We discussed the pros and cons of each of the options.	2. We discussed the pros and cons of each of the options.	2. We discussed the pros and cons of each of the options.	2. We discussed the pros and cons of each of the options.	2. We discussed the pros and cons of each of the options.	2. We discussed the pros and cons of each of the options.
3. We shared the information needed to make the decision	3. We helped each other understand all of the information needed to make the decision	3. We helped each other understand all of the information needed to make the decision	3. We helped each other understand all of the information needed to make the decision	3. We helped each other understand all of the information needed to make the decision	3. We helped each other understand all of the information needed to make the decision	3. We helped each other understand all of the information needed to make the decision	3. We helped each other understand all of the information needed to make the decision	3. We helped each other understand all of the information needed to make the decision
d. We shared our opinions	d. We discussed the opinions of all the people important to decision making or affected by the decision made, including any people not present at the discussion.	d. We shared our opinions and discussed what we thought would be the opinions of any people not present.	d. We shared our opinions and discussed what we thought would be the opinions of any other people important to decision making or affected by the decision made.	d. We shared our views and opinions.	d. We shared our views and opinions.	d. We each shared our views and opinions. In other languages no word for each.	d. We all shared our views and opinions. May be only two people	d. We all expressed our preferences. Views and opinions more widely used than preferences
h.	5. We shared our underlying concerns and discussed what we thought would be the concerns of any other people	5. We shared our underlying concerns and discussed what we thought would be the concerns of any	5. We shared our underlying concerns and discussed what we thought would be the concerns of any other people	5. We described our underlying concerns	5. We described our underlying concerns. Very similar to opinions. Consider removal.	5. We each described our underlying concerns. In other languages no word for each.	5.	5.

	important to decision making or affected by the decision made.	people not present.	important to decision making or affected by the decision made. This is easier than opinions or what mattered					
5.	e.	e.	e. We discussed what mattered to us regarding the decision and what we thought mattered to any other people important to decision making or affected by the decision made. Remove	e. We discussed what we thought would be the opinions of those people not present at the discussion. Will score low if all people are present.	e. We discussed what we thought would be the opinions of those people not present at the discussion.	e. We discussed what we thought would be the opinions of those people not present at the discussion.	e. We discussed what we thought would be the opinions of those people not present at the discussion.	e. We discussed what we thought would be the preference of the people that were not present at the discussion.
e.	e.1.	e.1.	e.1.	e.1.	e.1.	e.1.	e.1.	e.1.
e.1.	e.2	e.2	e.2	e.2 All of our opinions were taken into account to make the final decision. Very hard to answer. Just use the next question alone.	e.2 All of our opinions were taken into account to make the final decision.	e.2 All of our opinions were taken into account to make the final decision. Does not mean there was agreement.	e.2 All of our opinions were incorporated into the final decision. Incorporate hard to translate- not widely used.	e.2 All of our preferences were incorporated into the final decision. Views and opinions more widely used than preferences.
e.2 We talked about the opinions of people affected by the decision, who were not there.	f	f	f	f	f	f	f	f
f	f.1	f.1	f.1	f.1	f.1	f.1	f.1	f.1
f.1	f.2	f.2	f.2	f.2	f.2	f.2	f.2	f.2
f.2 We talked about the opinions of people who might be helpful in making the decision, who were not there.	6. We confirmed that we agreed on the final decision.	6. We confirmed that we agreed on the final decision.	6. We confirmed that we agreed on the final decision.	6. We agreed on the final decision.	6. We agreed on the final decision.	6.	6.	6.

6. We checked that we agreed on the final decision.	k.	k.	k.	k.	k. We decided who would do what. This is measuring something different- implementation of decision, not specific to joint decision making. Will also happen in unilateral decision making. Remove	k. We decided who would do what.	k. We decided who would do what to implement the decision. Implement hard to translate, not widely used.	k. We decided who would do what to implement the decision.
k.	7. We decided how and when the decision would be reviewed.	7. We decided how and when the decision would be reviewed.	7. We decided how and when the decision would be reviewed.	7. We decided how and when the decision would be reviewed.	7. We decided how and when the decision would be reviewed. Consider removal- not really measuring jointness of decision making.	7. We decided how and when the decision would be reviewed.	7. We decided how and when the decision would be reviewed.	7. We decided how and when the decision would be reviewed.

Appendix table 3 - Development from the first data collection to final version

17th revision	16th revision	**15th revision**	**14th revision**	**13th revision**	**12th revision**	**11th revision**	**10th revision**	**9th revision**	**8th revision**
Version used in Nov 2015 for patients and carers	Version used in June 2015 for staff	**Revised following field test on 10.2.15 and discussion with SF, AC, JK**	**Version used in field test on 10.2.15.**	**Version used in field test on 5.2.15**	**Version used in field test on 3.2.15**	**Version used in field test on 26.1.15**	**Version used in final three days of data collection**	**Version used in first day of data collection 2.12.16.**	**Revised following field testing**
a.	a.	a. DROPPED- difficult for people to understand, even after multiple explanations	a. 2. We discussed whether the problem needed to be solved at this time.	a. Was there was a discussion about whether a decision needed to be made at this time?	a. Was there was a discussion about whether a decision needed to be made at this time?	a. There was a discussion about whether a decision needed to be made at this time.	a. We made it clear that a decision needed to be made (eg someone said: “We need to decide what to do about…”).	a. We made it clear that a decision needed to be made (for example someone said: “We need to decide about……”).	a. We made it clear that a decision needed to be made (eg we need to decide what to do about…).
b.	b.	b.	b. DROPPED- difficult for people to understand,	b. Was an option given to make the	b. Was there was a discussion about whether we should make	b. There was a discussion about whether we should make	b. We confirmed that we wanted to make the	b. We confirmed that we wanted to make the decision together (for	b. We confirmed that we wanted to

			even after multiple explanations	decision together?	the decision together?	the decision together.	decision together. (eg someone said: “Shall we make the decision together?”)	example someone said: “Shall we make the decision together?”).	make the decision together.
4. We discussed who should be involved in making the decision about what to do.	4. We discuss who should be involved in making the decision about what to do.	4. We discussed who should be involved in solving the problem.	4. We discussed who should be involved in solving the problem.	4. Was there was a discussion about who should be involved in decision making?	4. Was there was a discussion about who should be involved in decision making?	4. There was a discussion about who should be involved in decision making.	4.	4.	4. We discussed who else might be important in decision making or be affected by the decision made.
c.	c.	c.	c.	c.	c.	c.	c. We discussed whether this was the correct time to make the decision.	c. We talked about whether this was the correct time to make the decision.	c. We discussed whether this was the correct time to make the decision.
1. We discussed all the ways of solving the problem.	1. We discuss all the ways of solving the problem.	1. We discussed all the ways of solving the problem.	1. Were all the ways of solving the problem discussed?	1. Were all the options were discussed?	1. Were the options were discussed?	1. The options were discussed.	1. We discussed the available options.	1. We talked about the options.	1. We identified all the available options.
2. We discussed the pros and cons of each way of solving the problem.	2. We discuss the pros and the cons of each of the ways of solving the problem.	2. We discussed all the pros and the cons of the ways of solving the problem	2. Were all the pros and cons of the ways of solving the problem discussed?	2. Were all the pros and cons of the options were discussed?	2. Were the pros and cons of the options were discussed?	2. The pros and cons of the options were discussed.	2. We discussed the pros and cons of the options.	2. We talked about the pros and cons of the options.	2. We discussed the pros and cons of each of the options.
3. Enough information was shared to solve the problem together.	3. Enough information is shared to solve the problem together.	3. Enough information was shared to solve the problem together.	3. Was enough information shared to solve the problem together?	3. Was enough information shared to make the decision together?	3. Was the information needed to make the decision shared?	3. The information needed to make the decision was shared.	3. We shared the information needed to make the decision.	3. We shared the information needed to make the decision	3. We helped each other understand all of the information needed to make the decision

d. Everyone shared their opinions.	d. Everyone shares their opinions.	d. Everyone shared their opinions.	d. Did everone share their opinion?	d. Did everone share their opinion?	d. Did the people that were present at the discussion share their opinions?	d. The people that were present at the discussion shared their opinions.	d. We shared our opinions.	d. We shared our opinions	d. We discussed the opinions of all the people important to decision making or affected by the decision made, including any people not present at the discussion.
5. We decided what to do together.	5. We decide what to do together.	5. We decided what to do together.	5.	5.	5.	h.	h.	h.	5. We shared our underlying concerns and discussed what we thought would be the concerns of any other people important to decision making or affected by the decision made.
e. 9. Try and think about all the people who may be affected by the problem (including the patient). Who are they?_______________________________________	e. 9. Try and think about all the people who may be affected by the decision.	e. Was there anyone else, important for solving the problem who was not there or could not be involved in the discussion? (Try and think about all the people who may be affected by the decision that was made. Think	e. Was there anyone important to decision making who was not there or could not take part in the discussion. (Try and think about all the people who may be affected by the decision that was made. Think also about other	e. Was there anyone important to decision making who was not there or could not take part in the discussion. (Try and think about all the people who may be affected by the decision that was made. Think also about other	e. Was there anyone important to decision making who was not there or could not take part in the discussion. (Try and think about all the people who may be affected by the decision that was made. Think also about other	5.	5.	5.	e.

		also about other people that may have been helpful in solving the problem)	people that may have been helpful in making the decision).	people that may have been helpful in making the decision).	people that may have been helpful in making the decision).				
e.1.	e.1. All the people that may be affected by the decision are present when the decision is made.	e.1.	e.1.	e.1.	e.1.	e.	e.	e.	e.1.
e.2	e.2 Their opinions are discussed.	e.2 Were their opinions discussed?	e.2 Were their opinions discussed?	e.2 Were their opinions discussed?	e.2 Were their opinions discussed?	e.1.	e.1.	e.1.	e.2
f Try and think about all the people who may be useful in solving the problem. (Perhaps people that have knowledge, ability or are in a position that may be useful in solving the problem). Who are they?______________________________________	f Try and think about all the people who have knowledge, ability or are in a position that may be useful for solving the problem.	f	f	f	f	e.2 The opinions of people who were not present were discussed. (Try and think about all the people who may be affected by the decision that was made. Think also about other people that may have been helpful in making the decision.	e.2 We discussed the opinions of any other people that may be affected by the decision but were not present at the discussion (for example: your family, your employer).	e.2 We talked about the opinions of people affected by the decision, who were not there.	f
f.1 All the people that may be useful in solving the problem were present at the discussion.	f.1 All the people that may be useful in solving the problem are present when the decision is made.	f.1	f.1	f.1	f.1	f	f	f	f.1

f.2 Their opinions were discussed.	f.2 Their opinions are discussed.	f.2	f.2	f.2	f.2	f.1	f.1	f.1	f.2
6. We agreed on how to solve the problem.	6. We agree on how to solve the problem.	6. We agreed on how to solve the problem.	6. We discussed whether we agreed on how to solve the problem.	6. Was there was a discussion about whether we agreed on the final decision?	6. Was there was a discussion about whether we agreed on the final decision?	f.2	f.2 We discussed the opinions of any other people important to decision making that were not present at the discussion (for example: other healthcare professionals, religious leaders).	f.2 We talked about the opinions of people who might be helpful in making the decision, who were not there.	6. We confirmed that we agreed on the final decision.
k.	k.	k.	k.	k.	k.	6. There was a discussion about whether we agreed on the final decision.	6. We checked that we agreed on the final decision.	6. We checked that we agreed on the final decision.	k.
7. We discussed how and when the decision will be reviewed.	7. We discuss how and when the decision will be reviewed.	7. We discussed how and when the decision would be reviewed.	7. We discussed how and when the decision would be reviewed.	7. Was there was a discussion about how and when the decision would be reviewed?	7. Was there was a discussion about how and when the decision would be reviewed?	k.	k.	k.	7. We decided how and when the decision would be reviewed.

Appendix J. SCALE TRANSLATION (PINK SHADING SHOWS A CHANGE FROM PREVIOUS VERSION)

The following tables show the scale translation process for some of the scales that were used. This is not shown for all the scales, since the scale developers did not wish for them to be published.

AHRQ HOSPITAL SURVEY ON PATIENT SAFETY CULTURE

Table 0-2 - AHRQ Hospital Survey on Patient Safety Culture translation process

	English	UMS version	Sime-Derby version	LJL suggestions	Version used

1. Teamwork Within Units					
A1	People support one another in this unit.	Orang menyokong antara satu sama lain di dalam unit ini		1. "Semua orang"...	Semua staf menyokong antara satu sama lain di dalam unit* ini
A3	When a lot of work needs to be done quickly, we work together as a team to get the work done.	Apabila banyak kerja yang perlu dilakukan dengan segera, kami bekerja bersama-sama sebagai satu pasukan untuk meyiapkan kerja			Apabila banyak kerja yang perlu dilakukan dengan segera, kami bekerja bersama-sama sebagai satu pasukan untuk meyiapkan kerja
A4	In this unit, people treat each other with respect.	Di dalam unit ini, orang melayani satu sama lain dengan penuh rasa hormat		3. "Semua orang " "melayan "	Di dalam unit ini, orang melayan satu sama lain dengan penuh rasa hormat
A11	When one area in this unit gets really busy, others help out.				
9. Teamwork Across Units					
F2	Hospital units do not coordinate well with each other.	Unit-unit hospital tidak menyelaras dengan baik diantara satu sama lain.	Unit-unit di hospital ini tidak berkoordinasi dengan baik antara satu sama lain		Unit-unit hospital tidak menyelaras dengan baik diantara satu sama lain.
F4	There is good cooperation among hospital units that need to work together.	Terdapat kerjasama yang baik dikalangan unit-unit hospital yang perlu bekerja bersama-sama	Unit-unit di hospital ini menunjukkan kerjasama yang baik		Unit-unit di hospital ini menunjukkan kerjasama yang baik.
F6	It is often unpleasant to work with staff from other hospital units.	Adalah sering tidak menyenangkan bekerja bersama kakitangan daripada unit-unit lain di hospital.	Ia selalu kurang menyenangkan apabila bekerja dengan staf dari unit-unit lain di hospital ini	6. "Bekerja bersama kakitangan daripada unit unit lain di hospital sering tidak menyenangkan "	Adalah selalu kurang menyenangkan apabila bekerja dengan staf dari unit-unit lain di hospital ini.
F10	Hospital units work well together to provide the best care for patients.		Unit-unit di hospital ini bekerjasama dengan baik dalam menyediakan		Unit-unit di hospital ini bekerjasama dengan baik dalam menyediakan

			penjagaan pesakit yang paling baik.		penjagaan pesakit yang paling baik.
7. Communication Openness					
C2	Staff will freely speak up if they see something that may negatively affect patient care.	Staf akan bebas bersuara jika mereka melihat sesuatu yang akan mempengaruhi pesakit secara negative.	Staf akan bersuara secara bebas sekiranya mereka melihat sesuatu yang mungkin akan menjejaskan penjagaan pesakit		Staf akan bebas bersuara jika mereka melihat sesuatu yang akan mempengaruhi pesakit secara negatif.
C4	Staff feel free to question the decisions or actions of those with more authority.	Staf bebas untuk mempersoalkan keputuan atau tindakan mereka yang lebih berkuasa.	Staf berasa bebas untuk mengemukan soalan tentang keputusan dan tindakan yang dilakukan oleh pihak atasan.		Staf berasa bebas untuk mengemukan soalan tentang keputusan dan tindakan yang dilakukan oleh pihak atasan.
C6	Staff are afraid to ask questions when something does not seem right.	Staf takut untuk bertanyakan soalan jika ada sesuatu yang tidak kena.	Staf takut untuk menyoal apabila mengetahui sesuatu yang tidak betul, kerana mereka bimbang akan terlibat dalam masalah.	9. ...takut untuk "bertanya ".... yang tidak betul.	Staf takut untuk bertanyakan soalan jika ada sesuatu yang tidak kena.

Appendix K. MEASUREMENT INVARIANCE BETWEEN GROUPS FOR THE SHARED PROBLEM-SOLVING AND DECISION-MAKING SCALE

This section reproduces parts of the supplementary materials section of Shoesmith (2022)[340].

Between patients and carers

Model	DF	DF difference	CMIN	Difference in CMIN	CFI	Difference in CFI	RMSEA	Difference in RMSEA	P
Unconstrained	26		62.916		0.987		0.046		
Measurement weights	31	5	65.859	2.943	0.987	0	0.041	-0.005	0.709
Measurement intercepts	38	12	68.829	5.913	0.989	0.002	0.035	-0.006	0.92
Structural covariances	41	15	71.557	8.641	0.989	0	0.034	-0.001	0.896
Measurement residuals	48	22	97.825	34.909	0.982	-0.007	0.04	0.006	0.04

Between professional groups (excluding doctors, due to inadequate numbers)

Model	DF	DF dif	CMIN	Difference in CMIN	CFI	Difference in CFI	RMSEA	Difference in RMSEA	P
Unconstrained	39		66.899		0.978		0.051		
Measurement weights	49	5	77.978	11.079	0.977	-0.001	0.047	-0.004	0.351
Measurement intercepts	63	12	92.56	14.582	0.977	0	0.042	-0.005	0.371
Structural covariances	69	17	99.823	7.263	0.976	-0.001	0.041	-0.001	0.326
Measurement residuals	83	24	131.046	31.223	0.962	-0.014	0.046	0.005	0.025

Between sexes

Model	DF	DF dif	CMIN	Difference in CMIN	CFI	Difference in CFI	RMSEA	Difference in RMSEA	P
Unconstrained	26		50.912		0.983		0.057		
Measurement weights	31	5	56.103	5.191	0.983	0	0.052	-0.005	0.393
Measurement intercepts	38	12	66.196	10.093	0.981	-0.002	0.05	-0.002	0.226
Structural covariances	41	17	80.3	14.104	0.974	-0.007	0.057	0.007	0.014
Measurement residuals	48	24	95.453	15.153	0.968	-0.006	0.058	0.001	0.003

Between age groups

Model	DF	DF dif	CMIN	Difference in CMIN	CFI	Difference in CFI	RMSEA	Difference in RMSEA	P
Unconstrained	131		254.227		0.924		0.055		
Measurement weights	136	5	263.834	9.607	0.921	-0.003	0.055	0	0.087
Measurement intercepts	143	12	270.22	6.386	0.922	0.001	0.054	-0.001	0.192
Structural covariances	146	17	271.749	1.529	0.923	0.001	0.053	-0.001	0.289
Measurement residuals	153	24	315.882	44.133	0.900	-0.023	0.059	0.006	<0.001

Post basic formal training in mental health

Model	DF	DF dif	CMIN	Difference in CMIN	CFI	Difference in CFI	RMSEA	Difference in RMSEA	P
Unconstrained	26		55.417		0.981		0.06		
Measurement weights	31	5	59.723	4.306	0.982	0.001	0.055	-0.005	0.506
Measurement intercepts	38	12	69.754	10.031	0.980	-0.002	0.052	-0.003	0.28
Structural covariances	41	17	77.822	8.068	0.976	-0.004	0.054	0.002	0.098

Measurement residuals	48	24	84.653	6.831	0.977	0.001	0.05	-0.004	0.138

Years of experience

Model	DF	DF dif	CMIN	Difference in CMIN	CFI	Difference in CFI	RMSEA	Difference in RMSEA	P
Unconstrained	131		222.056		0.944		0.048		
Measurement weights	136	5	230.086	8.03	0.942	-0.002	0.047	-0.001	0.155
Measurement intercepts	143	12	232.381	2.295	0.945	0.003	0.045	-0.002	0.587
Structural covariances	146	17	234.416	2.035	0.945	0	0.044	-0.001	0.652
Measurement residuals	153	24	261.343	26.927	0.933	-0.012	0.048	0.004	0.013

Grade

Model	DF	DF dif	CMIN	Difference in CMIN	CFI	Difference in CFI	RMSEA	Difference in RMSEA	P
Unconstrained	74		153.249		0.952		0.06		
Measurement weights	84	5	172.463	19.214	0.946	-0.006	0.06	0	0.038
Measurement intercepts	98	12	191.341	18.878	0.943	-0.003	0.057	-0.003	0.034
Structural covariances	104	17	200.347	9.006	0.941	-0.002	0.056	-0.001	0.024
Measurement residuals	118	24	241.21	40.863	0.925	-0.016	0.059	0.003	0

Appendix L. COMMITTEE ATTENDANCE

	5.5.16	**25.5.16**	**14.6.16**	**14.7.16**	**8.9.16**	**6.11.16**	**7.12.16**	**11.1.17**	**13.6.17**	**29.10.18**
Doctor	/	/	Left	Left	Left	Left	Left	Left	Left	Left
Doctor	/	X	/	Left	Left	Left	Left	Left	Left	Left
Doctor	/	/	x	/	/	/	/	x	/	Left
Doctor	/	/	/	/	/	/	/	/	Left	Left
Doctor	/	/	x	/	x	x	x	x	x	x
Doctor	/	X	x	x	x	x	/	x	/	/
Nurse/ MA	x	/	/	/	x	x	x	x	/	/
Allied health	/	/	/	x	x	x	x	x	/	x
Allied health	/	/	/	/	x	/	x	x	/	/
Allied health	/	X	x	/	x	x	/	Left	Left	Left
Nurse/ MA	/	X	x	x	x	x	x	x	x	x
Nurse/ MA	x	X	/	x	x	x	x	x	x	x
Nurse/ MA	/	/	/	x	x	x	x	/	/	/
Nurse/ MA	X	/	/	x	/	x	x	x	x	x
Nurse/ MA	/	/	x	x	x	x	x	x	x	x
Nurse/ MA	/	Left	Left	Left	Left	Left	Left	Left	Left	Left
Nurse/ MA	/	/	/	/	Left	Left	Left	Left	Left	Left
HCA	X	X	x	/	x	x	x	x	Left	Left
Nurse/ MA	/	X	/	x	x	x	x	/	x	/
HCA	/	X	/	x	x	x	x	x	/	/
Service user	X	/	/	x	x	x	x	x	x	x
Service user	X	/	x	x	/	/	x	/	x	x
Service user	/	/	/	/	x	/	x	/	x	/
Nurse/ MA		/	/	/	/	/	x	x	x	x
Nurse/ MA			/	/	x	x	x	x	x	Left
Nurse/ MA				/	/	/	/	/	x	/
Doctor				/	x	x	x	x	x	Left
Doctor				/	x	/	/	/	/	Left
Service user							/	x	x	/

Doctor									/	/
Nurse/ MA										/
Research	/	/	/	/	/	/	/	/	/	/
Research	/	/	/	/	/	/	/	/	/	/
Research	x	/	x	/	/	/	/	/	x	Left
Research	x	x	x	x	x	/		x	x	x
Research	/	x	x	x	x	x	x	x	/	x

Appendix M. COMMITTEE MEETING GROUND RULES AND TERMS OF REFERENCE

A Bahasa Malaysia version of this was given to committee members in the first meeting and when new members joined.

The role of the Committee:

The role of the committee is to produce a new model way of working in the psychiatric system, which will lead to collaborative practice.

Collaborative practice has been defined by the WHO as "when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care."

The definition of collaborative practice which this committee will use will include:

- **healthcare professionals working with patients and families as partners.**
- **healthcare professionals working collaboratively with each other, including across professional groups (such as doctors working collaboratively with nurses).**
- **Healthcare professionals working collaboratively with other people who are involved with the patient or family, who may be outside of the healthcare system.**

Responsibilities

- **To produce a model of collaborative practice for the psychiatric system in Malaysia.**
- **To review the feedback from the Delphi Committee on the model.**
- **To produce a set of guidelines, and a manual for the implementation of the model.**
- **To provide advice and guidance as the model is implemented.**
- **To review the model after implementation and adjust accordingly.**

Process of committee

- **The committee will meet every two weeks until the initial model is agreed on. The committee will then meet less frequently.**
- **The meetings must have a minimum of eight people in order to proceed.**
- **Minutes of the meetings will be kept by the meeting secretary and agreed on at the next meeting.**
- **Members of the committee may be contacted between meetings for advice if necessary.**
- **From time to time, subgroups may be formed, in order to look at specific issues, as appropriate.**
- **From time to time, other individuals may be co-opted into the committee, in order to provide specific expertise.**
  - **The language of the meetings will be a mixture of Malay and English, with help with translation given where necessary. Care will be taken to ensure that all participants understand what is happening in the meeting.**
  - **The process of the meetings will roughly follow a participatory decision-making procedure.**
  - **Every effort will be made to achieve consensus during the meetings. Proposals will be modified until consensus is reached. If consensus cannot be reached, then a two thirds majority will be used to pass a motion.**
  - **Publications of the model, guidelines and manual will include the names of all of the committee members and the research team.**

Role of the Research Team

- **The committee will be monitored as part of an action research study.**
- **The research team will attend the meetings but will not have any voting rights. The role of the research team will be as follows:**
    - **The meetings will be chaired by a new member of the research team, who has not been involved in the previous research.**
    - **To present research findings from the previous study in Hospital Mesra Bukit Padang.**
    - **To present relevant literature on collaborative practice.**
    - **To produce the initial meeting agenda and meeting minutes. This must be passed by the committee before proceeding.**
    - **To study the process of the meetings and provide feedback to the chairman and committee where necessary. This will include:**
        - **Observing, recording and analysing the content of the meetings**
        - **Since this having patient and carer involvement on hospital committees is rare, interviews will be held with staff, patients and carers to better understand their experience.**
- **The meetings have been recorded and transcribed in full and then coded using n-vivo software.**

Ground rules:

These rules are designed to allow ideas to bounce backwards and forwards until really good ideas emerge. We have invited different types of people to this meeting, and we want all voices to be heard.

1. **Try to be concise and not to dominate.**
2. **Share your ideas and your perspective.**
3. **Listen respectfully and non-judgementally. Try to understand the perspectives of others.**
4. **Try not to interrupt until the person has finished talking.**
5. **Accept differences in opinion as a good thing.**
6. **Try to reach consensus.**
7. **Be present in the meeting. Try not to get distracted by phones and other things.**

We can change or add to the rules if the committee agrees to this.

Appendix N. COLLABORATIVE PRACTICE RECOMMENDATIONS

These recommendations were first published together with the article published in the International Journal of Mental Health Systems in 2020, under a Creative Commons Licence. This allows us to republish and disseminate the recommendations.

Working Together: A Consensus on Collaborative Practice in the Malaysian Mental Health System

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Ms Anita Abu Bakar	President of Mental Illness Awareness and Support Association (MIASA).
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Dr Abdul Rasyid Sulaiman	Psychiatrist at International Medical Univerisity
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Nur Adilla Bt Munir	Patient
Wan Zakirah bt. Wan Zakaria	Patient
Ms A	Patient

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Sue Fyfe
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Beena Giridharan

INTRODUCTION

Collaborative practice has been defined by the WHO as "when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care"[1].

Collaborative practice improves the quality of healthcare delivery. Collaboration can be between different professional groups, between patients and healthcare providers, between different parts of the healthcare system, or between the healthcare system and other people that help patients. The effect of collaboration is similar in size to the effect of many commonly used psychiatric medications.

Collaboration between different professions reduces admissions, length of admission and mortality, and improve satisfaction, employment and accommodation status [2–9]. Therapeutic alliance between mental health providers and patients is one of the best predictors of outcome [10–16]. Collaboration between families and professionals has been found to be the most important predictor of carer satisfaction with services [17,18]. Collaboration between primary and secondary care has been shown to significantly improve outcomes in anxiety and depression [19]. Collaboration between health and social care agencies leads to improvements in symptoms and functioning in people with mental disorders[20].

Collaborative practice interventions are often complex and not standardized. These kinds of interventions are difficult or very expensive to assess using clinical trials and results of trials cannot easily be generalized from one context to another. Consensus methods, such as the Delphi technique, are a way of providing guidance on complex systems level interventions in healthcare [21,22].

These recommendations are a consensus of what is desirable in the system, whether or not it is possible to implement at the current time, in order to create a clear view or a desirable future.

GUIDELINE DEVELOPMENT

These guidelines were produced as part of an action research project, which started in 2013. The project had a number of phases, which are listed below:

Phase 1

Interviews and focus groups were held with staff, patients, carers and other people that help people with mental disorders (e.g. religious authorities, village leaders, school counsellors, NGO workers, traditional healers). A literature review was conducted.

Phase 2

A committee was formed consisting of staff from a psychiatric hospital, patients and carers. The group considered ways of improving collaborative care in the hospital. A consensus process was used to produce the guidelines. The model was then reviewed by a nationwide Delphi committee.

Phase 3.

Where possible the guidelines were implemented in a psychiatric hospital and the results reflected upon.

BARRIERS TO COLLABORATIVE PRACTICE IN MALAYSIA

Collaboration has large benefits for both patients and staff, but it is not easy to achieve. Below are some of the barriers to collaboration described by staff in the Malaysian healthcare system [BJPsych Open reference]:

Hierarchical environment and lack of autonomy

Staff describe how collaboration is difficult in an environment where lower ranking staff are afraid of expressing their opinions to higher ranking staff and patients are afraid to express their opinions to doctors. Adequate autonomy is needed to engage in collaborative decision making. Malaysia has one of the most hierarchical cultures in the world and staff describe how this has an effect on patient care [23–25].

Lack of relatedness

Trusting relationships are needed for good collaboration. If patients see different doctors on each visit and staff do not work with a familiar team then trusting relationships fail to develop.

Lack of resources

This includes time, competencies and physical resources.

Lack of motivation

Some staff reported that they are burned out or not always motivated to provide the best possible care for patients or to collaborate with other staff, patients and carers. Some described seeing this problem in others.

PRODUCING A COLLABORATIVE ENVIRONMENT IN PSYCHIATRIC SETTINGS

We believe that the following ingredients are needed to create a collaborative environment.

Autonomy

Patients, carers and staff need to feel that they have the autonomy to be involved in decision making.

Relatedness

Relatedness is the basic psychological need to “form and maintain strong, stable interpersonal relationships”[26]. Patients, carers and staff need sustained, trusting relationships in order to collaborate.

Resources

Resources include competencies, time, physical resources and opportunities. Competencies in collaboration, psychiatry and mental health are needed in all grades of staff, patients and carers.

These ingredients are the basic psychological needs that create internal **motivation** in both staff and patients [27]. Collaboration requires all parties to be motivated to move towards **common goals and values**. These ingredients should increase motivation in all parties to create the best possible outcomes for patients and to collaborate.

We recommend that consideration is given to ways of improving each of these ingredients.

1. Improving Autonomy

The following are suggested ways to increase autonomy and reduce the sense of hierarchy in meetings. (These may be large interprofessional meetings or smaller meetings between doctor and patient).

1.1. The suggested process of collaborative problem solving and decision making should be considered as a way of empowering patients, carers and staff and improving the quality of decision making (see section 5).

1.2. All staff should be trained in assertiveness, validation*, empathy and giving feedback* appropriately.

Staff should be trained to use these skills when communicating with other staff, as well as with patients and families.

**Validation means acknowledging and accepting the thoughts and feelings of others, without necessarily agreeing with them. Appropriate forms of feedback include the 'sandwich method' and the 'ALOBA' method.*

1.3. Staff need to pay careful attention to furniture and subtle cues that may make people feel intimidated.

In meetings we suggest that the seating should be as close as possible to circular, with no back row.

1.4. The chair of the meeting should play a facilitator role and take care not to dominate.

1.5. The chair of the meeting should be someone who has good meeting skills and skills in listening and validating, understands the topic and the context of the meeting and should be chosen with the agreement of the other members of the meeting. The chair should not be chosen purely on the basis of grade and profession.

1.6. The meeting chair needs to create a non-judgmental, validating environment.

They need to ensure that people are not denigrated by other people in the meeting. This is particularly important for more junior staff.

1.7. The meeting chair needs to pay careful attention to power imbalances and make a special effort to elicit and validate opinions from people that may be feeling intimidated.

1.8. Providing paper to people who might normally feel intimidated can encourage them to express themselves.

This is more relevant to large staff meetings, where some staff may feel intimidated, even with assertiveness training. Brainstorming sessions, where staff are asked to write ideas and put them in a box can also save time in a large meeting.

1.9. **Breaking up into smaller groupsin larger meetings helps more voices to be heard and allows people to speak that normally feel intimidated.**

1.10. **Staff in leadership roles should be mentored and trained in democratic and transformational leadership styles.**
These leadership styles both emphasize autonomy, engagement, values and internal motivation, rather than leading by using threats and rewards as a form of motivation.

1.11. **All staff should be given some leadership opportunities appropriate to their skills and experience. Junior staff should be given opportunities to chair meetings and mentored in this by more senior staff.**

1.12. **The people involved in a meeting should be asked if they have any questions or feedback at the end of a meeting.**
This includes asking patients if they have feedback at the end of a consultation.

2. Improving Relatedness

The following are recommended to improve relatedness in the system, which will allow trusting relationships to develop.

2.1. **Systems should be designed so that there are as few transitions between healthcare providers as possible. If possible patients should see the same doctor on each visit.**
Patients report that they do not like having to tell the same story many times to different doctors and then never seeing them again. If they are unable to form a relationship with their healthcare provider then a therapeutic alliance will not form. Healthcare providers also report that they are more satisfied if they follow up their own patients and most report it is more efficient than seeing patients they have never met. This is particularly important in the early stages of treatment, where illness is unstable and where patients have not yet returned to previous levels of functioning. This may need to be balanced against the training needs of junior staff and service flexibility. If patients are not recovering then they should be discussed in supervision or reviewed by another doctor.

2.2. **A "primary nurse" system should be used for inpatients.**
This allows inpatients to have one nurse that they are familiar with throughout their stay. This nurse will be responsible for the medium- long term care needs of the patient, including patient education, discharge planning, liaising with other professionals and forming a relationship with the patient's family. This nurse will not be on every shift, but may see the patient several times per week. We recommend that an "associate nurse" is also appointed for each patient to cover the primary nurse. Nurses need to be given training on how to fulfill this role.

2.3. **Systems should be designed in ways that optimize relatedness between staff.**
Dividing the staff into multiprofessional teams is one way of increasing relatedness between staff and has been shown to significantly improve outcomes (23,24). This is already being done

in the creation of community mental health centers. Teams could care for a particular group of patients (e.g. drug users, adolescents) or they could care for a particular geographical area. These teams could include staff members covering different parts of the hospital i.e. staff from wards, clinics and the community would be on the same team. Training needs could be met by rotating staff within the same team, without disrupting relationships.
The number of other staff that each person needs to collaborate with needs to be manageable.

2.4. **Representatives (people that represent longer term committee members) should only be sent to patient care planning meetings or other hospital meetings when they are aware of the issues or are planning to join a hospital committee in the long term.**

3. Improving Resources

COMPETENCE

Developing collaborative competence of staff

Collaborative competencies are complex and generally do not develop unless staff are specifically trained in them.

3.1. **All staff should be trained in the following areas:**

- Interprofessional working
- Meeting skills
- Assertiveness skills
- Validating other people's opinions and giving feedback
- Reflective practice
- Collaborative decision making and problem solving (see section 6)

3.2. **Training in collaborative competencies should be skills based and include role playing sessions and reflective components.**

Training is based around the principles of interprofessional education where staff learn from, with and about one another's roles.

Developing mental health competencies in staff

3.3. **Most nursing and other professional staff working in psychiatric institutions should be interested in working in psychiatry and either have post-basic training in psychiatry or be undergoing this training.**

Recognition needs to be given that psychiatric nursing is a specialized field and requires the application of multiple higher level skills.

3.4. **Staff should be mentored. Staff with post-basic psychiatry training can mentor staff that do not have post-basic training.**

Staff working in psychiatric environments need regular supervision meetings, which are reflective and supportive.

3.5. **Specific staff should be allocated to work in psychiatry in district hospitals and primary care, to allow these staff to develop the required competencies.**

These staff can be mentored by staff with post-basic psychiatric training.

3.6. **Higher authorities in the health service should ensure that there is an appropriate skills mix, i.e. that there are adequate numbers of all professional groups, including clinical psychologists and social workers.**

There is a particular shortage of some groups of allied health staff, which makes interprofessional collaborative practice difficult.

Developing collaborative competencies in patients and carers

3.7. **The use of the Ministry of Health's "Patient's Unvoiced Needs" program, is recommended.**

A video is shown in the waiting room, which encourages patients to write down what they would like to discuss with the doctor before the appointment. This was introduced because it was discovered that many patients do not discuss what they intended to discuss with their doctor.

Developing mental health competencies in patients and carers

3.8. **Each patient should have a written care plan, which they can share with all people involved in their care.**

This would be produced at care planning meetings attended by the primary nurse, primary doctor, patient, family and all others involved in their care.

A care plan is a list of actions which will help the patient move towards recovery goals and staying well. This can include actions provided by healthcare professionals (e.g. prescribing medication), actions done by the patient themselves (e.g. exercise) and actions done by family members (e.g. listening if the patient wants to talk). Writing the plan is a way of making sure that all members of the team, including the patient and family, know what the plan is and are working together towards the same goals. The complexity of the plan depends on the needs of the patients and a simple plan may just consist of a handwritten list of recovery goals and actions written in the patients clinic notebook.

3.9. Education and support groups should be set up for patients and carers, including groups led by patients and carers. Brochures and promotional materials about existing groups should be made available in clinics and wards to ensure that patients, carers and

3.10. Patients and carers who are able and willing to help others should be trained to work as peer support workers and educators.

3.11. Peer support workers and educators should be paid an honorarium for the time spent doing the work.

3.12. Education for both the public and professionals should involve patients and carers as educators.

3.13. Written materials should be available in doctor's rooms or waiting room for patient and carer education, which should also be available on line. Patients and carers should be invited to write some of these materials if they are interested in doing this.

3.14. Information displayed on the wall of the clinic should be related to mental health, particularly ways to improve mental health and well being. Information displays need to be clear, positive and sensitive to what patients may find distressing.

3.15. Mental health education videos should be shown in the waiting area of the clinic as well as being available online. These videos should show positive, hopeful, non-stigmatising views of mental illness.

3.16. A resource room or area should be available near the waiting room, which contains educational materials (brochures, books, videos). This should be staffed by someone capable of giving education to patients and carers, e.g. a staff member or peer educator.

3.17. We recommend that patients be given a clinic book. This book can be used for the following: Individualised care plans, recovery goals, relapse plans, education, psychological work – e.g. CBT formulation, pages to write down things that they would like to discuss with the doctor.

This may be in paper form or written form.

TIME

Collaboration can initially take a lot of time. Time can sometimes be saved in the longer term, for example if it prevents a patient being readmitted. The following are suggested to ensure that collaboration time is used appropriately.

RELATEDNESS

4.2. **A 'Friends of the Hospital' group should be set up, together with a directory of services outside the hospital.**
This will help form relationships with people outside the hospital to donate resources or services and lobby to improve resources available.

4.3. **Specific mental health staff should form relationships with other people outside the hospital that help people with mental disorders.**
e.g. a specific specialist or other member of staff is responsible for providing training and support for a particular primary care clinic, school, or village.

4.4. **Existing collaborative networks between primary care and people in the community should be used to help plan care (see appendix).**

4.5. **Patients who are not directly under the psychiatric hospital, should be given the option of being treated in primary care (rather than district hospitals).**
Primary care clinics have existing collaborative networks with community members, such as village heads. It is also recommended by the World Health Organization and is more convenient for patients.

RESOURCES

Improving community mental health competence

4.6. **First-responder training programs in mental health should be provided for other people that help people with mental disorders.**
e.g. teachers, religious leaders, human resource staff

4.7. **Other people that help people with mental disorders need to know referral pathways and who to call if they are uncertain about what to do.**

5. Process of Shared Decision Making

COLLABORATIVE PROBLEM SOLVING AND DECISION MAKING

The following is a description of steps for optimal problem solving and decision making. These steps can be used in consultations with patients, care planning meetings and other hospital meetings.

These steps were written after qualitative research showed:

- *Patients, carers and some staff felt that they were not invited to take part in decision making, they were not asked their opinion, or that their opinion was not listened to. They described being asked for information but not being asked for their opinions about what was causing the problem or what should be done.*

3.18. **Staffing calculations and rotas should take account of the time needed for collaboration.**
Time needed for collaboration includes time for phone calls to other healthcare staff or families, time for specialists to provide consultation to medical officers, as well as time needed for meetings.

3.19. **Psychiatric appointment time should be at least 30 minutes for a follow up appointment and 90 minutes for a new patient appointment.**
This includes the time needed for documentation, consultation from the specialist and discussion of the plan.

3.20. **Care needs to be taken in deciding how to use multi-professional meeting time. Topics of discussion should be limited to the things that concern most of the people attending the meeting.**
If staff are unable to contribute at the meeting, or learn from it, then their need to attend should be reviewed.

3.21. **Each member of staff should participate in only a limited number of hospital committees and junior staff should sometimes be appointed as committee members.**
This will reduce the load on more senior staff and empower more junior staff.

PHYSICAL RESOURCES

3.22. **Better physical resources are likely to improve collaborative practice**
– e.g. adequate inpatient infrastructure, interview rooms, rooms for group sessions, meeting rooms, IT facilities.

4. Collaborating with Other People that Help People with Mental Disorders

Patients with psychiatric disorders are helped by many people outside of the formal psychiatric system, including school and religious counsellors, primary healthcare clinics, religious authorities, Bomohs and employers. Collaborating with these groups can increase the resources available to help patients. Collaborating with these groups will also be improved with adequate autonomy, relatedness and competence.

AUTONOMY

4.1. **The bureaucratic processes should encourage collaboration, rather than create barriers to collaboration.**
Bureaucratic barriers to collaboration include requirements for staff to fill a form on leaving the hospital. The autonomy given to staff and teams needs to be determined individually, depending on skills, job requirements and experience.

- *Many participants (patients, carers and staff) described how they often felt that bad decisions were being made, but did not feel they could question the decision. They also sometimes felt that they could not tell doctors when a plan was not effective.*

- *Decisions were often made outside of the doctor-patient consultation or meeting. An example is where the patient decides to take medication during the consultation with their doctor, but then changes their mind after talking to a family member. In the process we describe below, the opinions of other people are deliberately discussed and considered while making shared decisions in a meeting.*

- *These problems were described in many different types of meeting, including patient-doctor consultations, ward rounds and general hospital meetings.*

The steps written are general guidance and the amount of time put into this process will depend on the problem to be solved or the decision being made. Not all steps need to be followed each time.

5.1. Inviting to take part in problem solving and decision making.

Patients, carers and some staff may need to be explicitly asked if they would like to take part in the problem solving and decision-making process (see appendix below).

Patients, carers and some staff sometimes make the assumption that they are not expected to take part in decision making. An explicit invitation reduces this assumption. In patient consultations a simple invitational statement or question can be used: e.g. "It sounds like the sleepiness is causing you lot of problems. Shall we think together about what we can do about it?"

Some patients and carers may not wish to take part in decision making and problem solving, particularly if they are feeling overwhelmed or if the treatment options are complex. For example, sometimes patients and families prefer their doctor to select the medication that they feel is best for them. In these cases, the practitioner needs to decide whether it is therapeutically appropriate to a) respect their wish and make the decision for them or b) further encourage the patient to be involved in making the decision..

5.2. Identifying stakeholders.

The people that are either affected by the problem or could help with the problem need to be identified (see appendix below). Decision making needs to be done at an optimal time, with these people present if possible. If they cannot be present at the time of decision making, then knowledge, opinions and concerns should be asked from them first. This should be done with the patient's agreement (see appendix).

People affected by the decision normally include the patient and family. People that may help with the problem include patient, family, healthcare staff and other people in the community, such as employers, teachers and community leaders. If healthcare staff have been previously involved and know the patient well, then their opinion should be asked before important decisions are made. Contacting other people must be done with the permission of the patient, including contacting family members. If the patient does not have capacity to make the decision about involving other people, then the decision to contact them should be made in the best interest of the patient, taking into consideration the balance of risk, the opinions of other people close to the patient, legal requirements and any advanced directives. The amount of time taken in taking opinions from different people needs to be proportionate to the importance of the decision, who else the decision will affect, the urgency in making the decision and the resources available. For example, more time will be spent asking different opinions about the decision to discharge a high risk patient than would be spent asking opinions about which medication to choose. In many cases it is appropriate to just ask the patient about the opinions of other people, eg "What does your family think about you taking medication?, "Are their people in your family who do not think it is a good idea?", "What do you think about your aunt's belief that taking medication will cause kidney problems?".

5.3. Defining the problem.

The problem needs to be clearly defined and agreed upon.

In patient consultations the problem this may first involve exploring the patient's goals or values and working out the barriers to reaching these goals or following values.

5.4. Finding common goals and values.

Common goals or values in solving the problem should be defined and agreed upon.

Goals involve a defined end point (e.g. finding a job), values give a general direction (e.g. would like to contribute). Goals should be found that all parties would like to work towards.

5.5. Sharing of knowledge, opinions and concerns.

Knowledge, opinions and concerns, which will help with problem solving should be shared between the people present.

This process can involve a formal problem solving technique, starting with a brainstorming, where all possible ways of solving the problem are written down and the pros and cons of each solution discussed.

This process may need to involve people outside the meeting, in which case it may be necessary to defer decision making until all parties have shared information, opinions and concerns. For example, a patient may wish to defer a decision about switching medication until the next appointment, after sharing information about a new medication with family members and finding out their opinions.

5.6. Making the final plan.

After deliberating the options, the plan should be produced. This should be written down for the patient if it is complex. The opinions of people not physically present or not capable of decision making at the time shoud be considered if they are relevant.

Changed from: All opinions should be taken into account when making the final decision, including opinions of people not physically present or not able to make decisions.

Patients may not have the capacity to make a decision at the point the decision has been made. However, many patients will have discussed what they want to be done in the event of future relapse. This may be in the form of a formal advance directive or relapse plan or they may have informally discussed this with a relative or member of the healthcare team. An example of this is a patient who writes a relapse plan which requests ECT in the event of becoming manic. This request would be considered by the healthcare team, when making decisions about ECT.

5.7. Implementing the decision and making clear that the decision can be reviewed.

Discussion should take place about who should do what. A review date should be set. It should be made clear to patients and carers that the decision can be reviewed if the solution is not effective or makes the problem worse.

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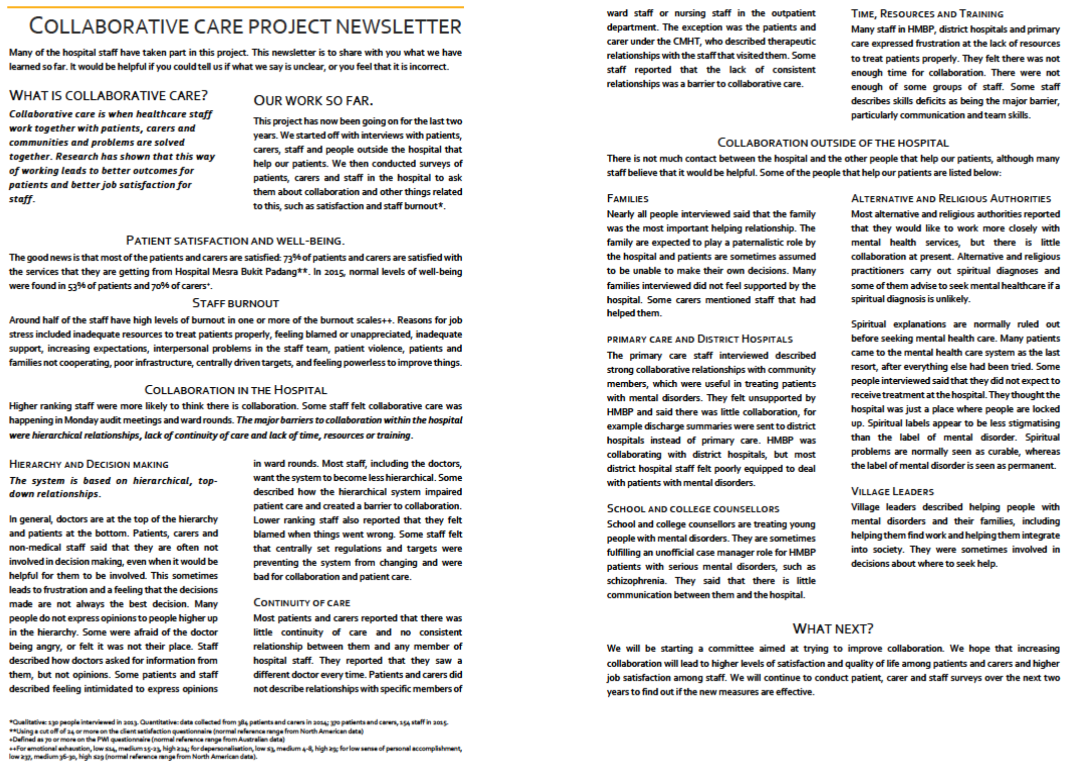
Appendix O. COLLABORATIVE PRACTICE NEWSLETTER

Below is an English version of the newsletter, which was sent to staff in February 2016 to inform them about the qualitative research results and to invite them to take part in the committee. The version that was sent was in Bahasa Malaysia.



COLLABORATIVE CARE PROJECT NEWSLETTER

Many of the hospital staff have taken part in this project. This newsletter is to share with you what we have learned so far. It would be helpful if you could tell us if what we say is unclear, or you feel that it is incorrect.

WHAT IS COLLABORATIVE CARE?

Collaborative care is when healthcare staff work together with patients, carers and communities and problems are solved together. Research has shown that this way of working leads to better outcomes for patients and better job satisfaction for staff.

OUR WORK SO FAR.

This project has now been going on for the last two years. We started off with interviews with patients, carers, staff and people outside the hospital that help our patients. We then conducted surveys of patients, carers and staff in the hospital to ask them about collaboration and other things related to this, such as satisfaction and staff burnout*.

PATIENT SATISFACTION AND WELL-BEING.

The good news is that most of the patients and carers are satisfied: 73% of patients and carers are satisfied with the services that they are getting from Hospital Mesra Bukit Padang**. In 2015, normal levels of well-being were found in 53% of patients and 70% of carers+.

STAFF BURNOUT

Around half of the staff have high levels of burnout in one or more of the burnout scales++. Reasons for job stress included inadequate resources to treat patients properly, feeling blamed or unappreciated, inadequate support, increasing expectations, interpersonal problems in the staff team, patient violence, patients and families not cooperating, poor infrastructure, centrally driven targets, and feeling powerless to improve things.

COLLABORATION IN THE HOSPITAL

Higher ranking staff were more likely to think there is collaboration. Some staff felt collaborative care was happening in Monday audit meetings and ward rounds. ***The major barriers to collaboration within the hospital were hierarchical relationships, lack of continuity of care and lack of time, resources or training.***

HIERARCHY AND DECISION MAKING

The system is based on hierarchical, top-down relationships.

In general, doctors are at the top of the hierarchy and patients at the bottom. Patients, carers and non-medical staff said that they are often not involved in decision making, even when it would be helpful for them to be involved. This sometimes leads to frustration and a feeling that the decisions made are not always the best decision. Many people do not express opinions to people higher up in the hierarchy. Some were afraid of the doctor being angry, or felt it was not their place. Staff described how doctors asked for information from them, but not opinions. Some patients and staff described feeling intimidated to express opinions in ward rounds. Most staff, including the doctors, want the system to become less hierarchical. Some described how the hierarchical system impaired patient care and created a barrier to collaboration. Lower ranking staff also reported that they felt blamed when things went wrong. Some staff felt that centrally set regulations and targets were preventing the system from changing and were bad for collaboration and patient care.

CONTINUITY OF CARE

Most patients and carers reported that there was little continuity of care and no consistent relationship between them and any member of hospital staff. They reported that they saw a different doctor every time. Patients and carers did not describe relationships with specific members of ward staff or nursing staff in the outpatient department. The exception was the patients and carer under the CMHT, who described therapeutic relationships with the staff that visited them. Some staff reported that the lack of consistent relationships was a barrier to collaborative care.

TIME, RESOURCES AND TRAINING

Many staff in HMBP, district hospitals and primary care expressed frustration at the lack of resources to treat patients properly. They felt there was not enough time for collaboration. There were not enough of some groups of staff. Some staff describes skills deficits as being the major barrier, particularly communication and team skills.

COLLABORATION OUTSIDE OF THE HOSPITAL

There is not much contact between the hospital and the other people that help our patients, although many staff believe that it would be helpful. Some of the people that help our patients are listed below:

FAMILIES

Nearly all people interviewed said that the family was the most important helping relationship. The family are expected to play a paternalistic role by the hospital and patients are sometimes assumed to be unable to make their own decisions. Many families interviewed did not feel supported by the hospital. Some carers mentioned staff that had helped them.

PRIMARY CARE AND DISTRICT HOSPITALS

The primary care staff interviewed described strong collaborative relationships with community members, which were useful in treating patients with mental disorders. They felt unsupported by HMBP and said there was little collaboration, for example discharge summaries were sent to district hospitals instead of primary care. HMBP was collaborating with district hospitals, but most district hospital staff felt poorly equipped to deal with patients with mental disorders.

SCHOOL AND COLLEGE COUNSELLORS

School and college counsellors are treating young people with mental disorders. They are sometimes fulfilling an unofficial case manager role for HMBP patients with serious mental disorders, such as schizophrenia. They said that there is little communication between them and the hospital.

ALTERNATIVE AND RELIGIOUS AUTHORITIES

Most alternative and religious authorities reported that they would like to work more closely with mental health services, but there is little collaboration at present. Alternative and religious practitioners carry out spiritual diagnoses and some of them advise to seek mental healthcare if a spiritual diagnosis is unlikely.

Spiritual explanations are normally ruled out before seeking mental health care. Many patients came to the mental health care system as the last resort, after everything else had been tried. Some people interviewed said that they did not expect to receive treatment at the hospital. They thought the hospital was just a place where people are locked up. Spiritual labels appear to be less stigmatising than the label of mental disorder. Spiritual problems are normally seen as curable, whereas the label of mental disorder is seen as permanent.

VILLAGE LEADERS

Village leaders described helping people with mental disorders and their families, including helping them find work and helping them integrate into society. They were sometimes involved in decisions about where to seek help.

WHAT NEXT?

We will be starting a committee aimed at trying to improve collaboration. We hope that increasing collaboration will lead to higher levels of satisfaction and quality of life among patients and carers and higher job satisfaction among staff. We will continue to conduct patient, carer and staff surveys over the next two years to find out if the new measures are effective.

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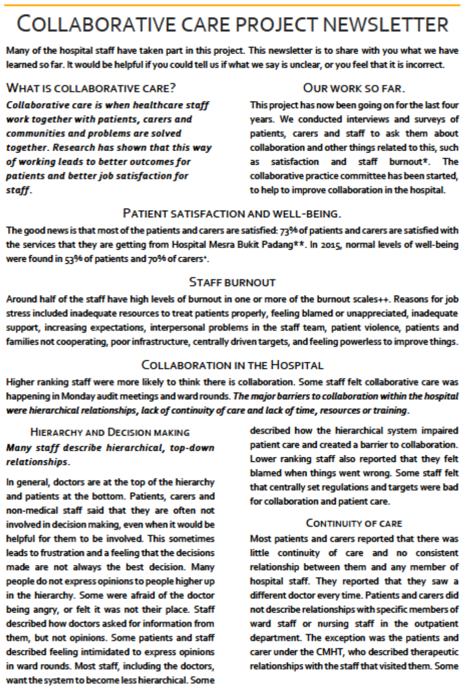
*Qualitative: 130 people interviewed in 2013. Quantitative: data collected from 384 patients and carers in 2014; 370 patients and carers, 154 staff in 2015.

**Using a cut off of 24 or more on the client satisfaction questionnaire (normal reference range from North American data)

+Defined as 70 or more on the PWI questionnaire (normal reference range from Australian data)

++For emotional exhaustion, low ≤14, medium 15-23, high ≥24; for depersonalisation, low ≤3, medium 4-8, high ≥9; for low sense of personal accomplishment, low ≥37, medium 36-30, high ≤29 (normal reference range from North American data).

Newsletter sent in December 2017 to inform again about the qualitative research and what had been done by the committee so far.



Collaborative care project newsletter

Many of the hospital staff have taken part in this project. This newsletter is to share with you what we have learned so far. It would be helpful if you could tell us if what we say is unclear, or you feel that it is incorrect.

What is collaborative care?

Collaborative care is when healthcare staff work together with patients, carers and communities and problems are solved together. Research has shown that this way of working leads to better outcomes for patients and better job satisfaction for staff.

Our work so far.

This project has now been going on for the last four years. We conducted interviews and surveys of patients, carers and staff to ask them about collaboration and other things related to this, such as satisfaction and staff burnout*. The collaborative practice committee has been started, to help to improve collaboration in the hospital.

Patient satisfaction and well-being.

The good news is that most of the patients and carers are satisfied: 73% of patients and carers are satisfied with the services that they are getting from Hospital Mesra Bukit Padang**. In 2015, normal levels of well-being were found in 53% of patients and 70% of carers+.

Staff burnout

Around half of the staff have high levels of burnout in one or more of the burnout scales++. Reasons for job stress included inadequate resources to treat patients properly, feeling blamed or unappreciated, inadequate support, increasing expectations, interpersonal problems in the staff team, patient violence, patients and families not cooperating, poor infrastructure, centrally driven targets, and feeling powerless to improve things.

Collaboration in the Hospital

Higher ranking staff were more likely to think there is collaboration. Some staff felt collaborative care was happening in Monday audit meetings and ward rounds. ***The major barriers to collaboration within the hospital were hierarchical relationships, lack of continuity of care and lack of time, resources or training.***

Hierarchy and Decision making

Many staff describe hierarchical, top-down relationships.

In general, doctors are at the top of the hierarchy and patients at the bottom. Patients, carers and non-medical staff said that they are often not involved in decision making, even when it would be helpful for them to be involved. This sometimes leads to frustration and a feeling that the decisions made are not always the best decision. Many people do not express opinions to people higher up in the hierarchy. Some were afraid of the doctor being angry, or felt it was not their place. Staff described how doctors asked for information from them, but not opinions. Some patients and staff described feeling intimidated to express opinions in ward rounds. Most staff, including the doctors, want the system to become less hierarchical. Some described how the hierarchical system impaired patient care and created a barrier to collaboration. Lower ranking staff also reported that they felt blamed when things went wrong. Some staff felt that centrally set regulations and targets were bad for collaboration and patient care.

Continuity of care

Most patients and carers reported that there was little continuity of care and no consistent relationship between them and any member of hospital staff. They reported that they saw a different doctor every time. Patients and carers did not describe relationships with specific members of ward staff or nursing staff in the outpatient department. The exception was the patients and carer under the CMHT, who described therapeutic relationships with the staff that visited them. Some

staff reported that the lack of consistent relationships was a barrier to collaborative care.

Time, Resources and Training

Many staff in HMBP, district hospitals and primary care expressed frustration at the lack of resources to treat patients properly. They felt there was not enough time for collaboration. There were not enough of some groups of staff. Some staff describes skills deficits as being the major barrier, particularly communication and team skills.

Collaboration outside of the hospital

There is not much contact between the hospital and the other people that help our patients, although many staff believe that it would be helpful. Some of the people that help our patients are listed below:

Families

Nearly all people interviewed said that the family was the most important helping relationship. The family are expected to play a paternalistic role by the hospital and patients are sometimes assumed to be unable to make their own decisions. Many families interviewed did not feel supported by the hospital. Some carers mentioned staff that had helped them.

Primary care and District Hospitals

The primary care staff interviewed described strong collaborative relationships with community members, which were useful in treating patients with mental disorders. They felt unsupported by HMBP and said there was little collaboration, for example discharge summaries were sent to district hospitals instead of primary care. HMBP was collaborating with district hospitals, but most district hospital staff felt poorly equipped to deal with patients with mental disorders.

School and college counsellors

School and college counsellors are treating young people with mental disorders. They are sometimes fulfilling an unofficial case manager role for HMBP patients with serious mental disorders, such as schizophrenia. They said that there is little communication between them and the hospital.

Alternative and Religious Authorities

Most alternative and religious authorities reported that they would like to work more closely with mental health services, but there is little collaboration at present. Alternative and religious practitioners carry out spiritual diagnoses and some of them advise to seek mental healthcare if a spiritual diagnosis is unlikely.

Spiritual explanations are normally ruled out before seeking mental health care. Many patients came to the mental health care system as the last resort, after everything else had been tried. Some people interviewed said that they did not expect to receive treatment at the hospital. They thought the hospital was just a place where people are locked up. Spiritual labels appear to be less stigmatising than the label of mental disorder. Spiritual problems are normally seen as curable, whereas the label of mental disorder is seen as permanent.

Village Leaders

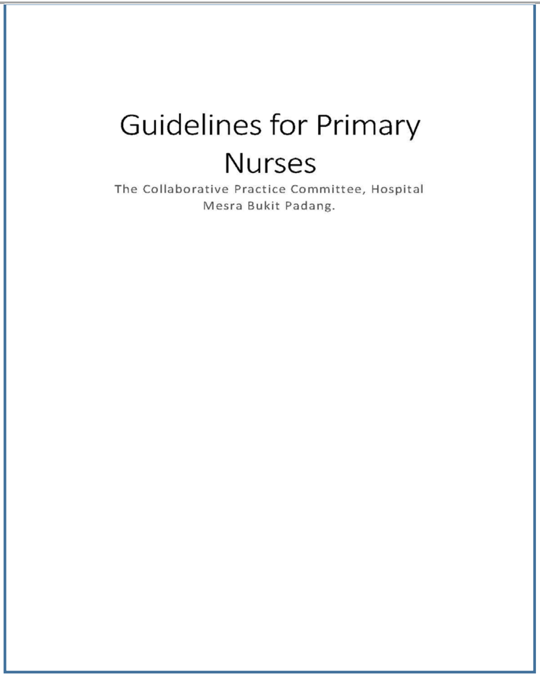
Village leaders described helping people with mental disorders and their families, including helping them find work and helping them integrate into society. They were sometimes involved in decisions about where to seek help.

Collaborative Practice Committee

We have started a Collaborative Practice Committee in Hospital Mesra Bukit Padang, which has now met eight times since May 2016. The committee has produced a set of guidelines to improve collaborative practice in the hospital and some of these guidelines have been implemented. These include changes to the way meetings are conducted and changes to the allocation of medical officers to patients on the chronic wards. We are currently pilot testing a new collaborative clinic notebook and with approximately 250 notebooks now in circulation. We have started to conduct training sessions among staff, including training sessions on collaborative decision making for wards rounds (September 2016), validation and giving feedback (Dec 2017) motivational interviewing techniques (April 2017), goal setting and values clarification (June 2017) and the primary nurse program (Nov 2017).

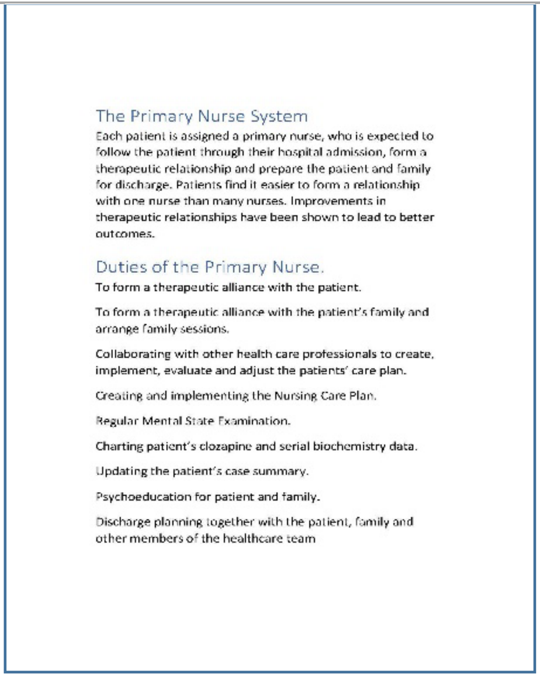
Appendix P. PRIMARY NURSE MANUAL

This is the English version of the manual that was developed for the primary nurse program. The manual that was given to staff was in Bahasa Malaysia.



Guidelines for Primary Nurses

The Collaborative Practice Committee, Hospital Mesra Bukit Padang.



The Primary Nurse System

Each patient is assigned a primary nurse, who is expected to follow the patient through their hospital admission, form a therapeutic relationship and prepare the patient and family for discharge. Patients find it easier to form a relationship with one nurse than many nurses. Improvements in therapeutic relationships have been shown to lead to better outcomes.

Duties of the Primary Nurse.

To form a therapeutic alliance with the patient.

To form a therapeutic alliance with the patient's family and arrange family sessions.

Collaborating with other health care professionals to create, implement, evaluate and adjust the patients' care plan.

Creating and implementing the Nursing Care Plan.

Regular Mental State Examination.

Charting patient's clozapine and serial biochemistry data.

Updating the patient's case summary.

Psychoeducation for patient and family.

Discharge planning together with the patient, family and other members of the healthcare team

Associate Nurse.

The associate nurse takes on the duties of the primary nurse, if they are on leave for short periods. The associate nurse should also be familiar with the patient and provides support for the primary nurse, particularly if the patient is emotionally challenging or difficult decisions need to be made.

Duties of the Associate Nurse.

1. Carry out list of duties of the primary nurse if they are on leave.

2. Hand-over any changes or updates on patient's care plan/improvement to the primary nurse.

The Primary Attendant

The primary attendant is also expected to form a relationship with the patient and family and support the primary nurse. Observations of the patient should be handed over to the primary nurse.

Differences between Level-of-Care nurse and Primary nurse.

The primary nurse system does not replace the level-of-care system. The level-of-care nurse is responsible for the short term, daily care needs for the patient. The level of care nurse is not the same for every shift and patients do not normally develop a close relationship to them. The primary nurse is responsible for longer term care needs and planning. The primary nurse remains the same throughout the patient's stay, which allows the patient to develop a deeper relationship. The primary nurse is only expected to see the patient 2-3 times per week.

	Level-of-care nurse	**Primary nurse**
Time	Assigned to patient for one shift only	Assigned to patient for length of stay on ward
Responsibilities	Short term daily care needs. e.g. physical monitoring, suicidal caution chart.	Longer term care needs and planning. e.g. discharge planning, psychoeducation.
Relationship	Friendly, but superficial relationship.	Deeper, more trusting relationship.
Number of patients	5-10 on each shift	Maximum of 3
Frequency of contact	Several times in one shift- short conversations.	2-3 times per week, sessions lasting approximately 15 minutes.
Relationship with other members of care team	Providing information and support.	Providing opinions and ideas with full involvement in collaborative decision making.

Therapeutic Alliance

A therapeutic alliance is a partnership between a healthcare provider and a patient, where patients and healthcare providers work together for the best possible outcome.

- The strength of the therapeutic alliance between the patient and healthcare staff is one of the strongest predictors of outcome.
- Strong partnerships allow shorter admissions and less likelihood of future admissions.
- If trusting relationships are built with ward staff, patients are more likely to return for follow up appointments, take their medication and discuss with their doctor if they are having problems.
- A strong partnership allows solutions to problems to be found together, which means that the problems are more likely to be solved.

Creating a therapeutic alliance

Here are some of the things that can help lead to better therapeutic alliance:

1. **Continuity of care.** Creating a therapeutic alliance is very difficult if the patient does not have consistent relationships with healthcare staff. This is the main reason for the *primary nurse* program.
2. **Regular contact.** We would suggest spending 15 minutes of one-to-one time, talking to patients that you are primary nursing each shift.

3. **Listening**. Ask open questions and allow the patient to do most of the talking. The session should be pleasant for the patient, not an interrogation.
4. **Empathy and validation.** Patients will not want to form a partnership with you unless they feel validated and accepted. Try to avoid making the patient feel judged.
5. **Finding common ground.** Normally you can find something that you agree on, even with patients that 'lack insight'.
6. **Working on problems together.** Find a problem that you both agree to work on together. Work out solutions together and evaluate success together. Set goals for the problems, that are easy to achieve at first.
7. **Boundaries**. It is difficult for patients to form a relationship if they do not know what is expected of them. They need to understand what your role is and what you can and cannot do. *See boundaries section.*
8. **Discussing relationship problems openly**. When patients are admitted, it is normal for them to have negative feelings towards healthcare staff. Many of them will feel angry, disappointed and betrayed. Ask questions which will allow patients to express these feelings and then accept and validate them.
9. **Authenticity**. Patients want to form a relationship with a real human, not a robot. It is OK to reveal some things about yourself and to discuss some of your own feelings, – e.g. 'I felt a bit worried when you said that'. This needs to be balanced with the need for boundaries.

Boundaries

The 'relationship boundaries' are the rules, roles and expectations for a particular relationship. The relationship boundaries between a primary ward nurse and a patient are different to the relationship boundaries of a friendship, or the relationship between a community nurse and a patient. Staying within the boundaries reduces anxiety in both nurse and patient and allows the relationship to stay healthy.

Boundaries for a relationship between the primary nurse and the patient:

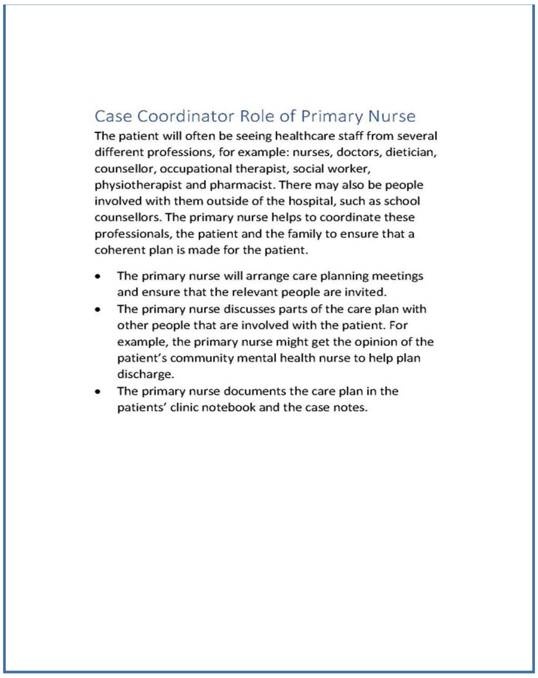
- The primary nurse should clearly explain their role to the patient and what the patient can expect from them.
- The relationship starts when the patient enters the ward and ends when the patient is discharged. The primary nurse should support the patient during home-trial leave, but the relationship ends on discharge.
- The primary nurse should not give out their personal phone number, tell the patient where they live, or arrange to meet after discharge.
- The primary nurse and other members of the healthcare team can decide together on how often and for how long the primary nurse will see a particular patient. This depends on the patient's needs and what they want. The primary nurse should clearly articulate this to the patient – e.g. 'I will see you three times per week for 15 minutes'. Setting appointment times and writing them down is useful for some patients.

- The primary nurse should make it clear what is part of their role and what is the role of other professionals.
- The primary nurse will sometimes need to say 'no' to the patient, for example if the patient wants to see the nurse more often than they have time for. Sometimes saying 'no' is important to maintain boundaries and can strengthen the relationship if it is done with empathy. If you find it hard to say 'no', it might be useful to do an assertiveness course.
- Where you place the boundaries about what you will discuss with patients about yourself depends on you. You should not discuss intimate details of your life, or things that make you feel uncomfortable.

Relationships with Families

Admission of a patient to hospital is often very difficult for family members. The period of illness prior to admission is emotionally traumatic for many family members and they may be exhausted by the time the patient is admitted. They are sometimes blamed by other people for the patient's condition and for bringing them to the hospital. Burnout and mental disorders in carers is common. A supportive relationship between ward staff and carers can reduce these problems. This will reduce the time that the patient needs to be in hospital and reduce the chance of future admissions.

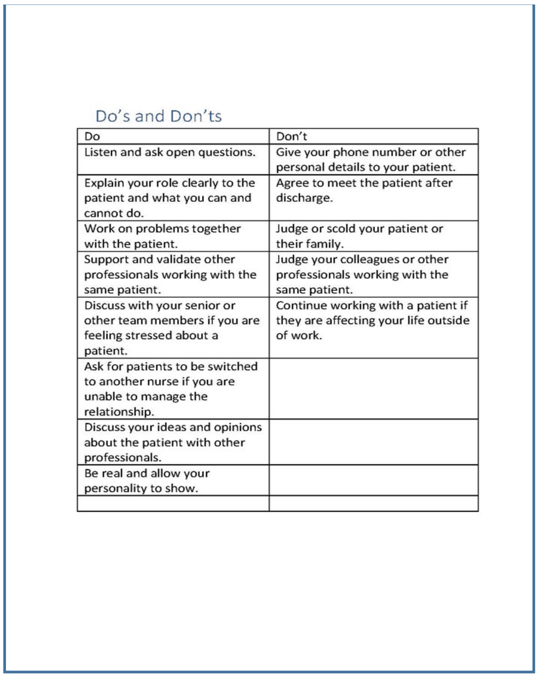
1. Spend time talking to the family of your patient when they visit the ward. Try and form a partnership.
2. Try to understand the family structure and the relationships in the family.
3. Ask them how they are coping. Try to understand and validate their feelings, rather than judging. Try to understand their expectations.
4. Seek their opinions and take their advice about caring for the patient where appropriate.
5. Encourage the family members to be involved in decision making and care planning, if the patient is in agreement with this.
6. Find out from the patient what is OK to discuss with the family. There are some things that the patient might not want the family to know, and in general this should be respected.



Case Coordinator Role of Primary Nurse

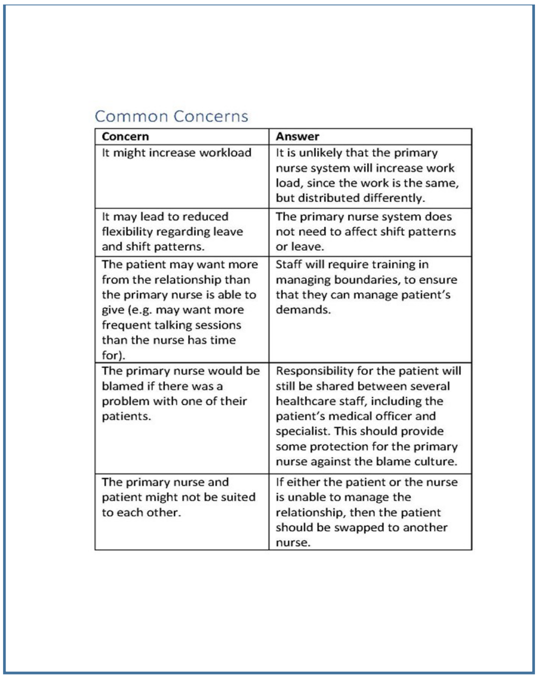
The patient will often be seeing healthcare staff from several different professions, for example: nurses, doctors, dietician, counsellor, occupational therapist, social worker, physiotherapist and pharmacist. There may also be people involved with them outside of the hospital, such as school counsellors. The primary nurse helps to coordinate these professionals, the patient and the family to ensure that a coherent plan is made for the patient.

- The primary nurse will arrange care planning meetings and ensure that the relevant people are invited.
- The primary nurse discusses parts of the care plan with other people that are involved with the patient. For example, the primary nurse might get the opinion of the patient's community mental health nurse to help plan discharge.
- The primary nurse documents the care plan in the patients' clinic notebook and the case notes.



Do's and Don'ts

Do	Don't
Listen and ask open questions.	Give your phone number or other personal details to your patient.
Explain your role clearly to the patient and what you can and cannot do.	Agree to meet the patient after discharge.
Work on problems together with the patient.	Judge or scold your patient or their family.
Support and validate other professionals working with the same patient.	Judge your colleagues or other professionals working with the same patient.
Discuss with your senior or other team members if you are feeling stressed about a patient.	Continue working with a patient if they are affecting your life outside of work.
Ask for patients to be switched to another nurse if you are unable to manage the relationship.	
Discuss your ideas and opinions about the patient with other professionals.	
Be real and allow your personality to show.	



Common Concerns

Concern	Answer
It might increase workload	It is unlikely that the primary nurse system will increase work load, since the work is the same, but distributed differently.
It may lead to reduced flexibility regarding leave and shift patterns.	The primary nurse system does not need to affect shift patterns or leave.
The patient may want more from the relationship than the primary nurse is able to give (e.g. may want more frequent talking sessions than the nurse has time for).	Staff will require training in managing boundaries, to ensure that they can manage patient's demands.
The primary nurse would be blamed if there was a problem with one of their patients.	Responsibility for the patient will still be shared between several healthcare staff, including the patient's medical officer and specialist. This should provide some protection for the primary nurse against the blame culture.
The primary nurse and patient might not be suited to each other.	If either the patient or the nurse is unable to manage the relationship, then the patient should be swapped to another nurse.

Appendix Q. MULTI-PERSPECTIVE CASE STUDY

This is a fictional account of a patient admitted to the ward. Staff were given different roles, each with different information.

MEDICAL OFFICER.

You have seen the patient Adam on two occasions since admission. He has been in the ward on numerous occasions, and you vaguely remember him from last time, but he was not under your care.

Mr Adam 25-year-old man from Tuaran. Currently unemployed and single, living with his parents. Six previous admissions.

He was admitted to the ward 4 days ago, bought in by the Police. He was found near the Police station, looking dishevelled, wearing no shoes or shirt and carrying a parang (machete).

HPC:

History from the patient is that he was carrying a parang for self-defence and someone had stolen his clothes. He has also been hearing voices, which told him to leave his house to stay with his friend. He had been using syabu every day with his friend.

History from the mother is that he left the family home 3 days before he was bought to the ward. He had been very argumentative and had threatened to kill father before leaving. Did not sleep for the 3 days that he was staying with his friend. Prior to this sleeping 10 hours per day. Appetite normal.

Past Psychiatric history:

Hearing voices intermittently since age 17. Over the last 3 years, voices have been less between episodes, but never resolve completely. When well, voices are quieter, and he is able to ignore them. Occasional episodes of low mood, but never lasting longer than 1 week.

Five previous admissions:

June 2009- admission for 2 weeks- diagnosis of drug induced psychosis. Auditory hallucinations and delusion that he was being followed. Treated perphenadine 4mg on, which he stopped on discharge.

September 2013- admission for one month- diagnosis drug induced psychosis. Auditory hallucinations and family report aggressive behaviour. Treated risperidone 2mg bd- he stopped after discharge.

December 2013- readmitted for two months. Auditory hallucinations worsened and family report aggressive behaviour. Diagnosis schizophrenia. Treated risperidone 2mg bd- attended follow up for one year.

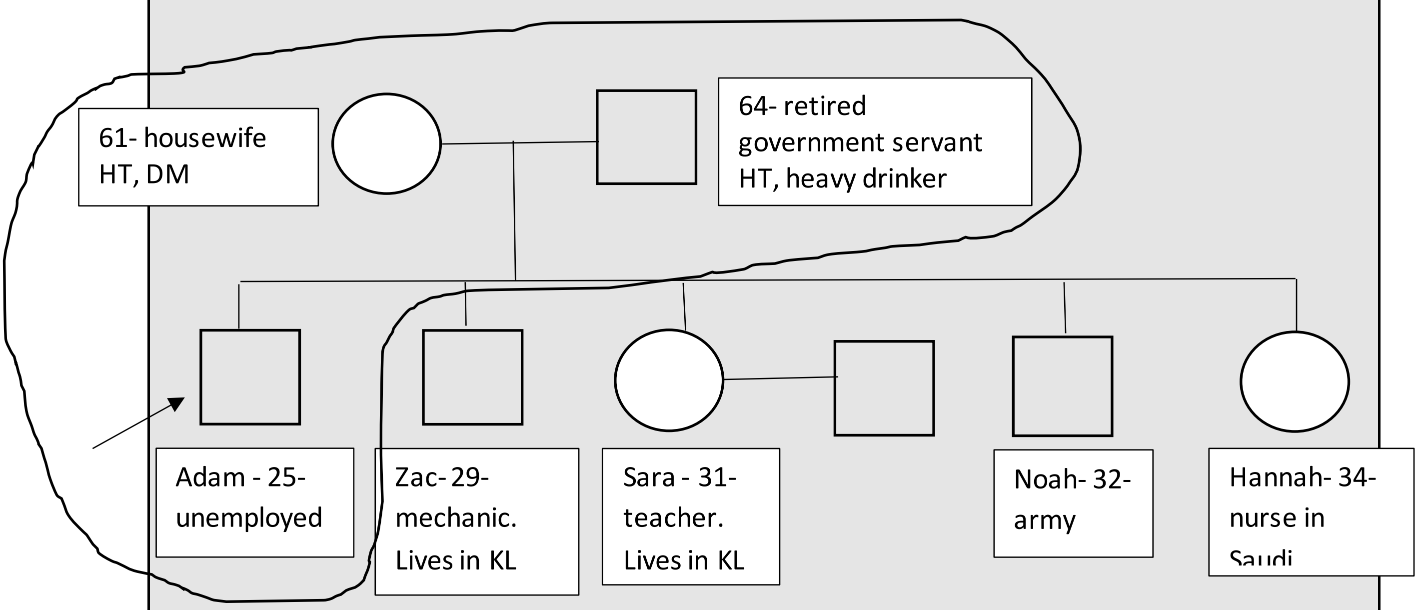
June 2015- admitted for 5 months, after punching father. Auditory hallucinations worsened. Diagnosis schizophrenia with comorbid substance use disorder. Problems discharging due to failed home trial leave on several occasions. Family reported that he became aggressive when he got home. Treated initially with olanzapine, which was increased to 30mg. ECT 12X given. Medication changed to clozapine 200mg bd. Stopped 2 months after discharge, since he was taking intermittently and sometimes not attending blood tests. Olanzapine 20mg + fluanxol 20mg started. Reports he took medication on most days.

Jan 2016- admitted for 1 month. Diagnosis schizophrenia. Parents reported threatening behaviour. Treated olanzapine 30mg + fluanxol 20mg monthly.

Since discharge he has been taking his medication most days, supervised by his family. Refuses to take it 1-2 times per week, saying that he is too tired if he takes it. Last took his fluanxol depot 7 weeks ago.

PMH- nil

FH-



Lives in wooden house in kampung between KK and Tuaran. Has water, electricity, father owns a car. Income RM1000 per month. Good family support. Family supervise medication. Close to Sara, but she moved to KL last year.

PH-

Birth and milestones: not aware of any problems.

School 6-16. Good friends in primary school. No bullying. Academic results good in primary school. Top student in class in year 4 primary.

Secondary school results deteriorated. Drug taking peer group. Lost interest in schoolwork. Disciplinary problems due to truancy. Failed PMR.

Work:

2008 (age 17) - Worked in housekeeping in a hotel for 9 months. Lost job due to disciplinary problems.

2010- (age 19)- Worked in KL for 3 years. Factory work- 6 months, security- 2 weeks. Worked in a shop for 2 years- left when he returned to Sabah, because mother was sick.

Worked in KFC packing for 2 weeks after admission in 2015. Dropped out.

Relationships: 1st girlfriend age 16- 9 months. Very close relationship, they were planning to get married. Broke up because mother did not approve. Non-sexual.

Multiple casual sexual encounters since age 21- sometimes with sex workers, unprotected sex.

PMP- Describes himself as friendly, outgoing and loyal to family. Religion: believes in God but does not follow religious practices. Hobbies: enjoys playing football- (not played for 3 years), watching movies. Exercise: none at present. Alcohol: 2-3 bottles Montoku once per week since age 21, shared with 4-5 friends. Does not wish to stop or cut down. Does not believe it is causing any problems at present. Tobacco: 20 cigs per day, since age 21. Does not wish to stop or cut down. Syabu: family report he is using regularly with friends. He reports he stopped 5 years ago but admits to using in last 3 days. Glue, occasional use age 14-15, not used since. Caffeine: 4 cups of 3-in-1 coffee per day, last at 10pm each day.

MSE:

Overweight man, wearing hospital clothes. Calm and cooperative with interview. Speech relevant and coherent. No FTD. Speaks spontaneously and articulately in Malay. Friendly attitude towards interviewer, but rapport is superficial. Mood euthymic. Affect reactive. Garrulous and sometimes making jokes about himself. Smiles when discussing disciplinary problems at school, drug taking and suicidal ideation. Appears upset when discussing mother's health problems.

Thought content: worries about mother, if she is sick. No current delusions. Some suicidal ideation, wants to die early and reports 'it would be better for everyone if I was dead'. No plans to end life. Not sure about the future- no plans. Guilt about effect of his behaviour on family. Feels a burden.

Perception: hears male and female voices, currently present approximately 30% of the time. 2nd and 3rd person, content is currently derogatory 'you are a useless waste of space'. Finding them distracting over the last few days.

Cognition: no deficits detected.

Insight: describes himself as 'orang gila'. Not sure about diagnosis. Believes illness caused by drug taking in the past. Medication helps him sleep and makes the voices less.

Progress on the ward:

Started back on olanzapine 30mg on and diazepam 10mg bd. Normally calm, but easily agitated on the ward. Complains of tiredness.

On admission -Restless and agitated- restrained and given IM haloperidol 10mg. Diazepam increased to tds. Urine positive for methamphetamine. Other investigations normal.

Two days ago- became agitated in the evening and required restraint. Haloperidol 10mg given.

Yesterday- he hit a 65-year-old man, who required stitches. Restrained and haloperidol 10mg given.

NURSING/PPP

Mr Adam is a 25-year-old man from Tuaran. Currently unemployed and single, living with his parents. Six previous admissions with diagnosis of schizophrenia with comorbid substance abuse.

He was admitted to the ward 4 days ago, bought in by the Police. He was found near the Police station, looking dishevelled, wearing no shoes or shirt and carrying a parang.

6 previous admissions with diagnoses of schizophrenia + comorbid substance use disorder, secondary to non-compliance to medication. He was only taking medication twice per week and was using syabu with his friend just prior to admission. He is hearing voices most of the time, but not normally distressed by them. All previous admissions associated with drug use. He normally settles quickly on admission and rarely causes problems on the ward. He has good relationships with other patients on the ward. He maintains good hygiene. He frequently asks to make phone calls to his mother, because he says that he is worried about her. His mother has poorly controlled diabetes and was recently in hospital. He was difficult to discharge last two admissions. He relapsed several times while on HTL, normally within two days.

On admission to the ward he was agitated and restless, shouting at ward staff. He was restrained and given haloperidol 10mg. He slept for 8 hours. On waking he was calm and cooperative with ward routine. Two days ago he required restraint, because he became agitated (he was shouting and banging on the glass), when he wanted to make a phone call to his mother. Yesterday he needed restraining again. He was agitated after his mother left the ward and pushed another patient (a 65-year-old man with dementia) off his bed later that evening.

In your opinion, he was discharged on too much medication last admission (olanzapine 30mg + fluanxol 20mg monthly). He was still feeling sleepy on discharge, so it was not surprising that he was not compliant.

WARD ATTENDANT

Mr Adam is a 25-year-old man from Tuaran. Currently unemployed and single, living with his parents. Six previous admissions, with diagnosis of schizophrenia.

He was admitted to the ward 4 days ago, bought in by the Police. He was found near the Police station, looking dishevelled, wearing no shoes or shirt and carrying a parang.

You have known him for the last five years. He is friendly most of the time, but you have seen him become angry very quickly. He is good to other patients, and they sometimes ask him for advice. He always hears voices, but he says that he has had them since he was 17 and can ignore them now. You sometimes hear him tell other patients about how to manage their voices.

His family frequently visit him. His sister, Sara, is good to him and he is normally in a good mood when he sees her. She has moved to KL now and has not visited this time. His father sometimes visits while he is drunk, which makes Adam angry. Adam sometimes refuses to see his father. His mother visits about once per week. She brings food, which Adam gives away to other patients. Most of the time she is friendly toward staff and appears caring to Adam. Sometimes she appears very stressed and says things to him which are not kind. You overhear her talking when she raises her voice. She is normally complaining about her husband or criticising Adam. Adam normally sits quietly and doesn’t respond to her. When she leaves, he sits quietly on his bed and shouts at people that come near him. Last night an old man with dementia tried to get into bed with him after his mother had left and he pushed him off the bed when he would not go away.

In your opinion Adam is quite well at the moment but gets stressed when his family is around.

OT

Mr Adam is a 25-year-old man from Tuaran. Currently unemployed and single, living with his parents. Six previous admissions.

He was admitted to the ward 4 days ago, bought in by the Police. He was found near the Police station, looking dishevelled, wearing no shoes or shirt and carrying a parang.

He has been admitted on six previous occasions. Last admission he attended OT.

Previous work experience:

Housekeeping at Sutera Harbour- lost job because frequently absent, attended work intoxicated on one occasion.

Factory work - 6 months in an electronics factory in KL- found it boring.

Security - 2 weeks – left because he could not tolerate night shifts.

Retail 2 years in Gap KL branch, quit when he returned to KK. He enjoyed working in retail and wants to go back to that.

Sheltered employment KFC packing 2 weeks. Always left early. Found the work boring. Irritable with other patients.

During OT sessions:

Good social skills. Able to pick up on complex social cues from other patients.

Able to comfort other patients when distressed. Able to empathise.

Other patients and staff find him fun to be around. Makes jokes, frequently laughing.

Follows complex instructions easily.

Able to organise work.

Able to organise other patients in team working exercises.

Poor tolerance of repetitive tasks.

The plan was to refer to work placement on discharge. He did not attend his appointments after discharge. He reports that his family did not think that he can work, and he had problems with transport.

PATIENT- ADAM

You were admitted to the ward 4 days ago, after the police picked you up. You had been taking syabu with your friend, just before they picked you up.

Three days before admission, you left the house, after you argued with your family and went to stay with your friend. Your friend is addicted to syabu, and you used it for those three days as well. You were feeling guilty about arguing with your family and wanted to feel better. You used syabu nearly every day a few years ago, but now you use it less than once a year.

You have been admitted to the ward 5 times before. Normally you are admitted because you argue with your family and then they send you here. You have been hearing voices since you were about 18. The voices are normally quiet and don't bother you much if you take medication. If you stop your medication or use syabu, they get very loud and talk bad about you. The medication makes you sleepy and you can't take it every day, so you normally only take it 2-3 times per week, when the voices get really bad. Your mother is always trying to make you take it when you are already feeling tired, and you get into arguments over it.

Your mother is always nagging you and you sometimes get angry back. When you get really angry you throw things, and she calls the police to bring you to the hospital. She is always saying bad things about your friends, and she tries to stop you leaving the house. She always says that you take drugs, but you very rarely take drugs. You only take syabu when you argue with your family. You are angry with your mother but at the same time you are worried about her. She has diabetes and has been in hospital last week. Her diabetes gets worse when you argue with her, because she gets really sad for a few days and doesn't take her medication. You think you might have caused her admission to hospital, because you said some really bad things to her. Your father is also very difficult. He drinks all the time and sometimes beats your mother. You sometimes fight with him to stop him doing this. Sometimes you have been sent to hospital because of this.

You don't want to be in hospital. You are worried about your mother, and they don't let you call her to check she is OK. Some of the other patients are annoying and you hit an old man last night. He smelled of alcohol and he was trying to climb in your bed. You feel bad about doing that.

You don't have a job at the moment, but you sometimes look for a one. Your mother thinks it is a waste of time and says that they don't want mental cases working for them. You would really like to go and live in KL again. The best time of your life was when you were living in KL. You were working in Gap clothes store, which was a lot of fun. You had a lot of friends that you went out with. You did not have to ask your family for money. You came back to KK because your mother said that she needed you at home. Now you just watch TV most of the time.

You want the doctor to cut down your medication or change if to something else. The medicine from the doctor two years ago was better. You are not sure if you can tell the doctor this, you don't want them to think you are not being cooperative.

MOTHER-

Your son Adam has a mental illness. He has just been admitted to the ward again 4 days ago. He had run away from the house last week, to get drugs from his friend. He had stayed with his friend for three days. The police picked him up because he was half naked and tried to attack someone with a knife. You are worried they will send him to jail after the hospital.

You are so stressed that you don't know how much more you can take. Adam was a good boy before, the top student in his class in primary school. Then he made the wrong friends in secondary school. They were a bad crowd and he started taking drugs with them. He started hearing voices and talking nonsense about someone following him. He has been admitted to the ward a few times because of the drugs. When he uses drugs, he starts shouting at you. It is so frightening that you call the police. Last year he had to stay in hospital for 4 months, because every time they sent him back, he started shouting at you again.

He went off to live in KL when he was 19, but you suspect he was using drugs there. He wants to go back there, but you think it is not a good idea. He came back when he was 21, and since then you have been able to control him better. You try to make sure he takes his medication every night. Sometimes he refuses it because he says it make him tired. If he takes the medication, then he sleeps most of the day and you can control him. You don't want him to see his friends because they sometimes give him drugs. He talks about wanting to get a job, but he can't even help with the housework.

Your husband is no help at all. He is a very heavy drinker, and never at home. He has drunk most of your savings. You want to leave him, but you think he would be lost without you. He would end up living on the streets. You have five kids, but they have all left Sabah, except for Adam.

You have diabetes, which got worse recently. When you are stressed, you need to eat sweet food to make you feel better. Adam constantly gives you stress. You sometimes feel that there is no point in living any more anyway. Your kids don't care, your husband is a drunk and you can no longer see your friends because of caring for Adam. You sometimes stop your medication, because you don't want to be alive any longer than you have to. But you can't die, because your husband and son would fall apart without you there.

In your opinion Adam needs to go into hospital for a long time until he is better. He is giving you too

SARA - SISTER

You are a 32-year-old woman living in KL. Your family live in KK. Your brother has schizophrenia. Your mother called a few days ago to say that he had just been admitted to the ward again after taking drugs. She said he had been walking around the town naked and then attacked someone with a parang. Now he is a police case, and he might go to jail.

He started hearing voices when he was at school. He was also talking about someone spying on him. He was using a lot of drugs at that time but stopped using them a long time ago.

The voices normally do not bother him too much if he takes his medication. The medication he is on at the moment is not good because it makes him too sleepy. He only takes it when your mum makes him take it. The medication from a few years ago was much better.

He has been in hospital about 5-6 times before. He is normally admitted after he argues with your parents. Last year he had a really long admission. Every time he was sent home, he argued with your parents, and they sent him back. It might have been triggered by you moving to KL, because that made your mother really upset. When she is upset, she argues with your Dad and then your Dad goes out drinking. Your brother gets really angry about your fathers drinking and that is normally when he argues with your parents.

You have always had a very close relationship with your youngest brother. You had to take care of him quite a lot when you were growing up. Your mother was really stressed at that time and used to lock herself in her room for days. Your father was drinking very heavily and sometimes did not come home for weeks at a time. Your parents were always fighting. Your mother is better than before, but she always tries to control your brother. He doesn't make any decisions for himself. He wants to find a job, but she discourages him. Your mother always accuses him of taking drugs, but he says that he doesn't take syabu anymore.

You moved to KL about one year ago and things have got worse for him since then. You still talk to your brother on the phone, and he tells you what is going on at home. Your parents are still fighting a lot and you worry about him being in that environment. You think he would be better off if he comes and stays with you. Your mother is always stressed about him but doesn't want him to leave. You are not sure if it is possible for him to come to KL, because he is a police case.

SPECIALIST

Adam is a 25-year-old man from Tuaran, with a diagnosis of schizophrenia with comorbid substance use.

You have a few memories about him from a previous admission. He is normally admitted due to aggressive behaviour towards his family. Last time it took many months for his symptoms to improve. He required ECT and clozapine and had several failed attempts at HTL before he could be discharged. The clozapine was eventually stopped because he was not taking it every day. His mother tries to supervise the medication but cannot persuade him to take it every day. He is normally easy to manage on the ward but is sometimes aggressive.

Yesterday he hit another patient and required restraint.

Appendix R. MIXED MODEL ANALYSIS COMPARISON OF MODELS

Table 0-3 - Comparison between models for the MBI- emotional exhaustion scale

Model	Linear/quad	Level 1	Level 2	Random slopes	AIC	p-value
1	Linear	AR	Unstructured	Yes	Not converging	
2	Linear	AR	Diagonal	Yes	Not converging	
3	Linear	Diagonal	Unstructured	Yes	1202.70	0.031
4	Linear	Diagonal	Variance components	Yes	1202.38	0.024
5	Linear	Scaled identity	Unstructured	Yes	1199.82	0.027
6	Linear	Scaled identity	Diagonal	Yes	1199.82	0.27
7	Linear	AR		Intercepts only	1197.51	0.07
8	**Quadratic**	**AR**		**Intercepts only**	**1196.84**	**0.027**
9	Quadratic	AR	Unstructured	Yes	Not converging	
10	Quadratic	AR	Diagonal	Yes	Not converging	
11	Quadratic	Diagonal	Diagonal	Yes	1201.78	0.007
12	Quadratic	Scaled identity	Unstructured	Yes	1201.22	0.009
13	Quadratic	Scaled identity	Diagonal	Yes	1199.54	0.008

Table 0-4 - Comparison between models for the MBI- depersonalization scale

Model	Linear/quad	Level 1	Level 2	Random slopes	AIC	p-value
1	Linear	AR	Unstructured	Yes	906.33	0.009
2	Linear	AR	Diagonal	Yes	NC	
3	Linear	Diagonal	Unstructured	Yes	905.70	0.005
5	**Linear**	**Diagonal**	**Diagonal**	**Yes**	**904.11**	**0.003**
6	Linear	Scaled identity	Unstructured	Yes	904.35	0.005
7	Linear	Scaled identity	Diagonal	Yes	904.50	0.005
8	Linear	AR		Intercepts only		
9	Quadratic	AR	Identity	Yes	NC	
10	Quadratic	AR	Unstructured	Yes	NC	
11	Quadratic	AR	Diagonal	Yes	NC	
12	Quadratic	Diagonal	Diagonal	Yes	906.82	0.006
13	Quadratic	Diagonal	Unstructured	Yes	NC	
14	Quadratic	Scaled identity	Diagonal	Yes	NC	

Table 0-5 - Comparison between models for the WRBNS competence scale

Model	Linear/quad	Level 1	Level 2	Random slopes	AIC	p-value
1	Quadratic	AR	Unstructured	Yes	NC	
2	Quadratic	AR	Identity	Yes	NC	
3	Quadratic	AR	Diagonal	Yes	NC	
4	Linear	Diagonal	Unstructured	Yes	549.713	0.056
5	Linear	Diagonal	Diagonal	Yes	NC	
6	Linear	Scaled identity	Unstructured	Yes	NC	
7	Linear	Scaled identity	Diagonal	Yes	549.327	0.027
8	Linear	AR	Identity	Intercepts only		

9	Quadratic	AR	Unstructured	Yes	551.546	
10	Quadratic	AR	Identity	Yes	NC	
11	Quadratic	AR	Diagonal	Yes	550.702	0.015
12	Quadratic	Diagonal	Diagonal	Yes	NC	
13	Quadratic	Diagonal	Unstructured	Yes	NC	
14	Quadratic	Scaled identity	Diagonal	Yes	548.974	0.011
15	Quadratic	Diagonal		Intercepts only	547.418	0.018
16	**Quadratic**	**Identity**		**Intercepts only**	**547.002**	**0.01**

Table 0-6 - Comparison between models for the HSPSC Teamwork- within-units scale

Model	Linear/quad	Level 1	Level 2	Random slopes	AIC	p-value
1	Quadratic	AR	Unstructured	Yes	635.44	0.001
2	Quadratic	AR	Identity	Yes	639.671	0.002
3	Quadratic	AR	Diagonal	Yes	633.47	<0.001
4	Linear	Diagonal	Unstructured	Yes	NC	
5	Linear	Diagonal	Diagonal	Yes	636.569	<0.001
6	Linear	Scaled identity	Unstructured	Yes	NC	
7	Linear	Scaled identity	Diagonal	Yes	633.024	0.001
8	**Linear**	**AR**	**Identity**	**Intercepts only**	**632.556**	**<0.001**

Table 0-7 - Comparison between models for the collaboration pairs scale

Model	Linear/quad	Level 1	Level 2	Random slopes	AIC	p-value
1	Linear	AR	Unstructured	Yes	NC	
2	Linear	AR	Identity	Yes	NC	
3	Linear	AR	Diagonal	Yes	NC	
4	Linear	Diagonal	Unstructured	Yes	978.85	<0.001
5	Linear	Diagonal	Diagonal	Yes	967.57	<0.001
6	Linear	Scaled identity	Unstructured	Yes	NC	
7	Linear	Scaled identity	Diagonal	Yes	NC	
8	Linear	AR		Intercepts only	966.00	<0.001
9	**Linear**	**Diagonal**		**Intercepts only**	**965.62**	**<0.001**
10	Quadratic	Diagonal	Diagonal	Yes	968.222	<0.001
11	Quadratic	Diagonal		Intercepts only	966.51	<0.001
12	Quadratic	AR		Intercepts only	966.51	<0.001

Appendix S. QUALITATIVE INTERVIEW QUESTIONS

Nurse focus group:

We are using an evaluation method, called realist evaluation. This tries to find out what is working, in what context and why. We are interested in the mechanisms. [more description on realist evaluation]

General changes in the hospital working environment

- How long have you been working in HMBP?
- Have you noticed any changes in the way people work in HMPB over the last 3-4 years? What have you noticed?

    - Further probes: differences in the way staff communicate with each other, with patients, differences in the feeling of hierarchy, changes in procedures, changes in staff competency, changes in the way you work and communicate personally.
- Why do you think those changes have occurred?
    - Further in-depth question about each mechanism and context.

<u>For committee members</u>

- Regarding the collaborative practice committee at HMBP:
    - What worked well in the committee.
    - What did not work so well.
    - How did you find the experience of having patient and carer representatives in the committee?
    - Do you think this kind of committee should be part of the way that hospitals are run?
    - Did taking part in this committee change anything about the way you do your work personally?

<u>For nursing staff that did the course (after 6 months)</u>

What do you remember about doing the course? (giving course booklet)
Which parts have you found helpful in your work?

- Which skills have you been able to incorporate into your work?
- When have you been able to use these skills?
- Do you think the course has changed the way people work?
- What is the effect on patients, in working in this way?
- Which kind of patient does it work with?
- Why do you think it works with these kinds of patients?
- Which kind of patient does it not work with?
- Why do you think this is?

Which skills are you not able to incorporate into your work?
Have you taught the skills to anyone else?

Themes to explore, if not explored spontaneously

Autonomy

- Nurse
    - Attitudes towards nurse autonomy
    - Has nurse autonomy changed
    - Is that having an effect on outcomes
- Patient
    - Has it changed the way nurses think about patient autonomy?
    - Has the way they are supporting patient autonomy
    - Any changes in patient autonomy – e.g. asking questions
    - Does this effect outcomes?

Relatedness

- Patient to nurse relatedness

- Any change in the priority given to the therapeutic alliance?
- Has the therapeutic alliance changed?

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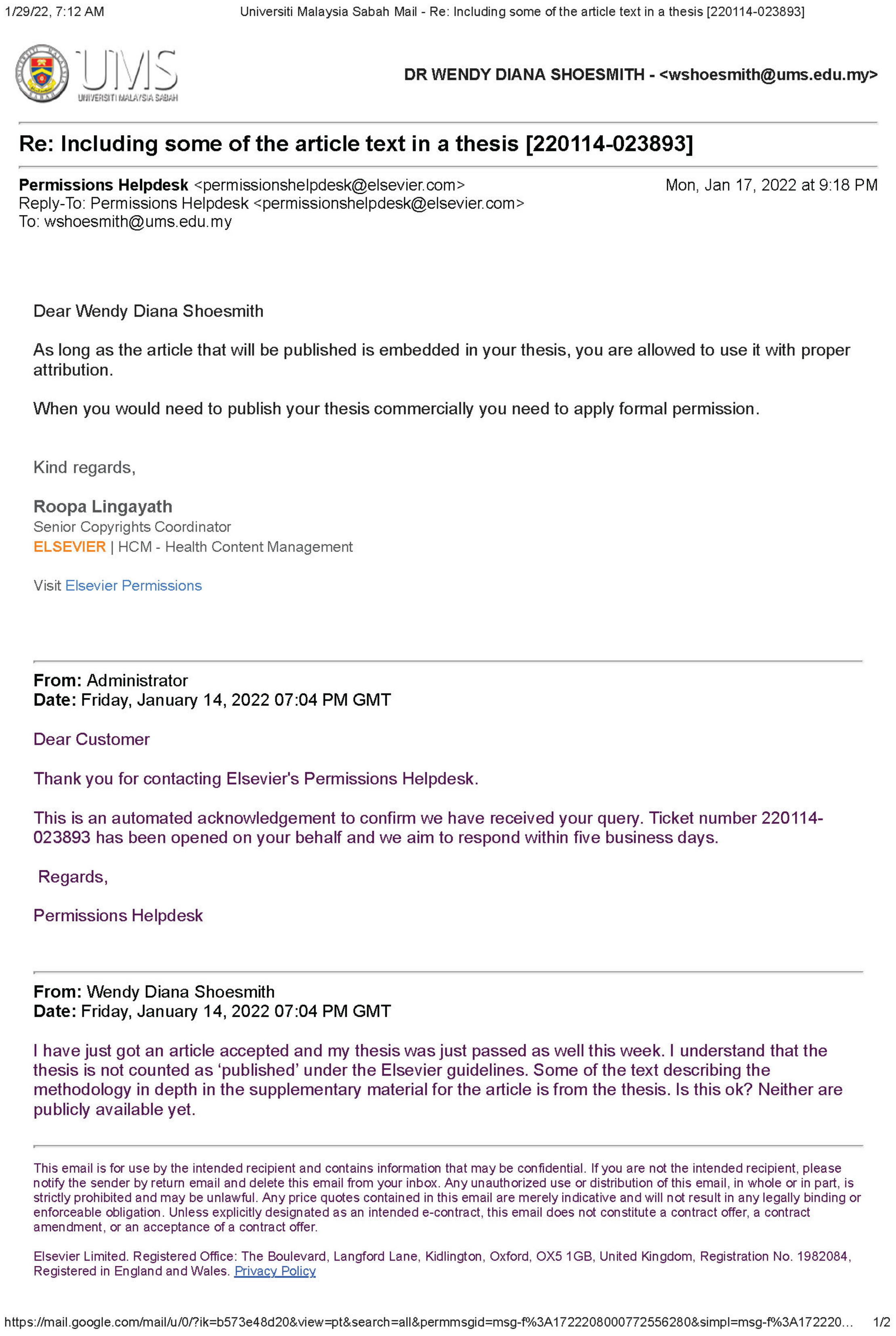

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