

School of Nursing

**Exploring the physical health of young people
with first-episode psychosis**

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Doctor of Philosophy

of

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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement 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 2018. The proposed research study received human ethics approvals from the Curtin University Human Research Ethics Committee (EC00262), Approval Numbers HR16/2014 and RDHS-81-15. The research study also received human ethics approvals from the South Metropolitan Human Research Ethics Committee, Approval Numbers 14/12 and 15/15.

Signature:

Date: 1st December 2022
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Abstract

This thesis is written in a hybrid format consisting of eight chapters, of which five chapters include published peer-reviewed papers. The focus of the research was to explore the physical health of young people with first-episode psychosis (FEP) enrolled in an early intervention in psychosis (EIP) program and prescribed antipsychotic medication as part of their treatment. Young people experiencing FEP, their parents, and nurses working in mental health settings were participants and key informants in this research.

Background: Psychosis disrupts an individual's normal mental state and is debilitating. It can occur at any stage of a person's lifespan affecting the mental and physical capacity to function at an optimal level. Young people are extremely vulnerable to getting psychosis during the stages of adolescence and early adulthood when they are still establishing their psychological, vocational, and social pathways. There is a plethora of literature on adults with psychoses taking antipsychotic medications who will have a higher risk of developing metabolic syndrome that is increased blood pressure, high blood sugar and abnormal cholesterol and triglyceride levels which increases the risk of cardiometabolic disease and type 2 diabetes. However, the physical health of young people with FEP remains relatively unexplored. So, this research was needed to bridge the gap in research and clinical practice to improve the physical health outcomes of young people.

Aim: The aims of this research are to comprehensively understand the physical health of young people with FEP from different groups of stakeholders which included examining the lived experiences of young individuals and their parents regarding the impact of FEP and its treatment on health outcomes. It explored the knowledge, attitudes, and role perception that nurses working in mental health settings hold regarding the provision of physical health care to young people with FEP.

Methods: The convergent parallel mixed methods design was used to collect, analyse, and interpret data from two qualitative and two quantitative studies. The qualitative studies were semi-structured interviews to collect research data from young people with FEP (Study 1) and their parents (Study 2). An application of grounded theory (GT) method guided the data collection, coding, analysis, interpretation and writing up of findings in these qualitative studies. The quantitative components in this research involved: 1) a cross-sectional study with nurses working in mental health settings using a validated survey form and data analysed with non-parametric test, and 2) a cohort study with a group of young people with FEP and a comparison group of adults with psychoses where within- and between-groups analysis was conducted using *t*-tests. All data were synthesised to develop a deeper and broader understanding of the results.

Results: The research found that young people with FEP experienced rapid weight gain in the initial period after starting antipsychotic treatment, with 34% taking more than one type of antipsychotics. Their increase in weight was significantly greater compared to a group of adults who were diagnosed with psychoses and have been taking antipsychotics for at least two years. Young people with FEP in this research indicated that low health literacy was a contributing factor to their poor physical self-care which led to a decreased in their quality of life. The young person's parents observed that their son or daughter with FEP had reduced ability to function daily, engaged in less physical activity, and made poorer dietary choices, attributing these changes to the psychosis and its treatment and a lack of health education. In addition, the research highlighted that the educational backgrounds of nurses can affect the provision of physical health care within mental health settings.

Conclusion: The emergence of physical health issues such as weight gain causes immediate and long-term negative physical health consequences in young people with FEP. In addition to the provision of mental health care to manage the psychotic symptoms

experienced by this young cohort, the provision of physical health care for these young people treated with antipsychotic medications should be a priority. Physical health interventions, for example, increasing health literacy, dietary counselling, exercise program and smoking cessation, are recommended and should be tailored to the young person's needs to reduce the risk of developing physical health problems and improve their health outcomes.

Statement of authors' contribution

We, the PhD candidate and the candidate's supervisors certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated in the Statement of Originality.

List of Publications		Candidate: Gin Liang CHEE	Principal Supervisor: Karen Heslop	Co-Supervisor: Dianne Wynaden
1	Chee, G. L., Wynaden, D., & Heslop, K. (2017). Improving metabolic monitoring rate for young people aged 35 and younger taking antipsychotic medications to treat a psychosis: A literature review. <i>Archives of Psychiatric Nursing</i> , 31(6), 624-633. doi.org/10.1016/j.apnu.2017.09.002	80%	10%	10%
2	Chee, G. L., Wynaden, D., & Heslop, K. (2018). The physical health of young people experiencing first-episode psychosis: Mental health consumers' experiences. <i>International Journal of Mental Health Nursing</i> , 28(1), 330-338. doi:10.1111/inm.12538	80%	10%	10%
3	Chee, G. L., Wynaden, D., & Heslop, K. (2018). The physical health of young people experiencing first-episode psychosis: Mental health consumers' experiences. <i>International Journal of Mental Health Nursing</i> , 28(1), 330-338. doi:10.1111/inm.12538	90%	5%	5%
4	Chee, G. L., Wynaden, D., & Heslop, K. (2018). The provision of physical health care by nurses to young people with first episode psychosis: A cross-sectional study. <i>Journal of Psychiatric and Mental Health Nursing</i> , 25(7), 411-422. doi:10.1111/jpm.12487	90%	5%	5%
5	Chee, G.-L., Wynaden, D., & Heslop, K. (2021). Exploring the health status of people with first-episode psychosis enrolled in the early intervention in psychosis program. <i>Issues in Mental Health Nursing</i> , 42(1), 57-64. doi:10.1080/01612840.2020.1797251	90%	5%	5%

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Award, conference, and peer-reviewed presentations

Award

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Conference and peer-reviewed presentations

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Chee, G. L. (2019). Physical health of young people with first episode psychosis. Presented at the Curtin University Mark Liveris Student Research Seminar, Perth, Australia.

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List of abbreviations used in this thesis

ASSIST	Alcohol, Smoking and Substance Involvement Screening Tool
APA	American Psychological Association
ACMHN	Australian College of Mental Health Nurses
BPRS	Brief Psychiatric Rating Scale
DSM	Diagnostic and Statistical Manual of Mental Disorders
EIP	Early Intervention in Psychosis
FEP	First-Episode Psychosis
GT	Grounded Theory
HoNOS	Health of the Nation Outcomes Scale
HREC	Human Research Ethics Committee
ICD	International Classification of Diseases and Related Health Problems
K10	Kessler Psychological Distress scale
MHC	Mental Health Consumer
MHN	Mental Health Nurse
NSW	New South Wales
PHASe	Physical Health Attitude Scale for Mental Health Nurses
QoL	Quality of Life
WA	Western Australia
WHO	World Health Organization

Glossary of terms

In the context of this research the following definitions of terms have been used:

Antipsychotic medication	A class of psychotropic drugs primarily used to treat symptoms of psychotic disorders such as first-episode psychosis and schizophrenia.
Case manager	The specific person, usually a health professional, who is responsible for coordinating, monitoring, and planning care, advocacy and linking the mental health consumer with rehabilitation and support services (Morgan et al., 2012).
Care coordination	The process of assisting mental health consumers navigate, plan and coordinate access to a range of different services and support to improve their quality of life, health and wellbeing, and recovery (Mental Health Commission of Western Australia, 2015).
Early intervention in psychosis (EIP) program	A specialised intensive mental health service for young people that focuses on early detection and treatment of early symptoms of psychosis (Morgan et al., 2012).
Family caregiver	A parent who provides ongoing informal support and assistance and often unpaid care for their son or daughter who has first-episode psychosis or a diagnosed mental disorder.
First-episode psychosis (FEP)	A clinical term referring to the first time an individual is seen by a psychiatrist after they experience a clinical syndrome where there is a gross impairment of reality. This syndrome causes a dysfunction in the brain affecting the person's affective, cognitive,

motivational, sensory, and social functioning (American Psychiatric Association, 2013).

- Health professional A provider (such as registered nurse, general practitioner, psychiatrist, and pharmacist) of health care treatment and advice based on formal training and experience.
- Lived experience A term used to describe the current or past experiences of people with mental ill health managing psychological and emotional issues, distress, or problems, and involved treatment (Mental Health Commission of Western Australia, 2015).
- Mental disorder A clinically diagnosable disorder that may be severe and/or long-term in nature, for example, schizophrenia significantly interferes with an individual's cognitive, emotions or social abilities. The disorder diagnosis is generally made when a specific set of symptoms meet the criteria in the classifications systems listed in either the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) published by the World Health Organization (2013) or the International Classification of Diseases and Related Health Problems (ICD-10) published by the American Psychiatric Association (2013).
- Mental health A state of wellbeing in which a person realises his or her abilities to cope with normal stresses of life and work productively and fruitfully contributing to the community (World Health Organization, 2018b).

Mental health consumers (MHCs)	People accessing specialist mental health services for mental ill health. It includes young people with FEP and individuals with diagnosed mental disorders. This term has been used in several of the published articles contained in this thesis.
Mental health nurse (MHN)	In this research, a mental health nurse is described as: <ul style="list-style-type: none"> a) A nurse who completed a hospital-based or university program in mental health nursing either in Australia before the introduction of comprehensive nursing or overseas and is registered to practise specifically in mental health; b) A registered nurse with specialist postgraduate qualifications in mental health nursing.
Mental health professional	A health professional working in a mental health setting.
Mixed methods	A research method employing quantitative and qualitative approaches to investigate complex phenomena to develop a synthesis of findings (Sadan, 2014).
Metabolic monitoring	Monitoring for a cluster of conditions that can increase a person's risk of heart disease, stroke and diabetes. The tracking of metabolic changes should include monitoring of metabolic parameters such as waist circumference, blood pressure, fasting lipids and blood glucose. Baseline measurements of these parameters should be taken when a person commences antipsychotic treatment and, at the minimum, measurements repeated 3-monthly (Cooper et al., 2016).

Person-centred care	It is care that is respectful of, and responsive to, the preferences, needs and values of individual mental health consumers. It involves seeking out, and understanding what is important to the consumer, fostering trust, establishing mutual respect, and working together to share health decision-making and plan care (The Health Foundation, 2016).
Psychotic disorders	A specific group of mental disorders, for example, schizophrenia, characterised by a combination of abnormal thoughts, perceptions, emotions, behaviour, and relationships with others. Symptoms can include confused thinking, delusions, and hallucinations (American Psychiatric Association, 2013).
Young people	Young adults aged 18 to 35 years.

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 Introduction to thesis

This thesis reports on research that explored the physical health of young people experiencing first-episode psychosis (FEP)¹. Research in physical health has traditionally focused on people who have more severe long-term mental disorders such as schizophrenia due to the high prevalence of reported physical co-morbidities in this population (Holt, 2015), and reduced life expectancy when compared to the general population (Moreno et al., 2013; Morgan et al., 2012; Shiers, Bradshaw, & Campion, 2015). The physical health outcomes of younger people treated for FEP remain relatively unexplored. Hence, the target group for this research was young people aged up to 35 years who experienced an onset of FEP where psychotic symptoms lasted for at least one month requiring psychiatric treatment and subsequently were enrolled in a specialised early intervention in psychosis (EIP) program.

The thesis includes an exegesis that links five published peer-reviewed articles, including a literature review, to form an original contribution to the body of knowledge about the physical health of young people experiencing FEP. Convergent parallel mixed methods research was used to collect, analyse, and interpret qualitative and quantitative data. Young people experiencing FEP, their parents, and nurses working in mental health settings were participants and key informants. The comparison of physical health outcomes of young people experiencing FEP with people who have a diagnosis of psychosis was also completed. The thesis uses the American Psychological Association (APA) 6th Edition referencing format. The findings provide mental health professionals, particularly nurses working in

¹ The term FEP is used in Australia. The researcher is aware that in other countries, alternative terms such as early episode psychosis or early psychotic episode may be used (Anderson, Fuhrer, Abrahamowicz, & Malla, 2012).

mental health with evidence to guide clinical practice and recommendations to improve physical health care provision for the young cohort with FEP to improve their overall health and wellbeing.

In highlighting the need for this research, Chapter 1 justifies the exploration of the physical health outcomes of young people with FEP. The clinical features of FEP and the current treatment approach including the provision of physical health care are discussed. The chapter concludes with the research aims and objectives along with an organisation of the thesis and the research components contained within subsequent chapters.

1.2 The onset of psychosis

Mental ill health among adolescents and young adults has become a worldwide public health concern (Organisation for Economic Co-operation and Development, 2018; World Health Organization, 2017) accounting for 16% of the global burden of disease and injury in people below the age of 20 years (World Health Organization, 2021). In Australia, mental disorders were the second leading cause of the nation's burden of diseases among young people in 2015 (Ciobanu et al., 2018). Although major depression is the leading mental disorder (World Health Organization, 2021), psychosis has a more severe impact on young people's cognition including problems with language, attention, memory, visual-spatial skills, and executive function (McCleery & Nuechterlein, 2019).

The onset of psychosis can happen at any time across the lifespan (Kirkbride et al., 2017) but is most common in younger people aged between 16 and 30 years (Lappin et al., 2018; Simon et al., 2018). An Australian national psychosis survey reported that approximately 42,000 young Australians under the age of 25 had FEP in a single year (Morgan et al., 2012). In fact, more than 70% of people experiencing psychosis have their first episode by the age of 35 years (McGrath et al., 2016). Although the causes of FEP are

often unclear, the current view is that genetic, psychological, and environmental factors all contribute to the development or progression of FEP (Lieberman & First, 2018). The likely trajectory and outcomes of FEP vary and are dependent on numerous risk factors such as the predisposition for mental disorder, the individual's susceptibility, the social environment, and other factors associated with neurological problems, trauma, a brain injury, or using or withdrawing from illicit substances (Althwanay, AlZamil, Almukhadhib, Alkhunaizi, & Althwanay, 2020). These risk factors are present at different ages, with reported risk occurring as early as during the prenatal period (Dorrington et al., 2014).

Genetics place some people at greater risk of FEP. A person is six point three times more likely to develop FEP than the general population if their first-degree relative has a psychotic disorder (Althwanay et al., 2020). Thus, people with a familial predisposition for disorders such as schizophrenia are more at risk of developing FEP (Lappin et al., 2018). The risk rises to 87% when both parents have schizophrenia (Chou et al., 2017). Individuals with this heritable risk factor may display signs of subtle social, cognitive, and neuropsychological deficits in childhood and adolescence (Hormozpour et al., 2016).

The other causes of FEP can be the result of a physical defect or damage to the brain (Joyce, 2018). Such abnormalities can be caused by experiences such as major trauma, drug use, and metabolic and neurodegenerative medical conditions (Joyce, 2018). For example, people with medical conditions like seizures, meningitis, or a brain tumour may experience psychotic symptoms. Others who face a significant amount of physical stress from lack of sleep, hunger, or torture may experience stress-induced psychosis. Substance-induced psychosis is common when a person is using illicit substances such as marijuana, methamphetamine, or cocaine (Stahl, 2018). Many of the medical and organic causes of psychosis can be resolved without mental health interventions and the young person may never experience psychotic symptoms again. However, young people who require mental

health interventions to manage their psychosis have an increased chance of recurring episodes of psychosis, and the person may require prolonged mental health care. Therefore, the diagnostic work-up associated with the first presentation of psychotic symptoms includes laboratory tests and radiological procedures such as computed tomography scans to eliminate medical causes of psychosis and to determine the need for referral to appropriate specialist mental health care (Coentre, Silva-dos-Santos, Lopes, Gracias, & Talina, 2015).

1.2.1 Classifying First-Episode Psychosis (FEP)

FEP is not a nosological entity and is not classified in the International Classification of Disease and Related Health Problems, 10th Edition (ICD-10) or the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5). Nevertheless, the psychotic symptomatology of FEP can progress to become a diagnosable psychotic disorder such as brief psychotic disorder or schizophrenia (Fusar-Poli et al., 2016; Khamker, 2015). Therefore, FEP can be a clinically significant precursor to the development of a significant mental disorder (Enderami, Monesi, & Zarghami, 2017; Fusar-Poli et al., 2016).

Psychotic disorders such as schizophrenia, schizoaffective disorder, schizophreniform disorder, brief psychotic disorder, delusion disorder and substance-induced psychotic disorder are differentiated using either the ICD-10 or the DSM-5 (Fusar-Poli et al., 2016). Diagnostic criteria such as intensity, duration and features of psychotic signs and symptoms guide the determination of the severity and diagnosis of these psychotic disorders (Gaebel & Zielasek, 2015; Moreno et al., 2013). In fact, the actual diagnosis of a psychotic disorder, for example, schizophrenia, from the person's initial assessment of FEP takes an extended time to thoroughly search for the aetiological factors (Enderami et al., 2017; Fusar-Poli et al., 2017; Radua et al., 2018).

The ICD-10 published by the World Health Organization (WHO) in 2013 provides health professionals with a comprehensive guide to assist in diagnosis. It codes diseases, disorders, injuries, and other related health conditions in alphanumeric blocks for easy storage, retrieval, and analysis of health information (World Health Organization, 2013). The codes for mental disorders in the ICD-10 range from F01 to F99. The ICD-10 was replaced by an updated 11th Edition in 2022.

The DSM-5, published by the American Psychiatric Association in 2013, also describes symptoms and criteria of mental disorders to guide health professionals to diagnose and classify signs and symptoms of a mental disorder into appropriate sub-categories (American Psychiatric Association, 2013).

1.2.2 Presenting features of FEP

People experience various symptoms of FEP. Hallucinations or false sensory perceptions (World Health Organization, 2013) are symptoms most frequently experienced (Hegelstad et al., 2012). A person may experience delusions of grandeur, persecution, religiosity, paranoia, or somatisation (American Psychiatric Association, 2013; Paolini, Moretti, & Compton, 2016). Disorganisation of thought and speech is also present. Disordered thought processes cause an impaired ability of the person to present thoughts in words clearly (American Psychiatric Association, 2013; World Health Organization, 2013). Disordered thoughts can result in disorganised behaviours, for example, dressing for the wrong season or being naked in public. People experiencing psychosis often lack insight into their condition (American Psychiatric Association, 2013; Arciniegas, 2015), and are unaware of the changes in their behaviour and lifestyle such as neglecting physical health or activities of daily living (Kim et al., 2019).

1.2.3 Early intervention and treatment for FEP

The experiences of having FEP symptoms can be very distressing, confusing, and frightening for the affected individual and their family (McGorry, 2015; Nilsen, Frich, Friis, & Røssberg, 2014). Young people with FEP may sometimes develop depression or feel that life is not worth living and contemplate suicide. The risk of suicide can be up to 60% higher in the first year of having a psychotic episode (Bornheimer, 2019). Early Intervention in Psychosis (EIP) is, therefore, crucial for people experiencing FEP to support them to change the trajectory of their mental ill health (Breitborde et al., 2015; McDaid, Park, Iemmi, Adelaja, & Knapp, 2016; Chang et al., 2015) and increase their chance of a successful recovery (Lieberman & First, 2018; McFarlane et al., 2015). It can also reduce the risk of FEP progressing to a more severe and long-term mental disorder (McGorry, 2015). Many people experiencing FEP will make a good recovery and never experience a relapse (Fusar-Poli et al., 2017), but, for others, their symptoms persist, and they must continue treatment to prevent further relapse of their psychosis (Enderami et al., 2017).

Traditionally the focus of EIP programs in mental health has been on treating psychosis (Roberts, Lockett, Bagnall, Maylea, & Hopwood, 2018) as if left untreated, young people are likely to have a higher rate of educational failure, unstable employment, and poor social and family functioning (Hegelstad et al., 2012; McGorry, Nelson, & Goldstone, 2012). Specialised EIP programs focus on providing mental health recovery-oriented care and promptly detecting and treating any re-emerging psychotic symptoms (Iyer, Jordan, MacDonald, Jooper, & Malla, 2015; Malla & McGorry, 2019). Multi-disciplinary EIP teams comprise psychiatrists, psychologists, nurses, social workers, other allied health professions, and peer support workers who work collaboratively and intensively with the young people experiencing FEP to primarily address mental health and psychosocial issues (Chang et al., 2015; Secher et al., 2015) for up to five years following initial assessment and diagnosis (Iyer

et al., 2015; McDaid et al., 2016; Secher et al., 2015). In Australia and many other developed countries, specialist teams use a person-centred recovery approach to plan, deliver and evaluate health care (Wright, Browne, Mueser, & Cather, 2020). For example, personal goals, lifestyle choices and preferred treatment options are considered when developing a flexible health care plan with individuals (Fusar-Poli et al., 2017; Pulvirenti, McMillan, & Lawn, 2014; Wright et al., 2020). The types of early interventions provided to young people with FEP include cognitive behavioural therapy, improved education and mental health literacy, medication education, employment support, occupational therapy, pharmaceutical therapy, and family interventions/therapy (McDaid et al., 2016).

People experiencing FEP are generally prescribed antipsychotic medications as part of their treatment (Wright et al., 2020). These medications should be started at low doses and titrated up slowly to reduce the impact of side effects (Karson, Duffy, Eramo, Nylander, & Offord, 2016). Commencing antipsychotic medication reduces symptoms, distress, and social and functional impairments (Lieberman & First, 2018; McFarlane et al., 2015) and the intensity of psychotic symptoms normally subside within a few weeks (Nilsen et al., 2014). However, due to antipsychotic medication side effects, the young person may be at a higher risk of developing a range of physical health problems such as type 2 diabetes and heart disease earlier in life when compared to their peers in the general population (McCloughen, Foster, Huws-Thomas, & Delgado, 2012). Factors that may also contribute to their poorer physical health outcomes include the severity of clinical symptoms, lifestyle choices, poor nutrition, lack of exercise, smoking and substance misuse (Haddad, Brain, & Scott, 2014; Kim et al., 2019; Shiers et al., 2015).

Increasing emphasis is now placed on the need for mental health professionals to address the physical health needs of young people with FEP as part of providing quality mental health care (Butler et al., 2020; Malla & McGorry, 2019). Best practice guidelines

(The Royal College of Psychiatrists, 2016; World Health Organization, 2018a) recommend that treatment using antipsychotic medications should be accompanied by regular metabolic monitoring and physical health assessments (Shiers et al., 2015) to ensure that any emerging physical health issues are prevented or if identified are treated early (Galletly et al., 2012). Yet, at the clinical level, research suggests that treatment and care remain largely focused on providing mental and social care interventions that reduce functional impairment, psychotic symptoms, economic disenfranchisement, and social isolation (McGorry, 2015; Wright et al., 2020). One of the reasons that physical health of young people with FEP remains under-investigated is that this cohort is assumed to be physically healthy (Robert et al., 2018; Stomski & Morrison, 2017). However, young people with FEP can be at substantial risk of experiencing future physical co-morbidity and early mortality trajectory compared to people with diagnosed mental disorders. Therefore, it is important to understand when physical health risk begins in young people with FEP which was a focus of this research. To assist in this process, it is important to look at the physical health issues commonly reported in people living with mental disorders such as schizophrenia.

1.3 Overview of physical health outcomes in people with mental disorders

People living with mental disorders have poorer health outcomes and their life expectancy is reported to be between 10 and 25 years less than the general population (Laursen, Munk-Olsen, & Vestergaard, 2012; Mucheru, Hanlon, Campbell, McEvoy, & MacDonald-Wicks, 2018; Roberts et al., 2018). This disparity in life expectancy is a human rights issue recognised globally as a public health crisis (Campion, Bhugra, Bailey, & Marmot, 2013; Shiers et al., 2015). Physical co-morbidities such as obesity, diabetes, cardiovascular disease, and pulmonary disease occur concomitantly and more frequently in this population (McCloughen et al., 2012). Every day approximately 20 people with

schizophrenia die prematurely in Australia due to co-existing metabolic or other physical health problems (Roberts et al., 2018). While it is important for people living with mental disorders to participate in their health care decisions to maintain optimum health and wellbeing (World Health Organization, 2017), they encounter many challenges when accessing health services.

1.3.1 Issues faced by people living with mental disorders to access physical health care

People living with mental disorders face many barriers such as socioeconomic status and health professionals' negative attitudes and behaviours towards them when they access health care for physical health problems (Campion et al., 2013; Happell, Scott, & Platania-Phung, 2012; Clancy et al., 2019; Shiers et al., 2015). They are also more likely to have a low income, transport issues, be reliant on government benefits, live in poverty, and face greater barriers to education, employment, and opportunities for career advancement than the general population (Kirkbride et al., 2017; Melamed, Fernando et al., 2019). Hence, the high costs of health, increased costs of specialist services, and the cost of medications are significant barriers to accessing care (Happell et al., 2012; Ross et al., 2015). This is particularly problematic in rural and remote areas where public transport is limited or unavailable (Happell et al., 2012). Furthermore, they may experience communication issues such as difficulty comprehending complex information provided by health professionals due to their disorder, which can affect their understanding of their health problems, treatment compliance and monitoring of their physical health (Mulligan et al., 2018).

Stigma and associated discrimination act as a barrier in multiple ways for this group to access services for the diagnosis and treatment of physical health problems (Rivera-Segarra, Varas-Díaz, & Santos-Figueroa, 2019). For example, Read, Haslam, and Magliano (2013)

identified that people with schizophrenia were stereotyped by the public as dangerous and unpredictable as a result of misperceptions. In addition, they often self-stigmatise, develop low self-esteem and confidence, and isolate from society (Parle, 2012). Reilly et al. (2015) observed that general practitioners were reluctant to provide care for people with mental disorders because of negative perceptions towards them and the belief that they should be treated by psychiatrists. So for many people living with mental disorders, the biggest barrier to overcoming stigma and discriminatory behaviour is not the symptoms of their disorder but the attitudes of people towards them (Parle, 2012).

Diagnostic overshadowing is a term used where physical health issues go undiagnosed or untreated in people with mental disorders. This occurs when health professionals assume the presenting physical health complaints are due to their mental disorder rather than exploring further other possible causes of the presenting physical symptoms (Shefer, Henderson, Howard, Murray, & Thornicroft, 2014) resulting in a barrier to the provision of effective physical health care and treatment (Hansson, Jormfeldt, Svedberg, & Svensson, 2013; Rivera-Segarra et al., 2019). For example, medical practitioners may attribute physical symptoms such as fatigue, headaches, and other unexplained aches and pains in this cohort as psychologically based (Knaak, Mantler, & Szeto, 2017; Shefer et al., 2014). Similarly, Kritharides, Chow, and Lambert (2017) reported that people with mental disorders are less likely to be offered preventive screening programs or referred to a health care specialist such as a cardiologist for assessment and treatment than the general population.

1.3.2 Factors causing common physical health problems in people with mental disorders

People living with mental disorders have a two point two times greater relative risk of death compared to the general population (Walker, McGee, & Druss, 2015). In fact,

cardiovascular disease is the most common cause of premature mortality in this cohort (Fan, Wu, Shen, Ji, & Zhan, 2013; Holt, 2015) and is related to the numerous lifestyle and behavioural risk factors accounting for the development of physical co-morbidity leading to early death (Laursen et al., 2012). For example, they have a higher prevalence of tobacco use (Asharani et al., 2020) due to the historical acceptance of smoking as a ‘norm’ in mental health settings and for socialising and peer group activities (Lawn & Campion, 2013). Smoking is often perceived by people with mental disorders and health professionals to have beneficial effects on cognition and mood, and relieve anxiety and stress and other symptoms (Carpenter et al., 2013). People with mental disorders are more likely to develop a range of respiratory conditions including chronic bronchitis and asthma (Asharani et al., 2020; Cooper et al., 2012; Nordentoft et al., 2013) because they start smoking at an early age, be heavier smokers and spend a greater proportion of their income on cigarettes than the general population (Asharani et al., 2020). They have a significant increase in the likelihood to die from smoking-related diseases such as cardiovascular disease, peripheral arterial disease, chronic obstructive pulmonary disease, and cancer (Holt, 2015; Olfson, Gerhard, Huang, Crystal, & Stroup, 2015). Despite the provision of smoking cessation interventions, quit rates for tobacco use remain low (Baker et al., 2018; Roger & Sherman, 2014).

The relationships between mental disorders, alcohol and substance use, and co-existing physical health problems are complex (Wilkinson, Radhakrishnan, & D’Souza, 2014) as it can be challenging to determine whether a mental disorder preceded the alcohol and substance use or vice versa (Jones et al., 2018; Santucci, 2012). Although the misuse of alcohol and other drugs may trigger psychotic symptoms (Oluwoye et al., 2019; Wilkinson et al., 2014), people with mental disorders are more likely to drink alcohol and use illicit substances to provide relief from their symptoms (Thornton et al., 2012). The impact of alcohol and substance abuse on blood pressure and insulin production can substantially

interfere with cardiovascular function and elevate the risk of developing heart disease (De Hert, Detraux, & Vancampfort, 2018; Firth et al., 2019; Lan & Chen, 2012; Schulte & Hser, 2014).

People with mental disorders experience nutritional deficits due to their poor dietary habits (Dipasquale et al., 2012; Quirk et al., 2013). They may have mineral and vitamin deficiencies because of their reduced likelihood of eating a healthy diet (Rao, Asha, Ramesh, & Rao, 2008; Quirk et al., 2013). For example, people with schizophrenia tend to have notable deficits in various areas of life functioning such as budgeting, shopping and cooking, hence, they are likely to consume more calories from processed foods rich in sugars and saturated fat and eat less fruit, vegetable and dietary fibre when compared to the general population (Dipasquale et al., 2012). Their poor dietary patterns can account, in part, for the higher incidence of metabolic abnormalities such as obesity and high cholesterol, thus they are four to five times more likely to develop type 2 diabetes during their lifetime compared with the general population (Dipasquale et al., 2012; Jaworski, Panczyk, Śliwaczyński, Brzozowska, & Gotlib, 2021; Paredes & Ribeiro, 2014). Moreover, they are less likely to seek diabetes treatment, hence, delaying detection and treatment (Mulligan et al., 2018). When untreated they can experience poor glycemic control and abnormal blood glucose level which can lead to diabetic ketoacidosis requiring emergency treatment and impaired quality of life (Vuk et al., 2017).

It is well recognised that regular physical activity improves cardiometabolic health and reduces associated risk factors such as being overweight or obese, high blood pressure and high blood cholesterol (Bull et al., 2020; Lederman et al., 2016; Stubbs, Rosenbaum, Vancampfort, Ward, & Schuch, 2015; Vancampfort, Rosenbaum, Ward, & Stubbs, 2015). However, current global estimates show one in four people in the general adult population does not attain the recommended levels of physical activity (Bull et al., 2020). The levels of

physical activity are even lower in people with mental disorders because they experience difficulties initiating and maintaining physical activity such as exercise programs (Firth et al., 2016). Due to high levels of physical inactivity, social isolation, and sedentary lifestyle, their cardiorespiratory fitness decreases leading to the development of physical co-morbidities (Stubbs et al., 2015; Vancampfort, Rosenbaum et al., 2015). For instance, people with schizophrenia are 80% more likely to experience heart disease, and three times more likely to have a stroke than the general population (Fan et al., 2013). Co-existing heart disease in this cohort increases their risk of dying early (Lan & Chen, 2012) and contributes to the burden of disease associated with mental disorders (Siddiqui et al., 2018).

1.4 Physical health issues related to using antipsychotic medications

Antipsychotic medications such as olanzapine, quetiapine and clozapine belong to a class of psychiatric medicines used to alleviate psychotic symptoms including hallucinations and delusions. However, these medications can cause adverse health effects, including changes in blood glucose level, hyperprolactinaemia, and weight gain (Correll et al., 2014). The onset of one or more of these adverse health effects increases the risk of a person developing metabolic syndrome. Metabolic syndrome is a cluster of cardiovascular risk factors consisting of insulin resistance, central obesity, hypertension, and dyslipidaemia which can significantly increase the risk of cardiovascular disease and mortality (Curtis, Newall, & Samaras, 2012). For example, people taking antipsychotic medications have a three times higher incidence rate of developing symptoms of metabolic syndrome such as hyperlipidaemia, type 2 diabetes mellitus, and cardiac arrhythmia when compared to people with mental disorders who do not take antipsychotic medications (Galling et al., 2016; Lee, Ng, Kih, Gill, & Aziz, 2018; Stroup & Gray, 2018). Antipsychotic medications are reported to have greater adverse metabolic effects on an individual's health compared with other types

of psychiatric medicines such as mood stabilisers, antidepressants, anxiolytics, and hypnotics (Correll, Detraux, De Lepeleire, & De Hert, 2015).

The prevention of metabolic syndrome and physical health problems requires proactive health interventions (Curtis et al., 2012) such as metabolic monitoring which must commence for younger and at-risk people to detect and prevent iatrogenic physical health problems when they first engage with mental health services (Bressington & White, 2015; Vancampfort et al., 2016). Internationally, best practice guidelines on metabolic monitoring and physical health care for people taking antipsychotic medications have been developed (Shiers et al., 2015). International guidelines, for example, “Healthy Active Lives”, the “Lester Tool” and “American Diabetes Association / American Psychiatric Association guidelines”, which contain the criteria for metabolic syndrome, have been published to guide mental health professionals to monitor people taking antipsychotics for metabolic risk factors. In Australia, models of metabolic screening (Curtis et al., 2012) and treatment algorithms have been developed to help mental health professionals monitor, identify, intervene, and minimise metabolic and physical health risks for people taking antipsychotic medications (Shiers et al., 2015; Stanley & Laugharne, 2014). Yet, the rate of metabolic monitoring and physical health assessments for people with mental disorders remains low and often overlooked (Carney, Bradshaw, & Yung, 2018; Laugharne, Waterreus, Castle, & Dragovic, 2016).

The lack of emphasis on treating physical health issues of people with mental disorders within the mental health system and between primary health care services and mental health services creates significant gaps where individuals end up receiving poor quality and ineffective physical health care (Knaak et al., 2017; Melamed, Fernando et al., 2019). The health inequity experienced by people with mental disorders requires change across all levels of the health care system to provide them with high-quality mental and physical health care

(Bressington & White, 2015; Campion et al., 2013; Ward, Wynaden, & Heslop, 2018). This need was identified by the Mental Health Commissioner of New South Wales, Australia who urged Australian mental health services to improve their physical health care saying:

We have focused on mental illness itself rather than the sum of all the experiences that make up an individual person and allowed ourselves to miss the huge importance of physical health in the lives of mental health consumers... the chronic physical health problems and premature deaths of many people who experience mental illness are not acceptable. We must act to address this fundamental inequity (Mental Health Commission of New South Wales, 2016, p.5).

1.5 Need for this research

The previous section has highlighted that antipsychotic medication can be a great benefit in treatment but can also increase the person's risk of metabolic syndrome and the beginning of other physical health problems. Among the younger and first-time users such as young people with FEP, the use of more than one antipsychotic and/or a higher dosage is associated with a greater adverse risk to physical health (Correll et al., 2015; McCloughen et al., 2012; O'Donoghue, Schäfer, Becker, Papageorgiou, & Amminger, 2014). When the psychosis does not resolve after short-term treatment, the individual continues taking antipsychotic medications which increase his/her risk of adverse medication effects leading to long-term risk of medical implications such as cardiometabolic diseases, postural hypotension, and sexual dysfunction (Lee et al., 2018; O'Donoghue et al., 2014; Stroup & Gray, 2018).

Physical health care is important and if compromised, a young person's ability to live a healthier and longer life will be affected (Mitchell, Vancampfort, Sweers et al., 2013).

Physical health problems can contribute to decreased quality of life, lowered self-esteem, and reduced life expectancy (Lawrence, Hancock, & Kisely, 2013; Simon et al., 2018). A young person presenting with FEP provides the opportunity for health professionals to intervene early to minimise the risk of emerging physical co-morbidities. However, Mwebe (2017) reported that while mental health professionals have been conscientious to ensure treatment compliance, monitoring for adverse physical health effects is not always in keeping with prescribed monitoring guidelines. This may occur because young people believe they are in good health, and there is a common misconception by health professionals that younger people are fit and physically healthy compared to the cohort of long-term users of antipsychotic medications who are older and have co-existing physical problems (Ali, Jalal, & Paudyal, 2020; Department of Health, 2017). As a result, there is limited research on the physical health status of young people experiencing FEP within their first year of receiving specialist mental health care. Therefore, further investigation on the physical health outcomes of young people presenting with FEP is necessary to identify when physical problems emerge to provide new insights on how to improve and better manage their physical health care from the time of the first contact with mental health professionals.

1.6 Purpose of the research

As there has been limited investigation into the physical health of young people with FEP, the research presented in this thesis assists in bridging this knowledge gap. The purpose of this research was to determine the changes in the physical health of this cohort and, together with the broader views from parents and nurses as key informants, make recommendations to improve physical health care for young people with FEP within the mental health settings.

1.6.1 Aim

The research aimed to investigate the physical health of young people with FEP and the impact of FEP and its treatment on physical health outcomes.

1.6.2 Objectives

The research objectives were to:

1. Complete a review of scientific literature to determine current health interventions that can increase the rate of metabolic monitoring interventions for people with psychosis taking antipsychotic medications, and to identify the barriers affecting the implementation of these interventions.
2. Explore the lived experience of physical health changes and issues facing young people with FEP enrolled in an EIP program and receiving mental health treatment.
3. Interview parents to obtain their lived experience about the changes in lifestyle and physical health of their son or daughter who has FEP.
4. Use a validated survey form to assess the knowledge, attitudes, and perceived role of Australian nurses working in mental health settings in the provision of physical health care to young people with FEP.
5. Measure and compare the physical health status of young people with FEP and a comparison group comprising people experiencing psychoses and receiving antipsychotic treatment and evaluate their health changes at baseline and at 12-month.

1.7 Significance of the research

This is the first research in Australia using the convergent parallel mixed methods design to explore the physical health of young people with FEP which includes examining the lived experiences of the young person and their parents, and nurses' perspectives

concomitantly in a single research study. A thorough understanding of the changes in the physical health of young people with FEP from their initial contact with mental health services and what they perceive as effective physical health prevention and early intervention strategies will ensure future interventions and education programs are relevant to their needs supporting them to lead a sustainable healthy lifestyle.

The findings in this research add to the limited empirical evidence currently available regarding the impact of FEP on a young person's physical health. The physical health of young people experiencing FEP is as vulnerable as adults with more severe and long-term mental disorders, and the person is just as likely to develop chronic physical health conditions such as diabetes and cardiovascular disease. This research provides support for physical health monitoring and care to be embedded at all levels of mental health service design, policymaking and research, and guides the development of evidence-based clinical practices within mental health settings so that high-quality health services can be delivered to this consumer group (Banfield, Morse, Gulliver, & Griffiths, 2018).

1.8 The organisation of the thesis

This thesis consists of eight chapters and includes five published peer-reviewed journal articles. The articles are presented in their final accepted versions following the requirements, guidelines, and copyright policy of each journal (Appendices A1 to A5). Please note that the term mental health consumer (MHC) has been used in many of the publications in this thesis and the definition of MHC use in the context of this research is provided ².

Chapter 2 presents Publication 1 titled: "Improving metabolic monitoring rate for young people aged 35 and younger taking antipsychotic medications to treat a psychosis: A

² MHC in the context of this thesis is used in some places to refer to people accessing specialist mental health care for FEP or a diagnosed mental disorder. In Australia, it is policy to use the term MHC, but the researcher is aware that in other countries terms such as service user are used.

literature review”. It contains an overview of metabolic syndrome and a literature review summarising the articles relating to interventions that have improved metabolic monitoring rates for people taking antipsychotic medications to treat psychosis. Barriers impeding the increase in the rates of metabolic monitoring were outlined in the published article. This chapter also consists of an updated literature search from the time of the article’s publication.

Chapter 3 presents the methodology used in this research. This includes the details and rationales for the research design, ethical considerations and approval, data collection procedures and the methods of analysis of the studies.

Chapter 4 presents Publication 2 titled: “The physical health of young people experiencing first-episode psychosis: Mental health consumers' experiences”. This is the first of the four studies using the mixed methods research design. An application of the GT method was used to explore young people’s experiences associated with the impact of psychosis and the effects of antipsychotic medication on their physical health.

Chapter 5 presents Publication 3 titled: “Parents’ perceptions of the physical health outcomes of young people diagnosed with first episode psychosis”. This second study also used an application of the GT method. It reported research that explored the perceptions of parents, who were also the family caregivers, about the physical health of their son or daughter³ following the commencement of antipsychotic treatment due to experiencing psychosis for the first time.

Chapter 6 presents Publication 4 titled: “The provision of physical health care by nurses to young people with first episode psychosis: A cross-sectional study”. This publication reported quantitative findings which examined the nurses’ attitudes, confidence levels and nursing practices when providing physical health care to young people experiencing FEP.

³ None of the young people with FEP who participated in this research study identified themselves as being a gender other than male or female.

Chapter 7 presents Publication 5 titled: “Exploring the health status of people with first-episode psychosis enrolled in the early intervention in psychosis program”. This final study investigated the health status of young people experiencing FEP taking antipsychotic medications for the first time with a comparison group of people with similar clinical diagnoses receiving psychiatric treatment over 12 months.

Chapter 8 presents a discussion of the findings. Recommendations based on the findings related to the education of health professionals, clinical practice issues and policy directions are provided.

1.9 Summary of Chapter 1

This chapter provided a background supporting the need for research that explored the physical health outcomes of young people experiencing FEP. The background to the study, the research aims and objectives, the significance of the research and the organisation of the thesis was discussed.

Chapter 2 presents a literature review of existing interventions that improve metabolic monitoring rates and how the interventions may reduce the development of physical health problems in young people with FEP. It includes an updated literature review from the time when the initial review was completed.

CHAPTER 2

REVIEW OF LITERATURE

2.1 Introduction

Chapter 2 presents Publication 1, a literature review on the health interventions that increase metabolic monitoring rates in people with psychosis taking antipsychotic medications. As FEP is commonly found in young people (Browning, Corrigan, Garety, Emsley, & Jolley, 2013; Greenfield et al., 2018), the cohort for the literature review was people 35 years old or younger treated with antipsychotic medications. In Publication 1 this cohort is referred to as mental health consumers (MHCs)². In addition, any pertinent publications in the area since the review was published are presented and discussed.

Monitoring for metabolic syndrome in people taking antipsychotic medications is recommended best practice and incorporated into health policy and clinical guidelines in many countries, for example, the United Kingdom, Canada, Spain, the United States of America, and Australia (International Physical Health in Youth Stream, 2015; Laugharne et al., 2016; Mitchell, Delaffon, Vancampfort, Correll, & De Hert, 2012; The Royal College of Psychiatrists, 2016). However, metabolic monitoring rates in practice are still reported to be low (Galling et al., 2016; Vancampfort et al., 2016). Publication 1 identifies interventions that can be used to improve metabolic monitoring rates and highlights the barriers impeding metabolic monitoring in people taking antipsychotic medications.

² MHC in the context of this thesis is used in some places to refer to people accessing specialist mental health care for FEP or a diagnosed mental disorder. In Australia, it is policy to use the term MHC, but the researcher is aware that in other countries terms such as service user are used.

2.2 Monitoring of metabolic syndrome

Metabolic syndrome is a cluster of factors that increases an individual's risk of heart disease, type 2 diabetes mellitus, obesity and other physical health problems, and can be exacerbated by using antipsychotic medications (Stroup & Gray, 2018; Curtis et al., 2012). These factors include altered glucose metabolism, abnormal lipids level, and weight gain, which is of great concern for people taking antipsychotic medication (Holt, 2015). Lipid abnormalities may include low levels of "good" high-density lipoprotein cholesterol level, hypercholesterolemia or hypertriglyceridemia, whereas alterations in glucose metabolism are associated with hyperglycaemia (Lee et al., 2018).

Metabolic syndrome is associated with a six-fold increase in the risk of type 2 diabetes and death from coronary heart disease (Cocoman & Casey, 2019). These adverse metabolic effects may be more pronounced in young people with FEP who have never previously taken antipsychotic medications, also known as antipsychotic naïve (Garrido-Torres et al., 2021), and this cohort will likely experience a more severe impaired glucose tolerance/metabolism (Chadda, Ramshankar, Deb, & Sood, 2013).

Traditionally, the management of metabolic syndrome for people taking antipsychotic medications has predominantly focused on interventions that modify diet and physical activity and control weight gain (Cooper et al., 2016). Nonetheless, in recent times, there is an emerging awareness and understanding of the importance of monitoring the physical health of people taking antipsychotic medication to prevent metabolic syndrome from occurring. Hence, monitoring is now considered the best practice in mental health care (Michael & MacDonald, 2020). Metabolic monitoring in combination with behaviour and lifestyle interventions needs to be started as soon as an individual commences antipsychotic medications (Edelsohn, Parthasarathy, Terhorst, Karpov, & Schuster, 2015; Holt, 2015).

2.3 Focus of literature review

Globally, guidelines for monitoring metabolic risk in people with mental disorders taking antipsychotic medications have been published (Cooper et al., 2016). The guidelines recommend that metabolic parameters such as fasting glucose and lipids levels be measured at three-monthly intervals (Cooper et al., 2016). Yet, adherence to metabolic monitoring practice guidelines and the rates of metabolic monitoring completed by health professionals varies in different countries (Melamed, Wong, LaChance, Kanji, & Taylor, 2019; Ward et al., 2018). For example, research in South Africa identified metabolic monitoring rates were less than five per cent (Saloojee, Burns, & Motala, 2014). In the United States of America, the rate of metabolic monitoring was identified to be 53.5% and was suboptimal and less than the highest standard of quality (Hayden et al., 2020).

The literature review reported in this chapter aimed to identify the types of interventions that can improve metabolic monitoring rates in younger people experiencing FEP taking antipsychotic medications. At the same time, barriers influencing the rates of metabolic monitoring were identified.

2.4 Publication 1: Literature review

Chee, G. L., Wynaden, D., & Heslop, K. (2017). Improving metabolic monitoring rate for young people aged 35 and younger taking antipsychotic medications to treat a psychosis: A literature review. *Archives of Psychiatric Nursing, 31*(6), 624-633.
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Higher Degree Research Thesis by Publication

Curtin University

Statement of Originality

We, the PhD. candidate and the candidate's principal supervisor, certify that the following text, figures and diagrams are the candidate's original work.

Type of work	Page number(s)
Manuscript (Publication 1)	25 to 43

Name of candidate: Gin Liang CHEE

Name and title of principal supervisor: Associate Professor Karen HESLOP

1st December 2022

Candidate signature

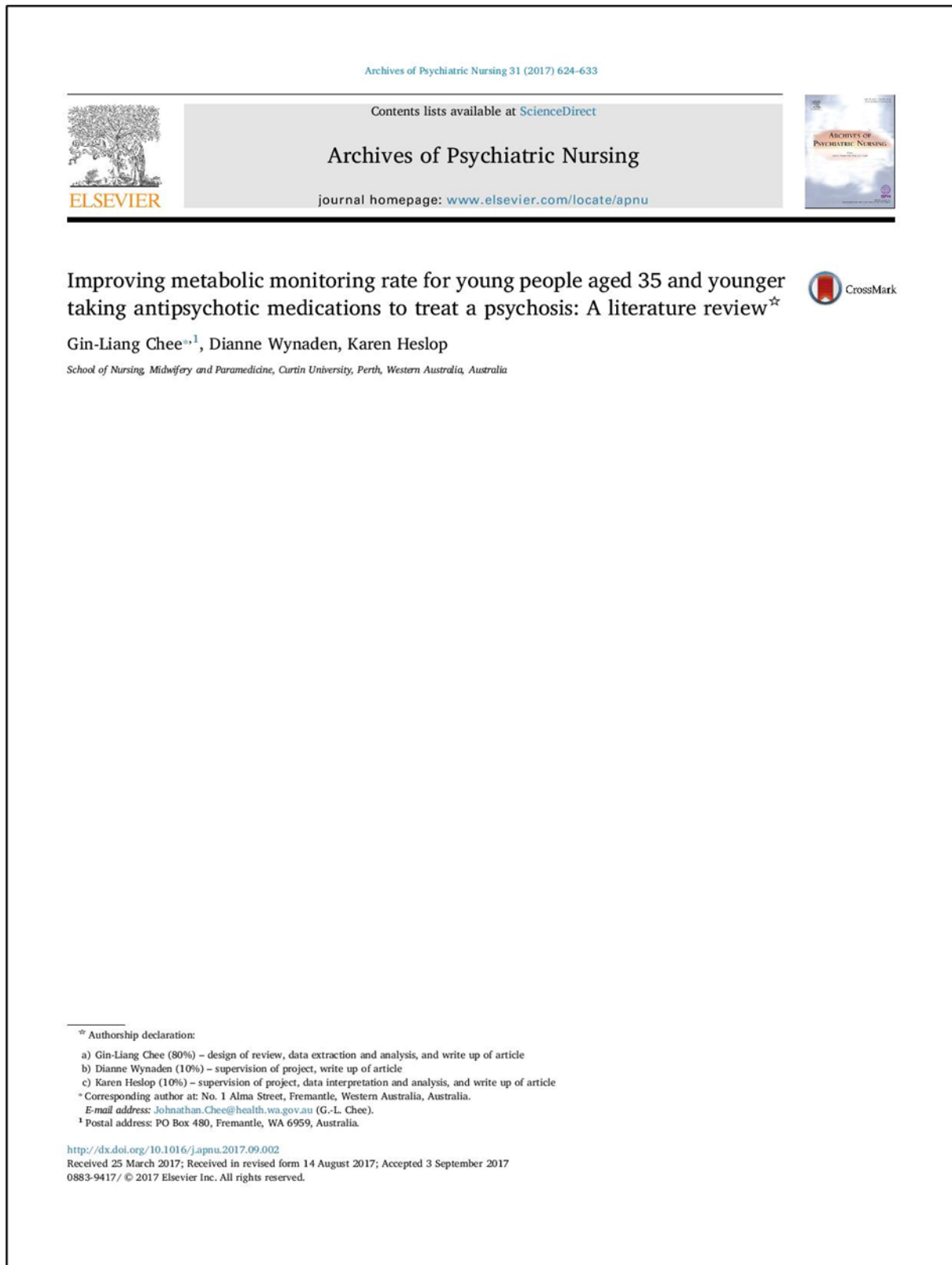
Date

1st December 2022

Principal supervisor signature

Date

Figure 2.1. The first page of Publication 1 on literature review (*Permission was granted by the copyright owner to duplicate the published work in this thesis- see Appendix A.1*)



This is the ‘**Accepted/Original Manuscript**’ of the article published by Elsevier Inc. in Archives of Psychiatric Nursing on 3rd September 2017, available online: <https://dx.doi.org/10.1016/j.apnu.2017.09.022>

Title

Improving metabolic monitoring rate for young people aged 35 and younger taking antipsychotic medications to treat a psychosis: A literature review

Abstract

Young people aged 35 and younger who are taking antipsychotic medications to treat a psychosis are a high risk for developing metabolic syndrome due to the adverse effects of the medications. This paper reports the finding of a review of literature to identify interventions to improve metabolic monitoring rates in this group. A review of 478 studies identified 15 articles which met the inclusion criteria. Five articles reported single-intervention studies and the remaining integrated two or more interventions to improve uptake level of metabolic monitoring. As metabolic syndrome can be detected early through metabolic monitoring in young people taking antipsychotics, early intervention is important to improve their physical health trajectory.

Key words: Metabolic screening; metabolic syndrome; antipsychotics; young people; mental health nursing

Introduction and background

Antipsychotic medications constitute a major component of psychiatric treatment for young people aged 35 and younger who are diagnosed with early episode schizophrenia or other forms of psychosis as they target psychosis-related symptoms such as hallucination and delusions (Correll, Lencz, & Malhotra, 2011). However, these medications are also associated with a range of adverse reactions, for example, the biochemical and physical alterations linked to the use of antipsychotics increase the risk for metabolic syndrome (Correll et al., 2011; De Hert, Dobbelaere, Sheridan, Cohen, & Correll, 2011; Mitchell et al., 2013). Metabolic syndrome is the manifestation of multiple medical conditions, and is one of the most concerning side-effects of commonly used antipsychotics (Correll et al., 2011; De Hert et al., 2011; Marc De, Johan, Ruud Van, Weiping, & Christoph, 2011; Mitchell et al., 2013; Muench & Hamer, 2010). The syndrome is characterised by abdominal obesity, elevated fasting plasma glucose, high serum triglycerides, elevated blood pressure and low high-density lipoprotein cholesterol levels (Muench & Hamer, 2010). As a result, individuals taking antipsychotics have a higher risk of developing comorbid physical health problems (Mitchell et al., 2013; Vancampfort et al., 2015). Life expectancy is also reported to be reduced due to the long-term adverse effects of antipsychotics use and these co-occurring conditions (Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015).

The mortality rate of people with mental disorders is two to three times higher than in the general population (Walker, McGee, & Druss, 2015), and premature death occurs 10 to 20 years earlier than people of the same age who do not have a mental disorder (Lawrence, Hancock, & Kisely, 2013). The risk of morbidity and mortality is increased with mental disorders, as 80% of the deaths in this consumer group are associated with largely preventable or treatable co-occurring physical health conditions (Hayes et al., 2012). People with mental disorder taking antipsychotics experience significant increases in weight, glucose level, waist circumference, and cholesterol level (Mitchell et al., 2013). Koyanagi, Stickley, and Haro (2016) highlighted that antipsychotic-induced metabolic side-effects were as significant to

increasing the risk of people with mental illness developing metabolic disorders as sedentary lifestyle and other risk factors such as smoking and poor diet.

Current evidence suggests that metabolic disorders and cardiovascular diseases occur at a younger age for people taking antipsychotics compared to their peer groups (Correll et al., 2009; Correll et al., 2011; De Hert et al., 2011; Galling et al., 2016; Marc De et al., 2011). As the first episode of psychosis is most likely to occur in late adolescence or early adulthood, there is a growing emphasis on closely monitor young mental health consumers using antipsychotics for metabolic syndrome (Correll et al., 2009; Marc De et al., 2011). As such mental health nurses working in primary and acute health care systems and services should be responsible for providing mental and physical health care (Happell, Scott, Nankivell, & Platania-phung, 2013; Wynaden et al., 2016). Since 35 years of age or younger is cut-off point for entry into most early psychosis programs (Ochoa, Usall, Cobo, Labad, & Kulkarni, 2012; Kessler et al., 2007) this age range was included in the literature searched for this review.

Young people who receive antipsychotics are two to three times more likely to develop metabolic syndrome, cardiovascular disease and type 2 diabetes mellitus than their peers who do not use antipsychotics (Curtis, Newall, & Samaras, 2012). They are also predisposed to early atherosclerosis and vascular diseases when they are much older (De Hert et al., 2011). Cardio-metabolic adverse effects associated with the use of antipsychotics develop earlier, faster and to a greater extent in younger people than among adults (Correll et al., 2009; Mitchell et al., 2013). Since mental health nurses are at the frontline for providing health care, their central role makes them well-positioned in the identification, prevention and management of metabolic syndrome in young people treated with antipsychotics (Peh, 2008; Thompson et al., 2011).

There are various international guidelines, for example, “Healthy Active Lives”, the “Lester Tool” and “American Diabetes Association / American Psychiatric Association guidelines”, which contain either the Adult Treatment Panel III (ATP III) or World Health Organization (WHO) criteria for metabolic syndrome, informing health clinicians to routinely and proactively monitor for risk of metabolic syndrome in young people (America Diabetes Association et al., 2004; International Physical Health in Youth Stream, 2015; The Royal College of Psychiatrists, 2016). These guidelines, if practised diligently, may also reverse or stop the trend of premature death among young people taking antipsychotics by addressing potential antipsychotic-related physical health problems early in their treatment trajectory (Laugharne, Waterreus, Castle, & Dragovic, 2016). While guidelines for metabolic monitoring practices are well established, research has shown that the rate for metabolic monitoring in young people taking antipsychotics remains low (Galling et al., 2016; Vancampfort et al., 2015; Vancampfort et al., 2016; Vitiello et al., 2009). Leadership by mental health nurses to address this issue can improve consumer health outcomes.

AIM

This paper reports a range of interventions that may be implemented to improve metabolic monitoring rate in young people treated with antipsychotic medications. This paper also explores the barriers that influence the compliance with these interventions.

METHOD

Search strategy

The literature review was conducted through a comprehensive electronic search for primary articles from the following databases: MEDLINE, PsycINFO, EMBASE, CINAHL and the Cochrane Library. The Medical Subject Heading (MeSH) terms searched were: “adolescent”, “young adult”, “antipsychotic agents”, “primary prevention”, “health promotion”, “monitoring, physiologic”, and “metabolic syndrome X”. In addition, keywords used in the

search were: “youth”, “antipsychotic-induced”, “drug-induced”, “screening”, “prevention”, “metabolic”, “intervention”, and “program”. Boolean operators “AND” and “OR” were used to combine MeSH terms and keywords during the search.

During the search process, all titles and abstracts of the articles were initially extracted by the first author from the five databases and screened for relevance to the review aim. Google Scholar was used to search grey literatures. Two authors independently assessed full text version of any potentially relevant articles to be selected for the review. Reference lists from included articles were examined manually to identify further records. Disagreements at any stages were resolved by consensus, and with a third author as needed.

Inclusion criteria

The review included published articles if they met the following criteria: (a) published between April 2005 and March 2016; (b) reported as original research; (c) reported antipsychotic medications were used by the research participants; (d) intervention methods that target improving the rate for metabolic monitoring; (e) intervention outcomes measured in any parameters or format in association with the Adult Treatment Panel (ATP) III or World Health Organization (WHO) metabolic syndrome criteria (Grundy, Brewer, Cleeman, Smith, & Lenfant, 2004); and (f) age group up to 35 years represented in the sample population.

Exclusion criteria

This review excluded articles containing content related to metabolic monitoring intervention for non-mental health consumers; and also excluded articles that were not written in English.

Appraisal methodology

The quality of the methodology of the included articles was assessed using the Newcastle-Ottawa Scale which is frequently used for evaluating non-randomised studies of interventions (Faber, Ravaut, Riveros, Perrodeau, & Dechartres, 2016). Two authors appraised the quality of articles independently. The Cohen’s Kappa correlation was calculated to determine the level of agreement between both assessors (Rousson, Gasser, & Seifert, 2002). Articles were rated in quartiles: unsatisfactory (0-3 points), satisfactory (4-5 points), good (6-7 points), and very good (8-9 points) (Wells et al., 2014).

RESULT

Study selection

The literature search yielded 485 articles, and 72 potentially relevant articles were retained for second screening after filtering titles and abstracts. On completion of full text screening, 15 articles met the inclusion criteria. The search process is summarised in Figure 1 as guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram (Moher, Liberati, Tetzlaff, & Altman, 2009).

Quality appraisal

Agreement between reviewers on study quality was moderate ($k = 0.556$). Overall Newcastle-Ottawa Scale mean score (SD) was 5.3 (1.45); median score was 6; study quality on average was satisfactory; ratings for the studies were between 2 and 7 on the Newcastle-Ottawa Scale (Landis & Koch, 1977). None of the studies were rated as ‘very good’. Adjusted-measure for metabolic monitoring rate was not provided in any articles. Nine articles did not elaborate on the amount of losses to follow-up so the possible risk of bias in included studies cannot be predicted (Barnes, Paton, Hancock, Cavanagh, Taylor, & Lelliott, 2008; Crabb, McAllister, & Blair, 2009; DelMonte, Bostwick, Bess, & Dalack, 2012; Edelsohn,

Parthasarathy, Terhorst, Karpov, & Schuster, 2015; Hendriks & Mahendran, 2011; Moeller, Rigler, Mayorga, Nazir, & Shireman, 2011; O'Callaghan et al., 2011; Peh, 2008; Ronsley, Rayter, Smith, Davidson, & Panagiotopoulos, 2012).

Study characteristics

All the selected articles used quantitative method, and their research was completed in developed countries. Seven studies were conducted in North America, five in Europe, two in Asia and one in Australia. Fourteen studies gathered metabolic monitoring clinical information retrospectively while one article (Peh, 2008) was a prospective study.

The types of metabolic parameter monitored as outcomes varied across the included articles. Three studies (O'Callaghan et al., 2011; Parrinello, 2012; Ronsley et al., 2012) evaluated waist circumference as a metabolic monitoring parameter and another three (Barnes et al., 2008; Ronsley et al., 2012; Thompson et al., 2011) measured blood pressure. Only one study (Ramanuj, 2013) monitored electrocardiogram. Metabolic parameters that were commonly monitored were lipid and glucose levels.

In the 15 studies, different interventions were implemented to improve metabolic monitoring rate. Two themes emerged: i) single-intervention approach; and ii) multifaceted approach and these will be discussed. Barriers affecting the interventions will also be identified. Key findings of the reviewed articles are presented in Table 1.

Figure 1. Flow diagram (Moher et al., 2009)

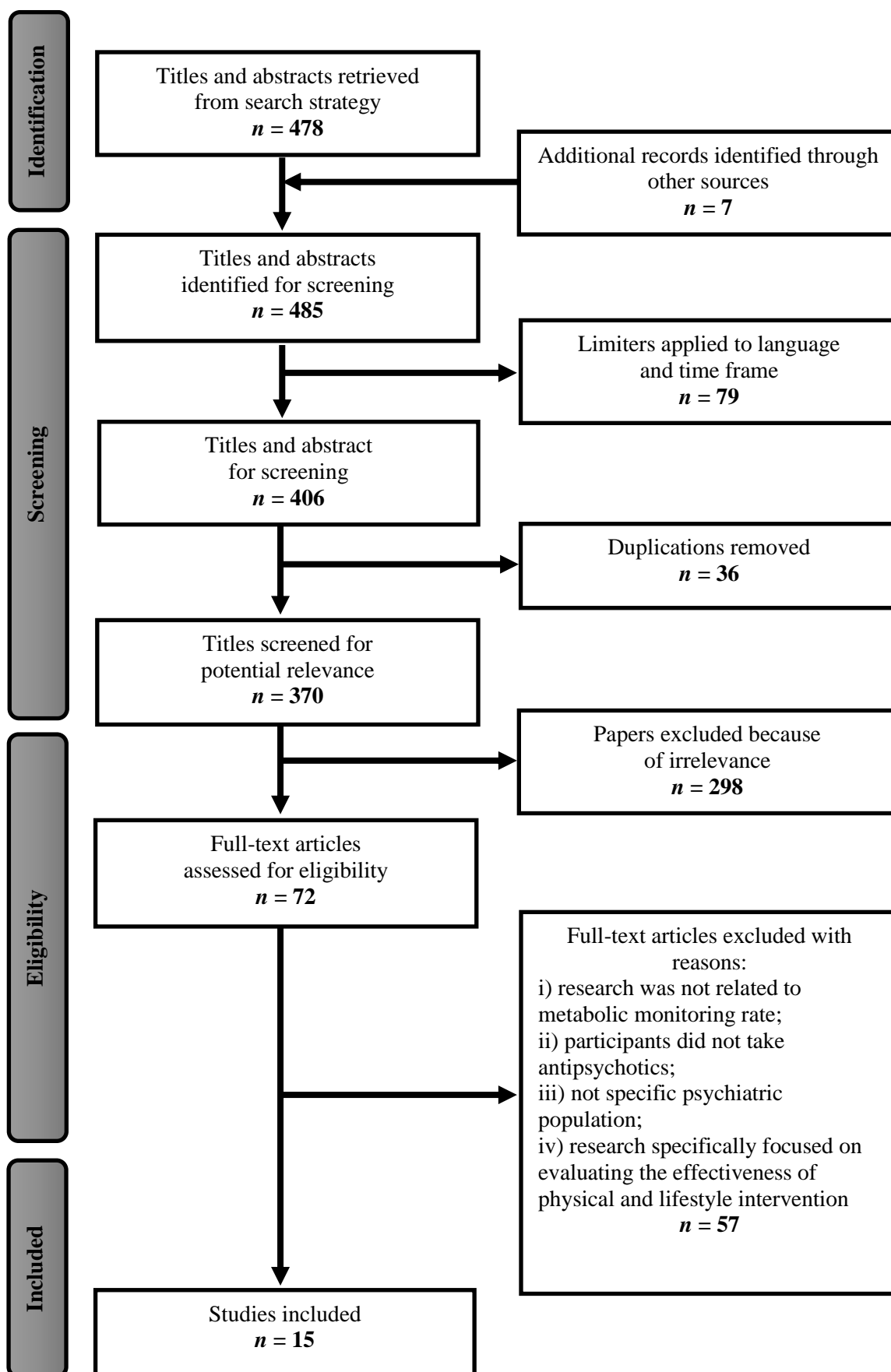


Table 1. Study summary

Author (year)	Sample	Design	Intervention	Types of Metabolic Parameters Reported	Key Findings	Barriers to Interventions	NOS Score	TAP
Barnes et al., 2008	<ul style="list-style-type: none"> • Country: United Kingdom • Setting: Community • Size: 1,966 • Age: 16 to over 65 • Intervention: Consumers from 48 assertive outreach teams • Control: No 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Clinical records • Duration: Jan 2005 to Dec 2005 • Follow-up: Baseline, 12-month 	<ul style="list-style-type: none"> • Health education • Metabolic screening reminders • Changes in lifestyle 	<ul style="list-style-type: none"> • Blood pressure • Glucose level • Lipid profile • Obesity 	<ul style="list-style-type: none"> • Screening for blood pressure and obesity doubled post-intervention 	<ul style="list-style-type: none"> • No specific barrier was highlighted in the article 	7	AP
Crabb et al. (2009)	<ul style="list-style-type: none"> • Country: Scotland • Setting: Inpatient and community • Size: 100 • Age: 25 to 44 • Intervention: Consumers from an early intervention in psychosis service • Control: No 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Clinical records • Duration: Not specified • Follow-up: Not specified 	<ul style="list-style-type: none"> • Regular metabolic screening 	<ul style="list-style-type: none"> • Blood pressure • Glucose level • Lipid profile • Family history 	<ul style="list-style-type: none"> • It is more effective for psychiatrists than GPs to conduct metabolic screening for consumers engage in early psychosis services 	<ul style="list-style-type: none"> • Absence of responsible clinician • Bureaucracy • Lack of motivation • Poor communication 	3	AP
DelMonte et al. (2012)	<ul style="list-style-type: none"> • Country: United States of America • Setting: Inpatient • Size: 171 • Age: 27 to 59 • Intervention: Hospital patients • Control: No 	<ul style="list-style-type: none"> • Type: RCCS • Data collection: Clinical records • Duration: Jun 2008 to Jun 2009 • Follow-up: Baseline, 12-month 	<ul style="list-style-type: none"> • System with alert prompts to monitor metabolic screen due date 	<ul style="list-style-type: none"> • Glucose level • Lipid profile 	<ul style="list-style-type: none"> • Monitoring for glucose and lipid levels increase by 35% 	<ul style="list-style-type: none"> • No specific barrier was identified in the article 	5	SGA
Edelsohn et al., 2015	<ul style="list-style-type: none"> • Country: United States of America • Setting: Community • Size: 18,033 • Age: Below 65 years old • Intervention: Social health care program recipients • Control: No 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Laboratory results • Duration: 2008 to 2012 • Follow-up: Baseline, 24-month, 48-month 	<ul style="list-style-type: none"> • Health education • Metabolic monitoring system • Outreach and support program 	<ul style="list-style-type: none"> • Glucose level • Lipid profile 	<ul style="list-style-type: none"> • Glucose monitoring increase by 16%; females were more likely to receive metabolic monitoring than males 	<ul style="list-style-type: none"> • Disapproval by a third party • Non-acceptance of established guidelines • Lack of integration in health services 	7	AP
Hendriks & Mahendran, 2011	<ul style="list-style-type: none"> • Country: Singapore • Setting: Community • Size: 252 • Age: 19 to 88 • Intervention: Patients discharged from inpatient unit 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Laboratory results and physical measurements • Duration: 2 years 	<ul style="list-style-type: none"> • Metabolic assessment training • Metabolic monitoring system • Tagging medical records 	<ul style="list-style-type: none"> • Cholesterol levels • Glucose level • Waist and hip circumference • Weight 	<ul style="list-style-type: none"> • Monitored consumers for metabolic changes was more constantly post-intervention 	<ul style="list-style-type: none"> • No barrier was highlighted in this article 	3	SGA

	<ul style="list-style-type: none"> • Control: No 	<ul style="list-style-type: none"> • Follow-up: Baseline, 4-week, 8-week, 12-week, 6-month, 9-month, 12-month 						
Latoo et al., (2015)	<ul style="list-style-type: none"> • Country: United Kingdom • Setting: Community • Size: 55 • Age: 14 to 36 • Intervention: Mental health consumers from five early psychosis teams • Control: No 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Clinical records • Duration: Nov 2012 and May 2013 • Follow-up in retrospect: Baseline, 4-week, 3-month, 12-month, 24-month 	<ul style="list-style-type: none"> • Collaborating with primary health care services • Metabolic monitoring system • Nurse-led health clinic 	<ul style="list-style-type: none"> • Blood pressure • Body Mass Index • Glucose level • Lipid profile • Smoking status • Weight and height 	<ul style="list-style-type: none"> • Monitoring rate for health parameters increase by up to 90% 	<ul style="list-style-type: none"> • Poor communication • Inadequate documentation • Lack of equipment • Negative attitudes • Low priority for health screening 	6	AP
Moeller et al. (2011)	<ul style="list-style-type: none"> • Country: United States of America • Setting: Community • Size: 2,204 • Age: Below 64 years old • Intervention: Social health care program recipients • Control: No 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Laboratory results • Duration: 2002 to 2006 • Follow-up: Baseline, 48-month 	<ul style="list-style-type: none"> • Health promotion to increase metabolic monitoring awareness 	<ul style="list-style-type: none"> • Glucose level • Lipid profile 	<ul style="list-style-type: none"> • Glucose and lipid monitoring rate increase by more than 40% 	<ul style="list-style-type: none"> • No barrier was indicated in this article 	6	SGA
Morrato, Druss et al., (2010)	<ul style="list-style-type: none"> • Country: United States of America • Setting: Community • Size: 312,978 • Age: 6 to 88 • Intervention: 109,451 people • Control: 203,527 people 	<ul style="list-style-type: none"> • Type: RCCS • Data collection: Laboratory results • Duration: Jan 2002 to Dec 2005 • Follow-up: Baseline, 24-month, 48-month 	<ul style="list-style-type: none"> • National metabolic care awareness campaign 	<ul style="list-style-type: none"> • Glucose level • Lipid profile 	<ul style="list-style-type: none"> • Glucose and lipid monitoring rate increase by two to three times 	<ul style="list-style-type: none"> • Inadequate documentation • Poor communication • Work culture 	6	SGA
Morrato, Nicol et al., (2010)	<ul style="list-style-type: none"> • Country: United States of America • Setting: Community • Size: 20,370 • Age: 6 to 17 • Intervention: 5,370 from three states • Control: 15,000 from same locations 	<ul style="list-style-type: none"> • Type: RCCS • Data collection: Clinical records and laboratory results • Duration: Jul 2004 to Jun 2006 • Follow-up: 12-month 	<ul style="list-style-type: none"> • Metabolic screening guideline 	<ul style="list-style-type: none"> • Glucose level • Lipid profile 	<ul style="list-style-type: none"> • Monitoring rate for glucose level was 2 to 3 times higher than lipid profile • Metabolic monitoring was more common in older children 	<ul style="list-style-type: none"> • Workplace culture 	7	SGA
O'Callaghan et al., (2011)	<ul style="list-style-type: none"> • Country: Ireland • Setting: Community • Size: 64 • Age: 21 to 76 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Clinical records • Duration: Mar 2009 to Jul 2009 	<ul style="list-style-type: none"> • Metabolic assessment training • Metabolic screening checklist 	<ul style="list-style-type: none"> • Blood pressure • Glucose level • Lipid profile • Waist circumference • Weight and height 	<ul style="list-style-type: none"> • Level of documentation for metabolic monitoring improved 	<ul style="list-style-type: none"> • No specific barrier was highlighted in the article 	5	AP

	<ul style="list-style-type: none"> • Intervention: Mental health consumers residing in metropolitan area attending outpatient clinic • Control: No 	<ul style="list-style-type: none"> • Follow-up: 3-month 			significantly (more than 40% on average)			
Parrinello, (2012)	<ul style="list-style-type: none"> • Country: United States of America • Setting: Day treatment unit • Size: 16 • Age: 21 to 60 • Intervention: Consumers of a suburban mental health day-care facility • Control: No 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Clinical records • Duration: Oct 2010 to Mar 2012 • Follow-up: Pre-intervention, baseline, 6-month, 9-month, 12-month, post-intervention 	<ul style="list-style-type: none"> • Clinical practice changes • Health assessment training 	<ul style="list-style-type: none"> • Waist circumference 	<ul style="list-style-type: none"> • Monitoring of waist circumference improve to 95% compliance post-intervention 	<ul style="list-style-type: none"> • Absence of clinical leadership • Non-supportive culture at workplace 	5	AP
Peh, (2008)	<ul style="list-style-type: none"> • Country: Singapore • Setting: Community • Size: 181 • Age: 18 years and above • Intervention: Consumers of outpatient clinic • Control: No 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Clinical records • Duration: Nov 2005 to Feb 2006 • Follow-up: 12 weekly measurements 	<ul style="list-style-type: none"> • Clinical practice changes • Metabolic assessment training • Provide equipment for metabolic assessment 	<ul style="list-style-type: none"> • Blood pressure • Body Mass Index • Glucose level • Lipid profile • Waist circumference 	<ul style="list-style-type: none"> • Nearly 100% compliance for metabolic monitoring rate 	<ul style="list-style-type: none"> • Poor communication • Culture at workplace 	2	SGA
Ramanuj, (2013)	<ul style="list-style-type: none"> • Country: United Kingdom • Setting: Inpatient • Size: 36 • Age: Mean 55.6 years (SD 20.35) • Intervention: Psychiatric hospital patients • Control: No 	<ul style="list-style-type: none"> • Type: RCSS • Data collection: Clinical records and laboratory results • Duration: Nov 2008 to Jan 2010 • Follow-up: Baseline, 12-month 	<ul style="list-style-type: none"> • Alert prompts to monitor metabolic screen due date • Health assessment training 	<ul style="list-style-type: none"> • Electro-cardiogram • Full blood picture • Lipid profile 	<ul style="list-style-type: none"> • Increase awareness on risk of metabolic dysfunction led to an improvement in the rate for metabolic monitoring 	<ul style="list-style-type: none"> • Deficit in awareness for metabolic monitoring • Lapse in organizational policy and protocol 	6	AP
Ronsley et al., (2012)	<ul style="list-style-type: none"> • Country: Canada • Setting: Community • Size: 1,114 • Age: 5.17 to 18.34, mean 14.5, SD 3.71 • Intervention: Service users from seven child and adolescent psychiatry services • Control: No 	<ul style="list-style-type: none"> • Type: RCSS • Data collection: Clinical records • Duration: Sep 2007 to Dec 2008 • Follow-up: Baseline, 3-month, 6-month, 12-month 	<ul style="list-style-type: none"> • Health assessment training • Handbook on metabolic monitoring 	<ul style="list-style-type: none"> • Blood pressure • Glucose level • Lipid profile • Waist circumference • Weight and height 	<ul style="list-style-type: none"> • Metabolic monitoring rate increased by up to 40% post-intervention 	<ul style="list-style-type: none"> • Inadequate documentation • Needle phobia • Non-compliant with policy 	6	SGA

Thompson et al., (2011)	<ul style="list-style-type: none"> • Country: Australia • Setting: Community • Size: 86 • Age: 15 to 25 • Intervention: Consumers of an early psychosis prevention and intervention centre • Control: No 	<ul style="list-style-type: none"> • Type: QES • Data collection: Clinical records • Duration: Jan 2006 to Dec 2009 • Follow-up: Baseline, 1-month, 3-month, 6-month, 12-month, 18-month 	<ul style="list-style-type: none"> • Health assessment training • Policy on metabolic monitoring • Provide equipment for metabolic assessment 	<ul style="list-style-type: none"> • Blood pressure • Body Mass Index • Glucose level • Lipid profile • Waist-hip ratio 	<ul style="list-style-type: none"> • Level of metabolic monitoring improved by 37.8% 	<ul style="list-style-type: none"> • Poor communication • Negative attitudes • Workplace culture 	6	SGA
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Abbreviations: QES=quasi-experimental study, RCSS=retrospective cross-sectional study, RCS=retrospective cohort study, RCCS=retrospective case-control study, NOS=Newcastle-Ottawa Scale, TAP=type of antipsychotics, SGA=second-generation antipsychotic, AP=first- and second-generation antipsychotic

Intervention element

Eleven types of interventions were identified from these studies and of these five interventions were repeated across several studies. Ten articles had a multifaceted approach where two or more interventions were implemented concurrently (Barnes et al., 2008; Edelsohn et al., 2015; Hendriks & Mahendran, 2011; Latoo et al., 2015; O'Callaghan et al., 2011; Parrinello, 2012; Peh, 2008; Ramanuj, 2013; Ronsley et al., 2012; Thompson et al., 2011). The remaining articles adopted a single-intervention approach.

Single-intervention approach

The article published by Crabb et al. (2009) was the only single-intervention study conducted within an early psychosis service, and it indicated an alarming inconsistency in clinical practices for metabolic monitoring in young adults. Nonetheless, the metabolic monitoring rate increased to 70% after the implementation of a physical examination checklist. Crabb et al. (2009) suggested that metabolic monitoring efficacy may improve if a designated mental health liaison nurse is responsible for the physical health care of young people taking antipsychotics. The level of metabolic monitoring for adolescents was at least one-quarter lower than for adults taking antipsychotics even after the implementation of metabolic monitoring guidelines (Morrato, Nicol et al., 2010). Morrato, Druss et al. (2010) added that differences in metabolic monitoring rate after implementing their intervention was not significant across the sample population.

Moeller et al. (2011) and DelMonte et al. (2012) highlighted that their single-intervention approach yielded clinically significant changes in the rate for metabolic monitoring. Both articles indicated post-intervention monitoring rate for glucose and lipid rose by more than 40%. Moeller et al. (2011) observed, over a four year period, that an increased recognition of side-effects in second-generation antipsychotics was associated with a rise in metabolic monitoring rate among a sample population of more than 3500 community mental health consumers (aged 18-64 years). Implementing electronic metabolic monitoring system within an inpatient psychiatric unit also demonstrated positive outcomes over 12 months as clinicians became more proactive in monitoring their consumers for antipsychotics side-effects and potential metabolic syndrome (DelMonte et al., 2012).

Multifaceted approach

In the multifaceted approach, most of the included articles reported positive metabolic monitoring rate outcomes despite none having a cluster of interventions that could be compared. Thompson et al. (2011) and Latoo et al. (2015) reported that multifaceted approach had produced more than 50% increase for metabolic monitoring rate in young mental health consumers within early psychosis services. Latoo et al. (2015) achieved 95% monitoring compliance for their six metabolic parameters combination. Peh (2008) scored an almost 100% compliance for metabolic monitoring rate within an inpatient psychiatric unit at the end of the three-month experiment. It was recommended that mental health nurses can collect blood specimens to perform a variety of medical tests and conduct physical measurements on behalf of psychiatrists (Peh, 2008). Thompson et al. (2011) also considered the appointment of a dedicated mental health nurse to coordinate and administer metabolic monitoring programs.

Barnes et al. (2008), Hendriks and Mahendran (2011), O'Callaghan et al. (2011) and Ronsley et al. (2012) observed a moderate rise in the level of metabolic monitoring among their sample population after the introduction of multiple interventions to improve clinical practices. Barnes et al. (2008) reported that 39.5% of the participants were aged 35 or below while all the participants in Ronsley et al. (2012) study were under 35 years old. O'Callaghan et al. (2011) concluded that opportunities for routine metabolic monitoring arise when young people treated with antipsychotics present to psychiatry clinic for outpatient appointments. It is acknowledged

that mental health consumers who have a known diagnosis of dyslipidaemia were more compliant to monitor for metabolic syndrome (Barnes et al., 2008). Younger mental health consumers were less likely to be compliant than adults after the third year from their baseline metabolic screening (Edelsohn et al. 2015). Thus routine metabolic monitoring during all stages of a person's mental health treatment makes it essential for medical and nursing staff to be adequately prepared to conduct metabolic screening and to assess for metabolic syndrome (O'Callaghan et al., 2011). The importance of training was highlighted by Ronsley et al. (2012) who reported that anthropometric measurement and blood work parameter increased by almost 20% at 12-month time point post-training.

Parrinello (2012) and Ramanuj (2013) revealed significant improvement for metabolic monitoring rate but their results were underpowered due to small sample size. They mentioned that one of the interventions to influence the uptake of metabolic monitoring is to firstly educate mental health nurses about the importance of monitoring for metabolic syndrome in young people treated with antipsychotics, then train the nurses to conduct comprehensive physical health assessment (Parrinello, 2012; Ramanuj, 2013). While Parrinello (2012) concentrated on measuring waist circumference, Ramanuj (2013) measured a variety of metabolic parameters such as electrocardiogram and blood profile. The most common metabolic parameters reported as either ATP III or WHO criteria for intervention outcomes were glucose and lipid levels. These anomalies highlight the necessity to implement standardized metabolic monitoring guidelines and maintain consistent metabolic monitoring regimes.

Metabolic monitoring barriers

As much as interventions can increase metabolic monitoring rate, barriers can cause them to remain suboptimal. Edelsohn et al. (2015), Morrato, Nicol et al. (2010), Parrinello (2012) and Thompson et al. (2011) highlighted that a barrier such as prevailing work culture, particularly that of senior clinicians, was associated with metabolic monitoring being perceived as a low priority area within mental health care. Poor communication amongst clinicians within mental health services (Peh, 2008) and with general practitioners (GPs) also influenced the effectiveness of interventions for monitoring metabolic comorbidity (Thompson et al., 2011). Ronsley et al. (2012) reported other clinician-specific barriers: i) failure to perform all metabolic measurements recommended in metabolic monitoring guidelines; and ii) lack of documentation on metabolic measurements. Latoo et al. (2015) and Morrato, Druss et al. (2010) expressed further concerns about work culture, incomplete documentation and poor communication between clinicians and GPs leading to substandard monitoring for metabolic syndrome. It has also been identified that psychiatric clinics were inadequately equipped with basic instruments for metabolic monitoring (Latoo et al., 2015).

Consumer-related barriers were also identified. The initial six-month lipid monitoring rate for young people treated with second-generation antipsychotics rose by 37% after mental health professionals received training on metabolic monitoring but the result failed to reach statistical significance at the end of 12 months. Ronsley et al. (2012) indicated that needle phobia experienced by young people was a challenge for continuing and completing blood tests for lipid measurement. Additionally, guardians of young mental health consumers were reluctant to expose them to invasive procedures (Edelsohn et al., 2015). Sometimes acutely unwell mental health consumers may not be motivated to engage in metabolic screening on initial assessment; subsequently this group of people may be overlooked (Crabb et al., 2009). Latoo et al. (2015) and Thompson et al. (2011) observed negative attitudes towards metabolic or physical health care were common in young people taking antipsychotics.

Health service-associated factors can affect the effective management of metabolic syndrome monitoring for people receiving antipsychotics. A lack of clarity on the designated responsibility for managing physical health-related problems and lack of integrated services

within the mental health system can affect metabolic monitoring rate (Edelsohn et al., 2015; Morrato, Druss et al., 2010; Parrinello, 2012). Ramanuj (2013) emphasized that the currency of information and policy pertaining to antipsychotics and metabolic monitoring was slow to filter through to mental health clinicians within an organization, resulting in systemic failure. Parrinello (2012) voiced concern about the lack of clinical leadership to implement pre-planned interventions as a significant challenge for improving level of metabolic monitoring.

DISCUSSION

The literature review identified the types of intervention that improved metabolic monitoring rate for young people taking antipsychotic medications and explored barriers affecting the outcomes for these interventions. The intervention approaches and outcomes of metabolic parameters were heterogeneous making it difficult for statistical synthesis in this review. Previous research also reported that rates of monitoring mental health consumers who use antipsychotics for metabolic syndrome was generally low (McGorry, Purcell, Goldstone, & Amminger, 2011; Mitchell, Delaffon, Vancampfort, Correll, & De Hert, 2012; Stanley, Laugharne, Addis, & Sherwood, 2013). Although internationally recognized metabolic monitoring guidelines like the “Healthy Active Lives Consensus Statement”, the “Lester Cardio-metabolic Tool” and the “American Diabetes Association / American Psychiatric Association Metabolic Monitoring Consensus document” are available to clinicians, Mitchell et al. (2012) highlighted that metabolic monitoring rate remained suboptimal in the presence of existing guidelines.

This review found promising evidence even in the absence of statistically significant results that there was an overall positive trend of improved metabolic monitoring rate for people taking antipsychotics after metabolic care interventions were implemented (Barnes et al., 2008; DelMonte et al., 2012; Edelsohn et al., 2015; Hendriks & Mahendran, 2011; Latoo et al., 2015; Moeller et al., 2011; Parrinello, 2012; Peh, 2008; Ramanuj, 2013; Ronsley et al., 2012; Thompson et al., 2011). This is clinically vital as any form of metabolic monitoring is the start of a process to reduce metabolic risk factors. The benefits of monitoring metabolic syndrome in individuals prescribed antipsychotic medications are important (Stanley et al., 2013). It enables prevention or early detection and management of premorbid cardiovascular and other risk factors (Meyer & Stahl, 2009; Stanley et al., 2013).

Metabolic monitoring practices were associated with a number of recognized barriers in this review. Role confusion regarding responsibility for monitoring metabolic wellbeing is exacerbated by issues such as inadequate documentation of metabolic measurements and inconsistency in collation of health data (Latoo et al., 2015; Ronsley et al., 2012; Thompson et al., 2011; Wynaden et al., 2016). Given the evidence that both single and multifaceted interventions can improve metabolic monitoring rate for people receiving antipsychotics, it is questionable that a ‘one size fits all’ solution is practical. The responsibility for metabolic monitoring remains a widely debated topic despite the availability of internationally recommended metabolic monitoring guidelines (Latoo et al., 2015; Thompson et al., 2011).

Mental health nurses need to take responsibility and spearhead the drive for enhanced metabolic monitoring and preventative health management of vulnerable consumers taking antipsychotics (Happell et al., 2013). This is particularly important in young people who are antipsychotic naïve. Nurses have to be versatile with their nursing practices to meet the multiple needs of young people with first psychotic episode (Hardy, Deane, & Gray, 2012). In addition, the continuation of metabolic health care ensuring mental health consumers maintain stable physical wellbeing have a positive impact on their psychological health. Well-balanced physical and mental health significantly reduces disability for people taking antipsychotics due to experiencing first psychotic episode and increases their opportunity to achieve social, educational and career milestones (McGorry et al., 2011). It also reduces their exposure to

stigmatizing experiences due to the potential effects of obesity caused by antipsychotic use (Correll et al., 2011).

McCloughen, Foster, Kerley, Delgado, and Turnell (2016) indicated that mental health consumers have positive mindsets towards their physical health care, but Latoo et al. (2015) and Thompson et al. (2011) suggested that young people taking antipsychotics were not interested and are unmotivated to prioritise physical health care until metabolic syndrome begins to surface. In order to act as front-runners in the provision of metabolic care, mental health nurses have to possess positive attitudes to embrace the greater diversity and needs of their younger mental health consumers while administering and evaluating metabolic care treatment (Happell et al., 2013; Wynaden et al., 2016). Mental health nurses have an important role to promote recovery for the consumer's psychological wellbeing. They need to invest time to ensure that young consumers in their care are well educated about the importance of maintaining good physical health to their mental health recovery (Hardy et al., 2012). Nurse-led physical health initiatives and interventions may be adapted to the individual's previous experiences and attitude towards maintaining physical health care as it is crucial to protect and enhance the person's self-esteem which has often been severely impacted by a first onset of psychosis (Crabb et al., 2009). Nurses have to assist consumers and family members deal with the stigma associated with having a mental illness and provide assistance to improve the individual's quality of life (Hardy et al., 2012).

It is important to continuously consult and partner with mental health consumers, particularly the younger ones, to optimize their metabolic health care and improved mental health outcomes (Hardy et al., 2012). Nurses can work collaboratively with the young person taking antipsychotics on metabolic care and lifestyle interventions to reduce the risk of comorbid health conditions (Barnes et al., 2008; DelMonte et al., 2012; Hardy et al., 2012; Ramanuj, 2013; Ronsley et al., 2012). Metabolic monitoring alone does not necessarily guarantee improved health outcomes (Parrinello, 2012), but it is the beginning of a pathway to reduce the prodromal health risk for metabolic syndrome (Galling et al., 2016).

Limitations of the review

A limitation of this review is the lack of articles reporting the findings of randomized controlled trials, which is the gold standard in empirical study. Due to the non-randomized nature it was difficult to ascertain whether the improved metabolic monitoring rates reported in the articles reviewed were simply an effect of time or an increase in profile of metabolic problems in the targeted population. The small sample sizes in some studies may also bias the overall results. The heterogeneous nature of intervention design, metabolic parameter outcomes and lack of intention-to-treat analysis are also reflected in the analysis and should be addressed in future studies.

CONCLUSION

There are approximately eight million deaths annually attributed to mental disorders, and people with mental disorders have higher rates of chronic physical health conditions (Walker et al., 2015). It is essential for young people taking antipsychotics to receive high quality physical as well as mental health care through well-coordinated multifaceted and systemic approaches (Galling et al., 2016; Mitchell et al., 2013). This paper investigated the types of intervention which promote metabolic monitoring rate and identified that barriers like work culture and 'low metabolic care priority' perspective have a negative impact on metabolic monitoring outcomes. It was found that the continuous success of inculcating metabolic monitoring within mental health services requires widespread cultural and attitudinal shift of both mental health professionals and their consumers (Happell et al., 2013; Wynaden et al., 2016).

Metabolic care within mental health can be enriched by better service integration to facilitate improved health outcomes (Thompson et al., 2011). Mental health service providers could collaborate closely among themselves and with GPs (Latoo et al., 2015). Mental health nurses should take the lead to change organizational attitudes in order to optimize metabolic monitoring rate and bridge the gaps between the different groups of healthcare providers and service users (Happell et al., 2013; McCloughen et al., 2016; Wynaden et al., 2016). Monitoring mental health consumers for prodromal metabolic health risks is an imperative first step to identifying metabolic syndrome so that physical health care within the area of mental health can be improved.

RELEVANCE FOR FUTURE NURSING RESEARCH AND PRACTICES

There are potential gaps in the current literature which suggest the need for better integration of clinician-led intervention as well as for the development of consumer-driven programs to improve metabolic monitoring for young people taking antipsychotics (Edelsohn et al., 2015; Latoo et al., 2015). Future research could explore opportunities for mental health nurses to lead practice change to improve metabolic monitoring of at risk individuals. Young mental health consumers should also be empowered to create their own individualized metabolic care plan suited to their health care needs as well as engaging in lifestyle programs to reduce the impact on metabolic adverse effects of antipsychotics (Barnes et al., 2008; Curtis et al., 2012). These will be significant steps to integrate metabolic monitoring into consumer-centric nursing care for young people receiving antipsychotic medications.

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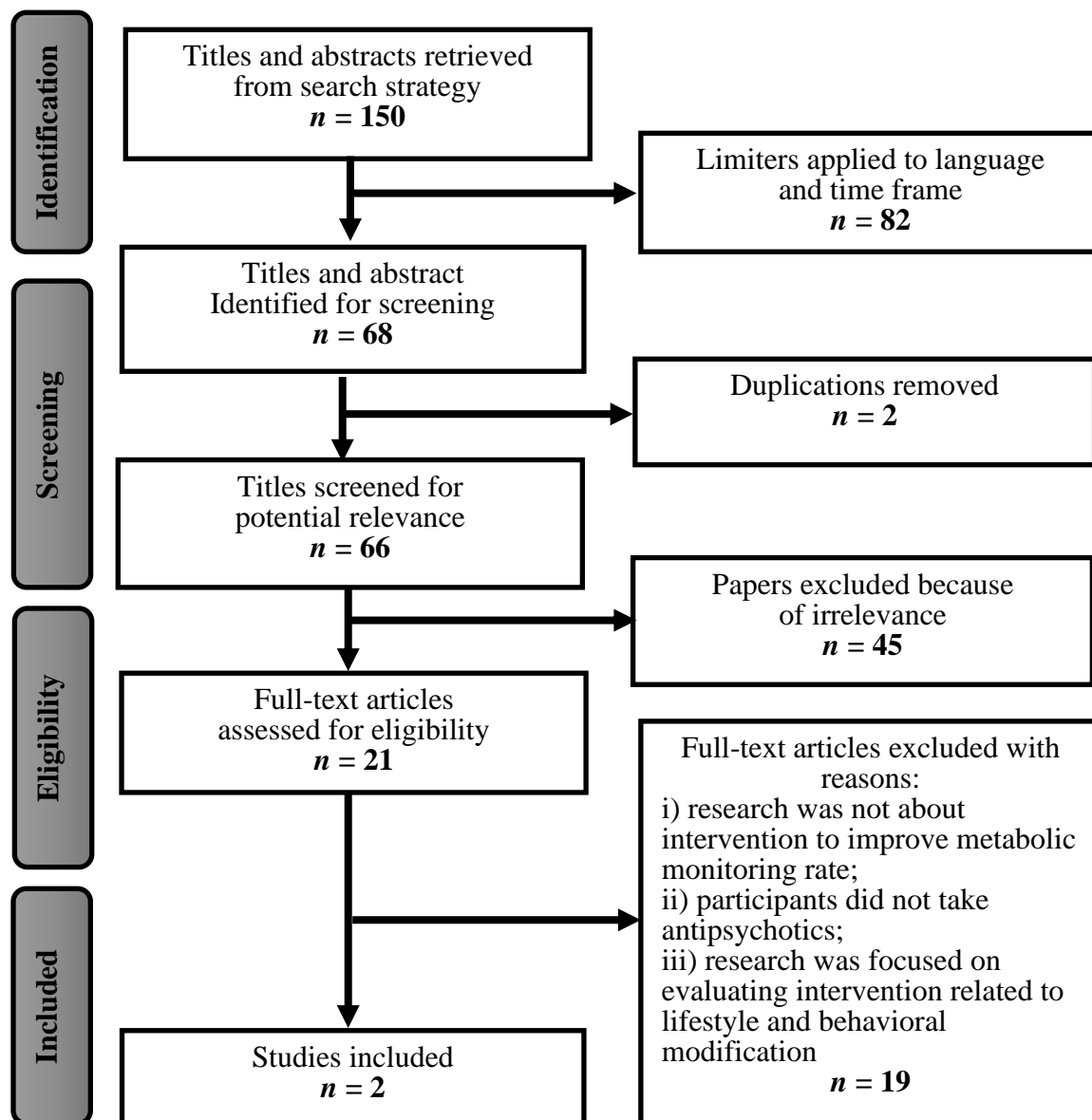
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2.5 Review of literature in the area since Publication 1 was released by journal

A further review of the literature was conducted to obtain additional articles since Publication 1 was released. A repeat of the search strategy conducted in the initial review was completed with the application of a limiter for language (English papers only). The repeat search was for papers published between 2016 and 2021. This search produced 68 records – five papers were found in MEDLINE, seven identified from PsycINFO, eleven from CINAHL, nine from EMBASE, and 36 in the Cochrane Library. After screening the titles and abstracts of the papers, full texts were retrieved for 21 papers related to the physical and/or metabolic health of young people experiencing FEP. The PRISMA search process for the updates on the literature review is outlined in Figure 2.2.

Figure 2.2. Flow diagram of updated literature search (Moher et al., 2009)



Two papers from this review were identified as being associated with interventions to improve the rates of metabolic monitoring in people with psychosis under the age of 36 years old taking antipsychotic medication. The first paper authored by Greenwood and Shiers (2016) described a single-intervention approach whereas the second by Hackett and Fitzgerald (2020) used a combination of two or more interventions to improve metabolic monitoring rates. A summary of the two studies is detailed in Table 2.1 below.

Table 2.1. Study summary of the updated search

Author (year)	Sample	Design	Intervention	Types of Metabolic Parameters Reported	Key Findings	Barriers to Interventions	NOS Score	TAP
Greenwood & Shiers, 2016	<ul style="list-style-type: none"> • Country: England • Setting: Inpatient and community • Size: 500 • Age: 14 to 61 • Intervention: Consumers from early intervention in psychosis service • Control: No 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Clinical records • Duration: Nov 2012 to May 2013 • Follow-up: Baseline and at 6-month after commencing antipsychotics 	<ul style="list-style-type: none"> • Health education to increase literacy 	<ul style="list-style-type: none"> • Body Mass Index • Weight and height • Blood pressure • Glucose level • Lipid profile • Smoking and family history 	<ul style="list-style-type: none"> • It is more effective for psychiatrists than GPs to conduct metabolic screening for consumers to engage in early psychosis services 	<ul style="list-style-type: none"> • Attitudes of staff and participants • Lack of motivation • Poor communication 	4	AP
Hackett & Fitzgerald, 2020	<ul style="list-style-type: none"> • Country: Ireland • Setting: Community • Size: 173 • Age: 16 or over • Intervention: Consumers of a community mental health team • Control: No 	<ul style="list-style-type: none"> • Type: RCS • Data collection: Clinical records • Duration: Jul 2016 to Nov 2018 • Follow-up: Baseline, and at every 5-month for five cycles 	<ul style="list-style-type: none"> • Engage with the general practitioner • Health promotion • Support by the mental health nurse • Staff education • Metabolic monitoring by mental health outpatient clinic • Metabolic monitoring at satellite outpatient clinic 	<ul style="list-style-type: none"> • Blood pressure • Glucose level • Lipid profile • Obesity • Body Mass Index • Electro-cardiogram • Full blood picture 	<ul style="list-style-type: none"> • Rates for metabolic monitoring increase constantly throughout the cycles • On average 66% of the participants were at risk of developing metabolic syndrome 	<ul style="list-style-type: none"> • Lack of resources • Poor communication • Lack of clarity on clinical responsibilities • Staff were not trained adequately 	5	SGA
<p>Abbreviations: RCS=retrospective cohort study, NOS=Newcastle-Ottawa Scale, TAP=type of antipsychotics, SGA=second-generation antipsychotic, AP=first- and second-generation antipsychotic</p>								

The single-intervention approach (Greenwood & Shiers, 2016) was conducted by EIP teams in England across multiple sites. The physical health of young people with psychosis was tracked and recorded using an electronic system in this research. It highlighted the importance of engaging young people and their family caregivers in the initial metabolic/physical health planning process to empower them in making shared agreements to be involved in their physical health care. Electronic health records also served as a means of communication among health professionals working in primary and tertiary settings where they can readily access the individual's health information and monitor for abnormal metabolic parameters. The electronic records allowed prompt diagnosis and early interventions in the initial stages when physical health problems developed and were shown to have a positive impact on a person's prognosis. At the end of this research, the rate of metabolic monitoring at the study sites had increased from 10% to between 63% and 80% (Greenwood & Shiers, 2016).

Hackett and Fitzgerald's (2020) research comprised more than one intervention. It was conducted at a community mental health service in Ireland. The duration of this study was over 30 months. The interventions implemented include: 1) increasing awareness of the importance of metabolic monitoring; 2) actively promoting metabolic monitoring to people taking antipsychotic medication; and 3) the mental health service taking responsibility for metabolic monitoring of people on antipsychotic treatment. This collaborative approach and change in metabolic monitoring practice led to an increased in metabolic monitoring rates. Most of the monitored metabolic parameters such as body mass index, blood pressure and blood work achieved a rate of more than 90% compliance. However, the rate for monitoring electrocardiograms remained the same from the beginning until the end of the 30-month study period (Hackett & Fitzgerald, 2020).

Generally, since this research was conducted the rates of metabolic monitoring remain suboptimal. This argument is supported by the findings in a recently published literature review on interventions to improve metabolic monitoring across early and chronic psychosis (Kelly et al., 2022).

2.6 Summary of Chapter 2

The review of current literature comprised a comprehensive knowledge synthesis of interventions targeted at improving metabolic monitoring rates for people aged 35 or younger taking antipsychotic medication to treat their FEP. The review identified single and multifaceted interventions used by health professionals to increase the rates of metabolic monitoring. Additional information in the updated review indicated that family caregivers are key stakeholders and should be engaged and involved in intervention strategies to boost the level of metabolic monitoring (Greenwood & Shiers, 2016).

Evidence from Publication 1 and the literature review update indicated that interventions used to improve metabolic monitoring were successful, as evidenced by the increase in monitoring rates. However, it was estimated that metabolic monitoring for up to one-fifth of people taking antipsychotic medications still does not take place (Greenwood & Shiers, 2016; Michael & MacDonald, 2020). Kelly et al. (2022) reported that metabolic monitoring among young people with FEP on antipsychotic treatment is suboptimal. For young people with FEP, commencing on antipsychotic medications can be a significant risk factor for poorer physical health outcomes. The findings of the literature review supported the use of a mixed methods research design to explore the physical health of young people receiving care for FEP and taking antipsychotic medication.

Chapter 3 of the thesis presents the methodology guiding the research. The chapter justifies the use of a mixed methods approach to explore the physical health of young people

with FEP. The processes of planning and implementing the convergent parallel mixed methods research design, ethical consideration and data storage and management are presented.

CHAPTER 3

METHODOLOGY

3.1 Introduction

Chapter 3 presents an overview of the design and methods used to explore the physical health of young people experiencing FEP. It includes the background of the research method chosen for this study, ethical considerations that include researching the vulnerable population, harm minimisation and informed consent, recruitment of participants, data collection, data analysis, and data storage and destruction.

A convergent parallel mixed methods research design was utilised across the four studies presented in this thesis. The specific methods for Study 1 (interviews with young people with FEP); Study 2 (interviews with parents); Study 3 (survey with nurses); and Study 4 (comparison of physical health status between young people experiencing FEP and people diagnosed with mental disorders related to psychosis) are described in Chapter 4, 5, 6 and 7 respectively. The integrated findings are discussed in Chapter 8.

3.2 Background of mixed methods research and design

Research methodology is the process that a researcher engages in to examine, interpret, and answer a research question. In the past, either quantitative or qualitative research methods were used to resolve challenging issues and contribute to evidence-based practices in health care (Wykes et al., 2021). Quantitative research is a well-recognised deductive approach where objective measurements are collected using instruments such as polls, questionnaires, surveys and audit checklists, and the data are analysed through numerical comparisons and statistical inferences to determine the relationship between different variables (Almalki, 2016; McCusker & Gunaydin, 2014). Qualitative research uses an

inductive approach that relies on descriptive narratives such as opinions, lived experiences and reasons to explore and understand the phenomena or events individuals or groups have experienced (Almalki, 2016; McCusker & Gunaydin, 2014).

Mixed methods research designs, that combine quantitative and qualitative methods, emerged in response to the rising demands and increasing complexity in research (McKim, 2015; Sadan, 2014). This research method collects, analyses, and integrates both quantitative and qualitative data during the research process to draw inferences from different types of data corroboratively (Maxwell, 2016; Schoonenboom & Johnson, 2017). In this way, research rigour is enhanced, and the findings are strengthened while intrinsic bias is minimised (Hayes, Bonner, & Douglas, 2013).

The use of mixed methods research can be traced back to the 1800s (Maxwell, 2016). In 1959, Campbell and Fiske suggested the use of a matrix involving the combination of multi-quantitative and multi-qualitative data to increase the validity of the scientific investigation in a single research project. Many scholars argued that this multi-phase design was mixed methods research (McKim, 2015; Shannon-Baker, 2015; Tariq & Woodman, 2013). Despite early evidence of the use of mixed methods in research, it was only in the late 1980s that this technique received formal recognition as a research method. Mixed methods research is now widely used in a variety of disciplines such as research in humanities, social and health sciences (Fiorini, Griffiths, & Houdmont, 2016; Timans, Wouters, & Heilbron, 2019). It has gained popularity among nurse researchers (Halcomb & Hickman, 2015) and is highly regarded as the third research paradigm for generating new theoretical concepts and conducting hypothesis testing (McCusker & Gunaydin, 2014; Tariq & Woodman, 2013).

There are four designs in the mixed methods research. They are the convergent parallel (also known as triangulation) design, the embedded design, the exploratory design, and the

explanatory design (Creswell, 2014). The following section highlights the characteristics and use of each mixed methods design.

In the *convergent parallel design*, both quantitative and qualitative data are collected independently at around the same time. Mixing of the quantitative and qualitative data occurs during the interpretation phase where individual findings of the different methodologies are combined to explain a single phenomenon (Creswell, 2014). This pragmatic design is most appropriate to be used when a researcher wants to obtain complementary data on the same subject matter. It enables the researchers to overcome the weaknesses of one traditional research methodology by complementing it with another traditional research methodology allowing an extensive understanding of the research problem (Tariq & Woodman, 2013).

In the *embedded design*, either the quantitative or the qualitative research methodology will be assigned as the primary method while the other will provide a supportive role. Data can be collected concurrently or sequentially (Creswell, 2014). The primary research method is given priority to answer the research question. This design is most suitable for use when the researcher needs to use different methodologies to answer different questions within a single study (Tariq & Woodman, 2013).

In the *exploratory design*, qualitative and quantitative data are collected sequentially in two phases. Qualitative data are collected and analysed in the first phase and are given priority to answer the research question (Creswell, 2014). The findings of the qualitative phase will shape the second phase for the construction of quantitative data collection. This design is often used when quantitative methods are required to test or generalise the qualitative findings (Tariq & Woodman, 2013).

In the *explanatory design*, the data are also collected in two sequential phases. In this case, quantitative data have the priority to answer the research question and will be collected and analysed first (Creswell, 2014). This is followed by the collection and analysis of the

qualitative data in the second phase. This design is used for situations where qualitative methods are needed to explain the quantitative findings (Tariq & Woodman, 2013).

As with any research methodology, the mixed methods research design is not without drawbacks. The implementation of mixed methods research is challenging. It is more complex to plan and conduct than completing a single-method study because of the need to integrate quantitative and qualitative data (Almalki, 2016). The process of data collection, analysis and integration in mixed methods research must be examined thoroughly and planned carefully. The researcher must have a clear idea and understanding of how the different types of data can provide validation for each other and how to formulate results drawing conclusions to answer the research question (Sadan, 2014; Schoonenboom & Johnson, 2017).

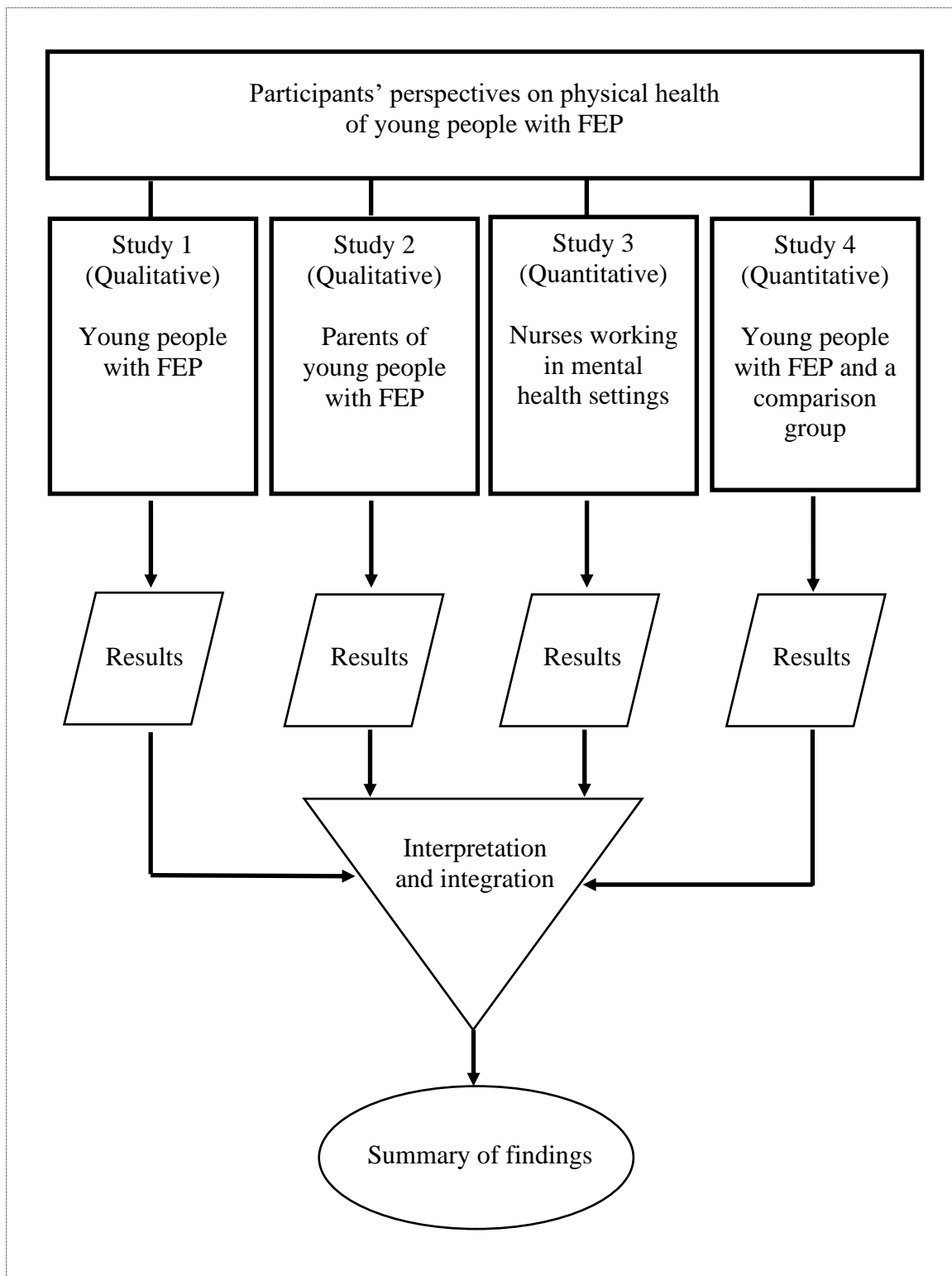
3.3 The application of mixed methods research design in this research

The literature review in Chapter 2 identified the need to improve the physical health of young people with FEP. The findings of the review suggested building on the consensus among stakeholders including young people with FEP, their caregivers, and nurses about the current situation to guide the development of physical health strategies and plans that can be implemented practically and effectively in mental health settings. It was decided that the convergent parallel mixed methods design was the most appropriate mixed methods design to meet the aim and objectives of this research. The key advantage of this design is that it enables the strengths and minimises the weaknesses of both quantitative and qualitative methodologies within a single research, permitting a more comprehensive interpretation of the physical health issues faced by young people with FEP from their first contact with mental health services, thereby adding rich layers of understanding to this area of importance.

The convergent parallel mixed methods design used in this research consisted of four independent studies (two qualitative – Studies 1 and 2 and two quantitative – Studies 3 and 4). Both qualitative and quantitative research methods carried equal weight, with neither having priority over the other. Quantitative and qualitative data were collected from different groups of stakeholders at around the same time and analysed independently to simultaneously investigate the participants’ perspectives on issues related to the physical health of young people experiencing FEP. Findings were synthesised corroboratively in the interpretation/reporting phase to produce a more comprehensive understanding of this subject area.

The four groups identified as potential participants were young people with FEP, their parents, nurses who work in mental health settings, and a comparison group in the observation study where individuals experiencing psychoses were drawn from an adult mental health service. The Australian National Health and Medical Research Council (2018) outlines the importance of individuals with a lived experience of mental disorders and their family caregivers playing an active role in health and medical research to allow their voices to be heard, with every person able to contribute equally. Nurses were targeted as participants because they are one of the largest groups of mental health professionals making them the driving force in health care transformation (Australian Institute of Health and Welfare, 2019; Salmond & Echevarria, 2017). The inclusion of different stakeholder groups in this research is in line with the recovery-oriented mental health model which recommends working in partnership with stakeholders such as consumers to deliver safe and high-quality health care (Australian Commission on Safety and Quality in Health Care, 2018). Figure 3.1 summarises the overall design of the research.

Figure 3.1. Convergent parallel mixed methods research design



3.3.1 Ethical considerations in research

Participants in the research reported in this thesis included young people who had FEP and adults with a diagnosed mental disorder (comparison group, Study 4) who were receiving mental health care. The research conformed to the requirements detailed in the Australian National Statement on Ethical Conduct in Human Research 2007 (updated in 2018) (National Health and Medical Research Council, 2018). The Western Australian (WA) South Metropolitan Health Service Human Research Ethics Committee (HREC) and Curtin University HREC in Perth, WA, provided approval to conduct the research (details of HREC approvals for each study are presented in Table 3.1).

Table 3.1. HREC approval for each study

Study #	Approving HREC	Approval reference #	Appendix
Study 1	WA South Metropolitan Health Service	15/15	B1
Study 2	WA South Metropolitan Health Service	15/15	B1
Study 3	Curtin University	RDHS-81-15	B2
Study 4	WA South Metropolitan Health Service and Curtin University	14/12 and HR61/2014	B3

3.3.2 Conducting research on vulnerable population

People with mental disorders are often disempowered and stigmatised and historically have been susceptible to coercion to take part in research (Jain, Kuppili, Pattanayak, & Sagar, 2017). Hence, the conduct of research with these individuals, including young people experiencing FEP, requires special sensitivity as they are identified as a vulnerable population under the Australian National Statement on Ethical Conduct in Human Research 2007 (National Health and Medical Research Council, 2018). It was the responsibility of the researcher to respect and maintain the rights of the participants throughout the research (Jain et al., 2017).

Potential participants were assessed by their treating team to ensure they were well enough to participate and able to provide informed consent before being approached by their case manager to see if they would like to participate in the research. Those that agreed were then contacted by the researcher.

Parents caring for their son or daughter who had FEP can experience caregiving stress. For this reason, the researcher viewed parents as vulnerable during the research process. An adverse event protocol was developed to protect young people with FEP and their parents, and adults with psychoses from any potential risk or harm, for example, managing any discomfort and emotional distress when recounting difficult experiences that may have been encountered during the research (Whitney & Evered, 2022). However, no participant reported distress or expressed any concern, and no adverse events were recorded.

3.3.3 Participation in this research

All eligible participants who had direct knowledge and experiences of the phenomenon being researched and met the inclusion criteria were invited to participate in this research. To ensure the participants were able to provide informed consent, participant information sheets (Appendices C1 to C4) were provided and explained to potential participants in each study. The participant information sheets contained written information in plain English and appropriate language regarding the nature and purpose of the study, what participation involved, and emphasised the private and confidential nature of participation. Contact details of the lead researcher (PhD candidate) and supervisors and ethical approval information were included in participant information sheets. Potential participants were allowed sufficient time to clarify and ask questions about the research, to consider and make an informed decision to be involved in the study without any pressure from the researcher.

Participants were informed that while their involvement may not have any direct benefit to themselves, the sharing of their experiences would add to the body of knowledge about the physical health of young people experiencing FEP and their contributions may have an influence on the development of future health care strategies. It was clearly made known to them that their participation in the research was entirely voluntary, with no obligation to take part.

Young people with FEP, their parents, and adults with psychoses who formed the comparison group in Study 4 were informed that they could withdraw from the study at any time without any penalty or adverse consequence. Moreover, young people experiencing FEP and adults with psychoses were informed that their non-participation, or if they chose to participate and then decided to withdraw, their decision would not in any way affect the care they were receiving.

Nurses were the only participants who could not withdraw their submissions from the study because the researcher could not identify and delete their entries due to the anonymity of the responses. Participants were informed of this in the information sheet before commencing the survey.

Throughout the research, the privacy of the participants, i.e., young people with FEP and their parents, adults with psychoses and nurses working in mental health settings, was maintained. Face-to-face meetings with participants for the purpose of data collection were conducted at either a mental health facility in a safe and private room where confidentiality was assured or at the participant's residence. The privacy and confidentiality of participants were maintained when acknowledging their cooperation and contributions to the research in any publications and presentations.

3.3.4 Obtaining informed consent for this research

Young people with FEP, their parents and adults with psychoses who participated in this research provided written consent by signing the participant consent forms (Appendices D1 to D3). In addition, young people with FEP and their parents provided permission for interviews to be digitally audio-recorded.

Nurses participated in the study by completing either a paper or an online survey. An electronic participant information sheet containing the same details as the paper format was made available to each participant online. Nurses were not required to provide written consent as returning the completed questionnaire implied consent to participate in the research.

No participants withdraw their consent to participate in this research.

3.4 Methodology used in each study

An application of the GT research method was used in qualitative studies 1 and 2 to guide data collection and analysis. There are several reasons why GT was chosen for the research over other qualitative approaches:

1. Due to a gap in the existing literature on the physical health of young people with FEP, GT emerged as the most preferred approach to guide research exploration in these studies where there was no established theoretical framework. Furthermore, the use of GT in studies 1 and 2 provided a foundation for the exploration of theoretical implications in the areas of interest without necessarily committing to theory development outright in the individual studies in this mixed methods research.
2. GT uses a systematised set of procedures including simultaneous collection and analysis of data, and categories generation by utilising the logic of constant comparison to explore complex phenomena that are not well understood (Glaser, 1965; Kolb, 2012). This process

helped to ensure the explanation of research findings was grounded in the data and not influenced by pre-existing assumptions.

3. The GT method focused on identifying real-world physical health challenges and issues faced by young people with FEP. Instead of starting with a pre-existing theory or hypothesis and then proving or disproving it, data were first collected in the clinical setting and concurrently analysed, and then the data were used to generate categories (Tie, Birks, & Francis, 2019). The GT approach enabled the researcher to be adaptable in collecting and analysing data based on emerging findings. This process facilitated a flexible and open approach to research that allowed the exploration and incorporation of unexpected findings into the results.
4. The use of GT aimed to comprehensively understand the multifaceted and complex nature of the research phenomenon, particularly within social and psychological contexts.

The use of GT was valuable in investigating the social and psychological experiences of young people with FEP, which helped raise awareness, promote behaviour changes, and gain fresh perspectives on the impact of FEP on physical health. The social and psychological lens helped identify and address potential biases or assumptions that may influence research findings. One example of bias or assumption in the physical health of young people with FEP was that they have good physical health (Ali et al., 2020; Department of Health, 2017). This assumption could lead to neglecting and not addressing social and psychological factors such as unhealthy lifestyle habits that contribute to emerging physical health issues in this young cohort. Another example could be assuming that young people with FEP did not have physical health needs, without considering individual differences in factors such as cultural background, social network, education level, and individual's personality traits. By acknowledging and examining these biases and assumptions, the researcher ensured that the results of the studies were grounded in a more accurate and complete understanding of the

phenomenon. In addition, by applying the interpretative social and psychological lens, the researcher obtained a deeper understanding of participants' experiences and the factors that contribute to physical health challenges and issues faced by young people with FEP. This approach identified gaps in existing knowledge and provided new insights that informed future research. Overall, the use of GT and the interpretative social and psychological lens allowed the researcher to better understand the complexity of physical health challenges and issues faced by young people with FEP, leading to more comprehensive and insightful research findings and conclusions.

Studies 1 and 2 used GT methodology to gain a comprehensive understanding of the complex factors affecting the physical health of young people recovering from FEP. Data were collected through semi-structured interviews, transcribed, coded, analysed, and categorised through constant comparison. The social and psychological lens was applied to data to examine the underlying factors influencing participants' experiences, including their values, attitudes, and beliefs related to physical health. For example, by using the social lens, the studies identified that family and peer support played a crucial role in promoting positive lifestyle changes, including exercise and diet, leading to improved physical health outcomes for young people with FEP. Moreover, the relationship between the use of antipsychotic medications – which are essential for reducing psychotic symptoms – and their impact on psychological factors such as self-esteem and motivation were examined.

The use of purposeful and theoretical sampling techniques ensured data saturation and that the data sets were rich in experiences. The results of the GT studies explained how the social and psychological impacts of psychoses were associated with physical health outcomes in young people with FEP. This facilitated the emergence of new and unique insights based on empirical evidence (Glaser & Strauss, 1967).

Quantitative studies 3 and 4 utilised statistical techniques to expand the breadth and depth of knowledge on the physical health issues facing young people with FEP. The chosen approach and steps taken to analyse the data of each study as well as the strategies to enhance the trustworthiness, rigour, validity, and reliability of the findings are described in Sections 3.4.1 to 3.4.4. The findings of each study were corroborated alongside one another so that recommendations can be made to improve the quality of physical health care for young people with FEP from their first contact with mental health services. A summary of the methods and design elements of the four studies is presented in Table 3.2.

Table 3.2. Overview of research method of each study

Items	Study 1	Study 2	Study 3	Study 4
Thesis chapter	4	5	6	7
Publication #	2	3	4	5
Design	Application of GT method	Application of GT method	Cross-section	Observational cohort
Sampling	Purposeful and theoretical	Purposeful and theoretical	Convenience	Purposive
Selection of participants	Young people with FEP	Parents	Nurses	Young people with FEP and adults with psychoses
Number of participants	24	16	216	104
Recruitment	Referred by case managers at a WA mental health service	Directly recruited via participants in Study 1	Readily available participants via ACMHN	Referred by case managers at a WA mental health service
Consent process	Return the signed consent form	Return the signed consent form	Return anonymous survey (provide tacit consent)	Return the signed consent form
Data collection instruments	Semi-structured interview	Semi-structured interview	Survey using a self-report questionnaire	Questionnaire and physical measurements
Method of analysis	The constant comparative method of analysis and GT coding principles	The constant comparative method of analysis and GT coding principles	Descriptive and Mann-Whitney <i>U</i> test	Descriptive and <i>t</i> -test

Full details of the design, analysis, and procedures undertaken in each study are provided in the peer-reviewed publications in Chapters 4 to 7.

3.4.1 Study 1 method

Recruitment: Study 1 comprised face-to-face semi-structured interviews with young people who shared their lived experiences of having FEP. Participants were recruited through the young person's case manager from an EIP program at a mental health service in WA, and they provided consent using a participant consent form (Appendix D1). Once written consent was obtained, the researcher worked with the young person with FEP to identify convenient dates and times for data collection. Young people with FEP also provided permission to audio-record their interviews.

Data collection: Care was taken to conduct the interviews sensitively and respectfully, guided by a pre-prepared semi-structured interview guide (Appendix F1). Personal details of participants who attended the interviews in face-to-face settings were de-identified using an alphanumeric code to ensure data/participant confidentiality. Data collection finished when saturation was reached and no new information was added to enhance or change the findings of the study, and data were rich and complex in descriptions (Saunders et al., 2018).

Data analysis: This study utilised data analysis techniques that are central to the GT method. For example, purposeful and theoretical sampling techniques, coding and grouping data into categories, and the use of the constant comparative method of analysis. Verbatim transcriptions of interviews with young people experiencing FEP were initially carried out alongside complementary field notes using Microsoft Word by the lead researcher. Data were then imported to NVivo 11 (QSR International Pty Ltd., 2015) for coding and analysis using the constant comparative method. The process of data collection and analysis occurred concurrently until data saturation was reached (Saunders et al., 2018). The lead researcher carried out the initial data analysis, and one of the supervisors reviewed the data independently to assure trustworthiness of the data. The final categories were agreed upon by the research team. The trustworthiness of the data for this study was enhanced by ensuring

the data were consistently reported according to the consolidated criteria for reporting qualitative research guideline (Tong, Sainsbury, & Craig, 2007).

3.4.2 Study 2 method

Recruitment: Study 2 comprised face-to-face interviews with parents whose son or daughter had FEP using an application of the GT method and followed the same analytical procedures outlined in Study 1. The parents were recruited to the study through Study 1 participants. Permission was sought from the young people who participated in Study 1 before inviting their parents to be involved in Study 2. Parents who agreed to participate in this study had to return a completed participant consent form (Appendix D2) and permit digital audio recording of the interview, and then arrangements for interviewing the parents were made through the researcher.

Data collection and analysis: The semi-structured interviews were guided by the same interview guide (Appendix F1) developed for Study 1 with the addition of ‘your son or daughter’ in the questions when applicable. Data were analysed using an application of the GT method as outlined in Study 1. This group of participants added a wider perspective on the area of study and broadened the interpretations of the research findings.

3.4.3 Study 3 method

Recruitment: Study 3 involved surveying nurses working in mental health settings throughout Australia about their perspectives on the provision of physical health care to young people with FEP. Convenience sampling was used to invite potential participants to participate in the study from two events organised by the Australia College of Mental Health Nurses (ACMHN); an international conference held in Queensland, Australia and a state-wide forum in Perth, WA. The hyperlink for the survey was posted on the ACMHN’s website

to allow potential participants across Australia to access the survey (Appendix E2) during the data collection period and was deactivated once data collection was completed.

Data collection: Participants either completed a printed or electronic version of the modified Physical Health Attitude Scale for Mental Health Nurses (PHASe) which assessed their skills, knowledge, confidence level and attitudes related to providing physical health care to young people experiencing FEP. Participants were reminded to complete and submit their responses only once in an accompanying participant's information sheet. Returning the completed survey form implied consent to participate in this study. No identification code was allocated to the participants and their returned survey forms, so participant responses remained anonymous.

Instruments used: The PHASe was developed by Robson and Haddad (2012). Permission was granted by Robson to use the original survey form and make minor modifications such as changing the label in the questions. The modified PHASe (Appendix F2) was reviewed by a panel of clinicians and academics for domain coverage, comprehension, and relevance.

Data analysis: Data obtained from the survey of nurses were entered into a Microsoft Excel database. Data were then exported to the IBM Statistical Package for the Social Sciences (SPSS), version 21 for Windows (IBM Corp., 2012), and statistically analysed. Demographic characteristics were assessed using descriptive statistical analysis (frequencies, percentages and Chi-Square tests). Internal consistency of the modified PHASe questionnaire subscales was evaluated using Cronbach's alpha. Non-parametric tests, i.e., Mann-Whitney *U* tests, were used in this study as the data were not normally distributed. A *p*-value < .05 was considered significant for all analyses.

3.4.4 Study 4 method

Recruitment: Study 4 involved measuring changes to physical health parameters of interest over 12 months in two groups of participants. Both groups were drawn from a larger physical health study being undertaken within a mental health service at the time. Young people experiencing FEP who were attending an EIP program were allocated to the observation group, and adults diagnosed with psychosis who were engaged in an adult continuing care program formed the comparison group. As both groups of participants were recruited from the same WA mental health service, they shared comparable characteristics in relation to their clinical symptoms and treatment using antipsychotic medications, which minimised confounding bias and assured internal validity.

Data collection: Participants in the observation and comparison groups completed questions related to mental health and wellbeing and physical measurements taken at the commencement of the study. The same measures were gathered at the 12-month anniversary of baseline data collection to evaluate the changes in participants' physical health. Alphanumeric codes were assigned to all the participants at baseline data collection and the same codes were used for the same participant at follow-up so that data confidentiality was always maintained. Only the principal investigator had a record of participant details assigned to each code.

Instruments used: All the clinical questionnaires were available in the public domain and were used in their original forms because they have been tested for reliability and validity (see Table 3.3). The physical health parameters measured were height, weight, body mass index, waist circumference, chest/hip-waist ratio, systolic and diastolic blood pressure, resting heart rate and carbon monoxide level.

Data analysis: The data from this study were analysed using IBM SPSS, version 25 for Windows (IBM Corp., 2017). All primary data were initially entered into Microsoft Excel and then imported to SPSS. Sociodemographic information was described using descriptive

statistics. For within- and between-groups analyses, Cohen's *d* effect size calculation and *t*-tests were used. Statistical significance was set below .05 level.

Table 3.3. Clinical questionnaires used in Study 4

Measurement tool	Items	Collection	Description	Validity	Appendix
Alcohol, Smoking and Substance Involvement Screening Tool (ASSIST)	8	Self-report	Assess substance use and related problems	Validated against other instruments - MINI PLUS, DAST and AUDIT with correlational scores ($r=0.48 - 0.76$) sensitivity 54-97%), ($n=1,047$) (Humeniuk et al., 2008)	F3
Brief Psychiatric Rating Scale (BPRS)	18	Self-report	Measure the severity of psychiatric symptoms such as anxiety, depression, and psychoses.	Validated against CGI to evaluate psychopathology in people with schizophrenia ($n=1979$) (Leucht et al., 2005)	F4
Health of the Nation Outcomes (HoNOS)	12	Self-report	Measure the level of behaviour, impairments, symptoms, and social functioning	Validated using the principal component analysis, confirmatory factor analysis, discriminant analysis and partial credit Rasch model ($n=2,162$) (Lovaglio & Monzani, 2011)	F5
Kessler Psychological Distress (K10)	10	Self-report	Brief screen to identify levels of psychological distress.	Validated against MCS-12 for diagnoses of anxiety and depression in Australia ($n=10,504$) (Gill, Butterworth, Rodgers, & Mackinnon, 2007)	F6
World Health Organization Quality of Life (WHO-QoL)	26	Self-report	Measure individual's perceptions of their health and wellbeing	Validated for adults in 23 countries, demonstrated acceptable internal consistency of Cronbach's alpha > 0.7 ($n=11,830$) (Skevington, Lotfy, & O'Connell, 2004)	F7

3.5 Date storage and destruction

Paper documents such as consent forms and completed questionnaires are stored in locked filing cabinets at Curtin University. Paper copies were also scanned into electronic format, and all electronic data are kept securely on Curtin University research data management drive that is password protected. Only the researcher or supervisors were able to access the research data. All research data will be kept securely at Curtin University for seven years after the completion of the research and it will then be destroyed according to the policies outlined in the Western Australia University Sector Disposal Authority as specified in Curtin University's Research Data and Primary Material Policy (Curtin University, 2021; State Records Commission, 2013).

3.6 Summary of Chapter 3

This chapter described the research method applied in this thesis including ethical considerations, research design, recruitment process, and data collection and analysis. A description of the convergent parallel mixed methods research design that was used across four studies in this research where data were collected from different groups of participants concurrently and analysed independently. The processes of data collection, analyses, and integration to produce a comprehensive understanding of the areas of study were described. It outlined how employing the convergent parallel mixed methods design allowed the researcher to draw useful conclusions and make recommendations on how the physical health of young people with FEP can be improved.

Chapter 4 presents Study 1 which reports qualitative findings of interviews with young people experiencing FEP enrolled in an EIP program. An application of the GT method guided data collection and analysis. Participants provided their perspectives on the impact of psychosis and the treatment on their physical health.

CHAPTER 4

STUDY 1: QUALITATIVE STUDY WITH YOUNG PEOPLE WITH FEP

4.1 Introduction

Chapter 4 presents the first qualitative component of this mixed methods research, Study 1. The findings are presented in Publication 2. Young people are extremely vulnerable during the stages of adolescence and early adulthood, especially when they experience first-episode psychosis (FEP) and begin taking antipsychotic medications which increase their risk of developing co-morbidities such as obesity and cardiometabolic abnormalities at an earlier age than their peers in the general population. Study 1 explored young people's level of knowledge and understanding of the impact of FEP on their overall health and wellbeing. It also investigated the physical health needs of young people with FEP and their interest in physical health care and their perceived impact of taking antipsychotic medication on their physical health. Participants in this study are referred to as young people with FEP or mental health consumers (MHCs)² in the published article. A detailed description of the methodology including the setting, data collection and analysis of data are provided in Publication 2.

4.2 Publication 2: Study 1

Chee, G. L., Wynaden, D., & Heslop, K. (2018). The physical health of young people experiencing first-episode psychosis: Mental health consumers' experiences. *International Journal of Mental Health Nursing*, 28(1), 330-338. doi:10.1111/inm.12538

²In this thesis mental health consumer (MHC) is used in some places to refer to people accessing specialist mental health care for FEP. In Australia, it is policy to use the term MHC, but the researcher is aware that in other countries terms such as service user are used.

Higher Degree Research Thesis by Publication

Curtin University

Statement of Originality

We, the PhD. candidate and the candidate's principal supervisor, certify that the following text, figures and diagrams are the candidate's original work.

Type of work	Page number(s)
Manuscript (Publication 2)	73 to 84

Name of candidate: Gin Liang CHEE

Name and title of principal supervisor: Associate Professor Karen HESLOP

1st December 2022

Candidate signature

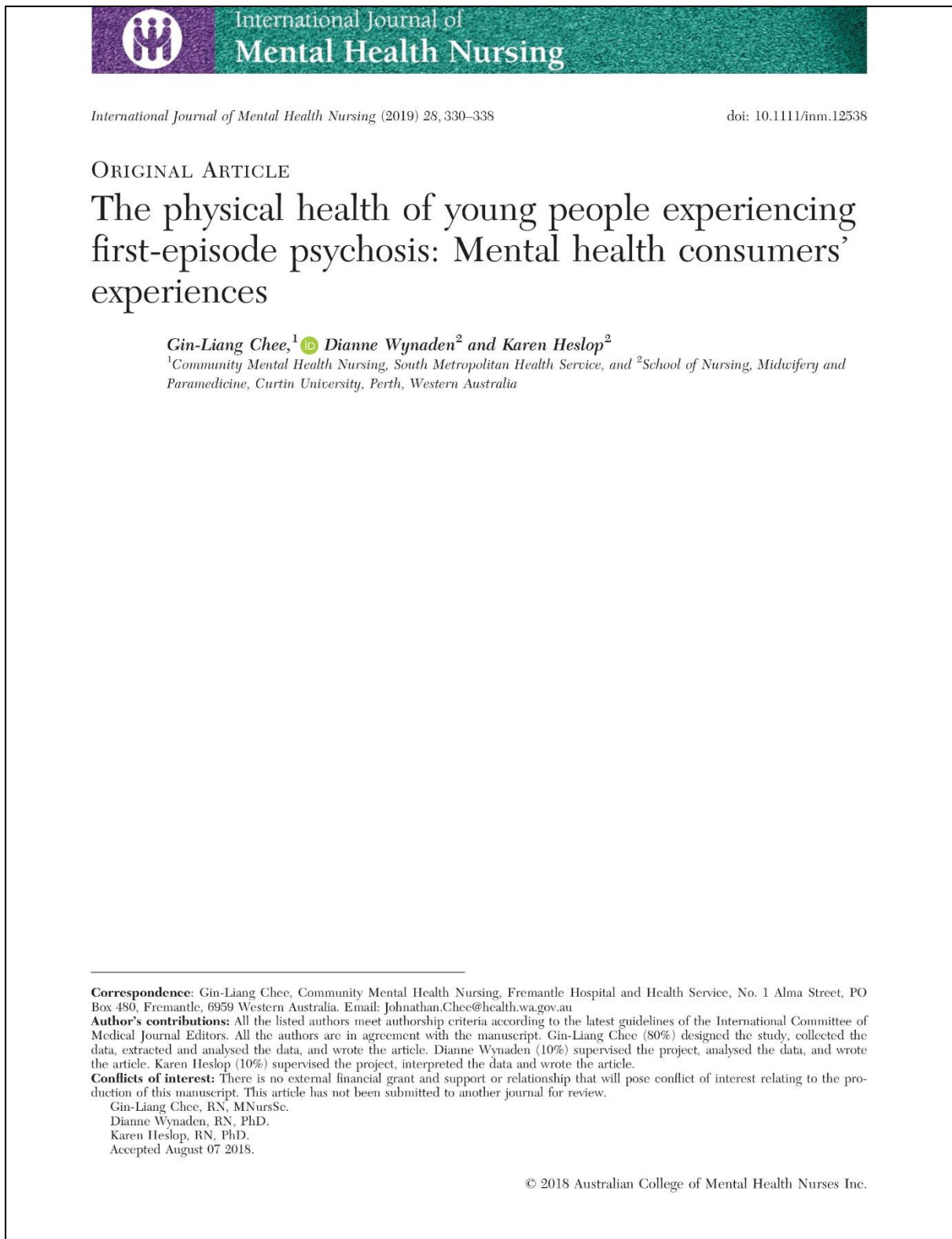
Date

1st December 2022

Principal supervisor signature

Date

Figure 4.1. Page one of Publication 2 – Study 1 (Permission was granted by the copyright owner to duplicate the published work in this thesis – see Appendix A.2)



This is the ‘**Accepted/Original Manuscript**’ of the article published by John Wiley and Sons in *International Journal of Mental Health Nursing* on 3rd September 2018, available online: <https://doi.org/10.1111/inm.12538>

Title

The physical health of young people experiencing first-episode psychosis: Mental health consumers’ experiences

ABSTRACT

Young people experiencing first-episode psychosis taking antipsychotic medications often develop comorbidities such as obesity and cardiometabolic abnormalities at an earlier age than young people in the general population. Therefore, it is important to explore the healthcare needs and experiences of this group of consumers. This paper reports research conducted to obtain an informed understanding of young people’s health literacy, physical healthcare needs and interest and knowledge about their physical health. Grounded theory methodology was used to guide the research. Semistructured interviews were conducted with 24 young consumers aged between 18-35 years who were case managed by one metropolitan community mental health service. The results describe the journey of young people from the time of diagnosis, to when they developed an awareness of the need to improve their physical health and the impact of physical health issues on their overall health and well-being. Six categories emerged from the data: i) initial responses when diagnosed with first-episode psychosis; ii) focus of care on treating first-episode psychosis; iii) lack of education on antipsychotic medications; iv) adverse effects from taking antipsychotic medication; v) increased awareness of the need for good physical health; and vi) importance of social support in the community. The findings highlight the importance for health professionals improving young people’s health literacy and addressing physical health and well-being as part of first-episode psychosis programmes. Young people require improved health education on the importance of maintaining health lifestyle in relation to their overall health and well-being.

KEY WORDS: adult, antipsychotic drugs, health education, health literacy, psychotic disorders

INTRODUCTION AND BACKGROUND

Developing physical health problems such as hypertension, heart disease and diabetes are challenges many people face as they age (Bradshaw & Pedley 2012; Scott & Happell 2011). However, having a psychotic disorder can dramatically increase a young person’s risk of developing physical health problems earlier in life (Laursen et al. 2013; Mitchell et al. 2013; Moreno et al. 2013). Kirkbride et al. (2017) reported that young people are a high-risk population for first-episode psychosis and their physical health trajectory and life expectancy into the future can be impacted from the time they are diagnosed and commence taking antipsychotic medications (Correll et al. 2014; Curtis et al. 2011). For example, Kryzhanovskaya et al. (2012) reported changes in weight and lipid parameters were more significant in young people than adults taking antipsychotic medication. Similarly, Correll et al. (2014) identified that young people experiencing first-episode psychosis were likely to have cardiometabolic abnormalities earlier in life if they were taking antipsychotic medications. The use of antipsychotic medications along with factors related to the illness such as a sedentary lifestyle, unhealthy diets, obesity, high rates of drug and alcohol misuse account for this groups’ reduced life expectancy of up to 20 years when compared to young people in the general population (Tiihonen et al. 2009).

The primary goal of treatment when a person is diagnosed with first-episode psychosis is to reduce their psychotic symptoms using pharmacological and psychosocial treatments (Happell et al. 2012). To identify any emerging physical health issues, there are also guidelines outlining the importance of this group of consumers receiving regular metabolic screening and monitoring as soon as they commence taking antipsychotic medications (Álvarez-Jiménez et al. 2010; Curtis et al. 2011; Foley & Morley 2011). However, low rates of routine metabolic screening and monitoring by mental health professions continue to be reported (Bozymski et al. 2017; Ward et al. 2018).

While there is a plethora of literature on the poor physical health outcome of adults with mental illness (Curtis et al. 2011; McCloughen et al. 2016; Morrison et al. 2015), the literature is now highlighting the physical health issues affecting young people diagnosed with first-episode psychosis (Bradshaw & Pedley 2012; Hetrick et al. 2010; Malla et al. 2016). Furthermore, young people do not always have an awareness early in their illness trajectory about the impact their psychosis and the antipsychotic medications they receive as treatment can have on their physical health into the future (Morrison et al. 2015). However, this group is at high risk of developing physical health comorbidities and this paper reports on research completed with young mental health consumers to identify their level of health literacy, physical health care needs and interest and knowledge about their physical health. The findings can aid the development of strategies young people and mental health professionals can implement to reduce these risks and to improve consumers' short- and long-term health outcomes.

Research Aim

The aim of this research was to explore young mental health consumers' level of knowledge and understanding of the impact their psychosis had on their overall health and well-being and their physical health needs. It explores their interest in physical health care and the perceived impact of taking antipsychotic medication had on their physical health outcomes.

METHODS

Design

The grounded theory method was used in this research. The researchers did not set out to develop a substantive theory but to use the grounded theory method to guide data collection, data analysis and the emergence of categories from the data. Data were collected using semistructured interviews with young people diagnosed with first-episode psychosis who were taking antipsychotic medication as part of their treatment plan. An interview guide was used to provide consistency across participants' interviews. Prior to commencing interviews, assumptions and bias were documented by members of the research team. The interviews were transcribed verbatim by the principal researcher. Data collection and analysis occurred concurrently.

Purposeful and theoretical sampling techniques central to grounded theory were used, along with the methods of coding as outlined in the original version of grounded theory (Glaser & Strauss 1967). The use of the constant comparative analysis to analyse each interview and to compare data with other interviews allowed categories to emerge during analysis. Data analysis was completed by all members of the research team and discussion occurred between team members until a consensus of categories was reached. Data collection ceased when saturation was researched and no new information was being obtained during interviews and categories were well defined and rich in participant descriptions (Foley & Timonen 2015).

The grounded theory method was chosen for this research as it places emphasis on the identification of the psychological and social contexts of the phenomenon under investigation

(Foley & Timonen 2015), which is particularly important in seeing the person in the context of their life experiences.

Ethics approval

Ethics approval to conduct the study was obtained from one health service and one university Human Research Ethic Committee in Western Australia.

Recruitment

A sample of young people between the ages of 18-35 years whose health care was coordinated by a Western Australian metropolitan community mental health service over the last 4 years as part of the early intervention in psychosis programme were invited to participate in the research through their community mental healthcare coordinator. They were informed that their participation or non-participation would in no way influence the mental health care they were receiving. All potential participants were provided with an information sheet outlining the aim of the research and what their participation entailed. Those who indicated that they would like to participate agreed for their names and contact details to be given to the researchers. A face-to-face interview in a location convenient to the participant was arranged. Each participant was asked to provide written informed consent prior commencement of interview. All participants spoke and understood English well enough to be interviewed without the use of an interpreter.

Purposeful sampling was employed with 15 young people who met the general inclusion criteria and were in the first 2 years of the early psychosis programme. As categories began to emerge, theoretical sampling was utilized to recruit participants who had different or expanded experiences. For example, the experiences of nine young people who had completed the 2-year early psychosis programme and were now under adult mental health services but within the 4-year timeframe for inclusion in the research. This group was able to compare care between both services and to add ideas about improving physical health into early psychosis programmes based on these comparisons.

Data collection

Data were collected over a 14-month period between May 2015 and June 2016. The principal researcher, a mental health nurse, had no clinical relationship with participants, conducted the interviews, and transcribed the data. The average interview time was 60 minutes. After the interviews, data and transcripts were deidentified and coded to protect participants' confidentiality.

All electronic research data including digital recordings and transcriptions of interviews were kept on a secure university network drive allocated to the research team. The hard copy information of the interviews and a codebook linking participants to interview data was kept in a locked cabinet at a secured location within the mental health service. Only the researchers had access to the cabinet.

Data analysis

The constant comparative method of analysis central to the grounded theory method was used to code each interview and to compare data from that interview with other interview data (Glaser & Strauss 1967). Open, axial and selective coding methods as outlined by Glaser and Strauss (1967) were used.

The data were read several times in the open coding process. Similar and different indicators and words which identified circumstances that shaped participants' experiences were coded according to emerging categories during axial coding. Data analysis continued so that the relationships between emerging categories were further explored to generate subcategories. At

selective coding level, all categories and links to subcategories were well defined. The principal researcher entered data into NVivo version 11 (QSR International, Melbourne, Victoria) and followed the Consolidated Criteria for Reporting Qualitative Research to report the findings (Tong et al. 2007).

The trustworthiness of the data was ensured by following the original Glaser and Strauss (1967) grounded theory method to guide data collection and analysis until saturation was reached. Researcher checks of the data occurred and differences were explored until consensus occurred. Field notes, memos and an audit trail also added to the trustworthiness of the data.

RESULTS

Twenty-four young people with a mean age of 26 years (SD = 5.02 years) participated in this research. The age of the participants was evenly distributed between 18 and 35 years old. Fifteen young people (63%) were receiving care from the early intervention in psychosis community treatment team, and nine participants (37%) had been transferred within the last two years to an adult community treatment team in the same service. Twenty-two (92%) participants were male.

Findings and categories

The findings describe the journey of young people from the time they were diagnosed with first-episode psychosis to when they developed an awareness of the need to improve their physical health. Six categories encompassed this journey and explained participants' journey from diagnosis to the time they were interviewed for this research.

Category 1: Initial responses when diagnosed with first-episode psychosis

The time of diagnosis of first-episode psychosis is often a challenging time for both health professionals and the affected young person. Participants did not understand the important links between physical and mental health and had low levels of health literacy at the time of their diagnosis. Many participants had limited knowledge about their illness and denial that they had an illness was common. Denial led them to initially refusing to accept treatment: 'There is nothing wrong with me, I'm not sick. Leave me alone! I don't need your help [to treat and manage psychosis]. I'll get the help from my friends by myself' (P15).

Stigma towards people who have a mental illness made participants not want to be associated with mental health professionals or mental health services. They did not want to acknowledge that they were experiencing a psychotic episode and needed treatment because they were embarrassed about being ill and frightened of being stigmatised: 'I feel bad ... I don't want people to know the world I'm in [experiencing a psychosis]' (P16); 'I'm alright, it's not like [treating the psychosis is] the most important thing really.' (P8).

Stigma led participants prior to being diagnosed to engaged in self-medication with illicit substances, drugs or alcohol to mask the psychotic symptoms they were experiencing, to escape reality and relieve their stress: 'I don't do drugs I just drink alcohol ... to stop thinking about my illness [psychosis]' (P1); 'I don't care ... I don't need medicine ... smoking [marijuana] is enough' (P3). Tobacco smoking was also perceived as one of the primary avenues to alleviate their mental health problem: '[tobacco] smoking is a fair game, I am a smoker. I try to number the amount I have. I need it for stress relief' (P5).

Category 2: Focus of care on treating first-episode psychosis

When participants came to terms with their psychiatric diagnosis, they focused on their mental illness as they realized they needed medical treatment and support: 'My mental health is more important than physical [health]' (P8). At this time, physical health issues were a low priority as most participants viewed themselves as being physically fit and healthy: 'I have

been active my entire life in sports [before having psychosis] ... don't think I'll have problems [related to physical health]' (P16). Many participants had been actively involved in sport prior to being diagnosed with a psychosis: 'Being a good sportsman meant I have a good sense of physical wellbeing and health' (P9). As a result, the potential risks for or emerging physical health problems were largely overlooked or ignored by this cohort as the focus was on their mental health.

Participants reflected that mental health professionals also placed priority on mental health issues and did not focus on the physical health: 'Young people are ill-informed about physical health ... mental health [is] always first on the list' (P12). Consequently reducing risks associated with preventable physical illnesses such as decreasing participants' tobacco smoking or reducing their risk for obesity associated with the adverse effects of antipsychotic medications were not regularly addressed at this stage of their illness journey: 'They [mental health clinicians] never talk to me about physical health things ... just checking I'm taking my medication, whether I'm mentally alright?' (P5). Another participant said:

They [doctors and nurses] just treat my mental illness ... never really explained its [potential risks of psychosis on physical health] until later when I was out of hospital. Then they tried to brush up a little bit but I still don't know to what extent the illness affects me physically. (P1)

Category 3: Lack of education about antipsychotic medications

A treatment for first-episode psychosis is often to use antipsychotic medication to reduce the presence of distressing positive symptoms (Mahone et al. 2016). However, participants explained that when they commenced taking antipsychotic medications very little information was provided to them about the medications and the adverse effects that they may experience: 'The doctor keeps pushing us to take medication and didn't tell [me] how bad it [antipsychotic medication] is for our body ... people have no clue' (P12). Participants explained they did not understand the potential risks the medication could cause to their physical health and the need for them to maintain a healthy lifestyle: 'I didn't know I needed to change my lifestyle, no one told me ... I didn't [have to] worry about not being healthy and not feeling in shape before taking the [antipsychotic] medicine' (P21). Participants also spoke of the reduction in their functional abilities when they commenced antipsychotic medication: 'I don't know what to do, I was at a lost ... I was not confident to try to do things ... I got no information on how to take personal responsibility for my health' (P2).

Participants told that they would have liked to have been provided with the opportunity to learn how to better care for their physical health but were not empowered to make informed healthcare decisions: 'They [doctor] explained the illness, what caused it, gave me [antipsychotic] medicine to take ... I don't remember that any other information was supplied, it's better than nothing but it is not enough' (P1). Another participant highlighted that information pertaining to the adverse effects of antipsychotic treatment on her physical health was poorly communicated because she was perceived by staff as not being ready to receive this information due to her illness:

The thing is when I had a psychosis, I was worried about how I was going to survive. My case manager said: 'OK, worry about other things [including physical health] later on, for now just focus on what's happening [managing the mental illness]'. I think they are more concerned about what my immediate struggles are rather than giving me education in relation to my physical health. They said: 'you are not ready for it [physical health education] yet'. (P4)

Participants acknowledged that limited sharing of physical health information by health professional had a negative impact on them: 'I need some drugs and alcohol information

because when I started drinking again and taking Olanzapine, I get very tired ... alcohol and antipsychotic medication don't mix very well at all' (P5); 'Yeah, a lack of information [from health professionals about the adverse effects of antipsychotic medication-taking] can prevent people from getting healthy' (P19).

Category 4: Adverse effects of antipsychotic medication

It is good practice to provide consumers with information about the antipsychotic medications they are prescribed as it facilitates early identification of problems or adverse side effects. However, this information is not always provided by health professionals as they believe it may result in the person being nonadherent with taking the medication (Blythe & White 2012; Mahone et al. 2016). Once they had commenced taking their medication participants began to experience a range of impacts from the medications: 'I think my metabolism has slowed down' (P22); 'The medications have quite a sedative effect and certainly I had less energy. I definitely feel more drained than normal' (P16); 'The medication I was on made me increased my appetite ... and I found that I was getting bloated a lot ... snacking more yeah, comfort food' (P11); 'I put on fifteen kilos in three months, it's not good' (P15).

While antipsychotic medications reduced the presence of psychotic symptoms, participants reported that they had no motivation to even carry out simple daily tasks: 'When you're on medication, you're tired, you got no motivation because you are tired, they are interrelated. My motivation is directly linked to the medication' (P5); 'It [antipsychotic medication] really made me feel like I'm a zombie' (P17). Another participant indicated he experienced significant functional changes in his life: 'It [taking antipsychotic medication] completely threw me off my routine of getting up, shower, eating, going out, job searching, doing all that' (P3). For other participants, the impact of antipsychotic medication-taking affected their social connectedness and self-esteem: 'I don't feel comfortable and confident around other people' (P14); 'I don't want to see my doctor, I wasn't myself ... the connections were getting detached between our relationships [with medical professional, friends and family members]' (P23).

Category 5: Increasing awareness of the need for good physical health

Psychosis can cause the affected person to experience negative symptoms such as lowered levels of motivation and lack of interest in things (Mitchell et al. 2013; Moreno et al. 2013). This reduces their ability to function and can exacerbate any physical health issues they are experiencing. However, participants indicated that an increase in their health literacy and understanding of their illness helped to counteract the impact of the negative symptoms they were experiencing: 'I was completely oblivious to the fact that this [taking antipsychotic medication] could be bad for my physical health at first but later they [doctor and nurses] gave me more information ... yeah, it was helpful' (P24); 'As I have more health information then I know what to focus more on ... you know, on physical self-care' (P2). Another participant explained that feelings of positivity can be achieved when mental and physical health is balanced: 'I think if you feel physically fine, you will feel mentally fine. You'll feel like you can take care of yourself and you're exercising and you're maintaining your weight and it just compliments the mental health' (P11). Improved health literacy also assisted participants to make informed decisions to improve their health and functioning: 'I don't want to be gloomy. I think for me is just getting okay again like getting some kinds of plan or job' (P4); 'Yes, starting the routine again is what people with psychosis needs ... just getting back into the routine like getting up on time, going to work, going out with friends or have some kinds of education' (P5).

Participants reported the benefits of physical activity or exercise to improve health and its ability to reduce immediate and long-term risks of developing physical health complications: ‘I think if I’m not active, I got a lot of time to ruminate on negative stuff ... exercise keeps my physical health in check ... boosting endorphins, regulate my general physical functioning and brain function ... prevent other illnesses’ (P24). More importantly, physical exercise improved participants’ overall quality of life: ‘Keep mental, physical health stable ... I’ll be able to live a normal life, getting fit and strong, sleep better at night’ (P13).

Category 6: Importance of social support in the community

The provision of health care through specialist early psychosis programmes is important but some participants stated that their primary support towards recovery and maintaining a physically healthy state was through their peer support workers: ‘Yeah, peer support was my motivating factor to remain healthy’ (P11). These support networks assisted participants’ to begin their mental health recovery and to assist them in the holistic maintenance of their physical well-being: ‘So if the people around you want you to get well and they support you, it helps you’ (P21). Participants commented that their peer support workers were valuable in helping them to cope with difficult psychosocial situations: ‘We [with peer support workers] talk a lot. We spend a lot of time together’ (P18); ‘They [peer support workers] have been very helpful to me and they’ve helped me get through stuff and have just been a friend’ (P15).

Kinship care is another significant support to motivate participants to maintain mental and physical wellness: ‘I’ve got my family and friends ... like seeing how they [family and close friends] were when they have to look after me that kind of motivates me not to get back into that state [mentally and physically unwell]’ (P4); ‘My family gave up all their time and just looked after me ... I need to look after myself well ... [so I do] not disappoint them’ (P23). Participants explained that mental health professionals need to collaborate with peer support workers, family members, carers and significant others to achieve optimal health care outcomes for consumers related to physical functioning, meaningful social connections, positive self-esteem and skills to cope with life challenges: ‘Yeah, a holistic way like the doctor talking to my folks to help me with my health problems’ (P14); ‘My mum was very supportive after talking to my case worker ... she would check my weight every few days, watch what I eat’ (P24).

DISCUSSION

The six categories identified in this study portray an evolving journey for participants from their time of diagnosis when initially many denied having a mental illness through their engagement in and completion of a specialist early psychosis programme. Along this journey, they commenced taking antipsychotic medications, which in combination with their presenting symptoms, impacted on their ability to be physically active. As a result, they experienced emerging physical health changes and were confronted with the importance of maintaining their physical health. They spoke of a lack of information provided to them from health professionals about the antipsychotic medications they were taking, the need to remain physically healthy, and the need to make effective lifestyle choice, for example, give up smoking tobacco.

The National Institute for Health and Care Excellence (NICE) guidelines suggest the person-centred care approach be used by mental health professionals to drive behaviour change in the area of physical health and empower young people to care for their physical health (Bradshaw & Pedley 2012). However, if young people have low levels of health literacy as reported in this current study, a significant step in empowering behaviour change is to provide them with information about their illness and treatment to assist them to make informed healthcare decisions. This finding is consistent with previous research into young peoples’ experiences of

taking antipsychotic medication (Murphy et al. 2015). Similarly, Young et al. (2017) have reported the correlation between low levels of mental health literacy with worse physical health status, the increase presence of physical comorbidities, increased inpatient hospitalizations and lower use of preventive services.

Health literacy related to mental, physical and metabolic health care influences health behaviours and health outcomes (Gulliver et al. 2010; McCloughen et al. 2016). An increase in knowledge and understanding of health and health care can enable the young person to make better lifestyle choices and build their confidence and trust to work collaboratively with health professionals, including their peer support workers to improve physical healthcare outcomes (Young et al. 2017).

Health education can be achieved through methods that go beyond information diffusion. It entails young people experiencing first episode psychosis being able to interact and participate in health information exchanges, analyse health information, and to use the information to benefit their health and well-being (Gulliver et al. 2010). Improving a young person's capacity to access health information, raising their awareness of health determinants, and encouraging them to make healthy lifestyle changes to modify these determinants is critical to empowerment (Carney et al. 2017).

De Hert et al. (2008) suggested young people should be empowered to maintain good physical health throughout their mental health recovery and to make changes in negative health behaviours, such as the use of alcohol or drugs prior to any deterioration in their physical health status. Having contact with other people with lived experience of psychosis through peer support programmes is beneficial to support this behaviour change (Carney et al. 2017).

As recovery-focused mental health care evolves to encompass physical health, mental health nurses can transform the way in which young people manage their coexisting psychosis and physical health issues to enhance their quality of life and mental well-being (Mahone et al. 2016). This facilitates a transition from conventional mental health practices to contemporary evidence-based practices that include the need for regular metabolic monitoring and physical health promotion (Bradshaw & Pedley 2012; Happell et al. 2016). Murphy et al. (2015) indicated that when nurses enabled young people to make their own healthcare decisions, they feel empowered and are more willing to make sustainable lifestyles modifications, giving them the momentum to continue living a healthy lifestyle. This supports their personal recovery and social inclusion within the community.

Relevance for clinical practices

Mental health nurses are professionally educated to provide integrated health care and have the ability to influence healthcare practices to improve health outcomes (McCloughen et al. 2015). Nurses need to work in coproduction with young people and their caregivers using a person-centred care approach to involve them in shared decision-making. Care provided in early episode psychosis programmes should cover mental and physical health care and how each interacts and influences the person overall level of health and well-being (McCloughen et al. 2016; Morrison et al. 2015).

Mental health consumers want to take charge of their own health therefore nurses should maintain open communication with them and their family/carers and to provide relevant health information to promote health literacy (McCloughen et al. 2015). Increasing health literacy of young people is a way of protecting them from potential physical health comorbidities on a long-term trajectory. It is unambiguous that health information, instructions, and interventions pertaining to both mental and physical health need to be clearly communicated to young people to promote a sense of control and empowerment which will assist young people to understand and take appropriate actions to optimize their health and health care; the provision of unclear information and services will lead to increase metabolic risks and adverse health consequences

(Carney et al. 2017). Nurses who practise person-centred care build trust with young people and empower them to make better-informed decisions about their long-term physical health care (Bradshaw & Pedley 2012).

Mental health nurses need to continuously upskill in physical health care so that they can provide effective person-centred care integrating mental and physical health for young health consumers to prevent the early trajectory for development of comorbidities related to first-episode psychosis (Gray & Brown 2017; Malla et al. 2016).

Study limitation

Twenty-two (92%) of participants were male and this needs to be viewed as a limitation of the study findings. However, this was the gender make-up of young people currently enrolled in early episode psychosis programmes at the service where the research was completed.

CONCLUSION

Health is not the absence of a disease rather it is the holistic combination of physical and mental health to maintain sustainable living for young people experiencing their first-episode psychosis. Health care should be planned according to the needs and wants of the young people to improve their quality of life rather than based on the perspectives of mental health nurses (Morrison et al. 2015). Physical health care within a mental health setting should be about empowering and enabling opportunities for young people, in the presence of a psychotic episode, to have personalized choices so that they can continue to live a purposeful and satisfying life.

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4.3 Summary of Chapter 4

Study 1 explored the journey of young people from experiencing FEP and beginning treatment to recognising the importance of improving their physical health and overall quality of life. GT was used in this study as it provided a systematic and structured approach to data collection and analysis that helped achieve the research objectives. The use of GT was particularly valuable for investigating the social and psychological experiences of young people with FEP, facilitating improved awareness of their experiences, driving behavioural changes, and gaining new insights into the impact of FEP on physical health. Additionally, the study employed purposeful and theoretical sampling techniques to gather comprehensive information on young person's physical health experiences during FEP, ensuring data saturation.

The study found that participants in the acute stage of FEP faced challenges in decision-making regarding their physical health care due to psychotic symptoms such as impaired rational thinking, confusion, and disorientation, which led physical health issues emerging in the early stages of psychosis. Young people with FEP also experienced social isolation and felt ostracised from peers due to the stigma associated with mental disorders. Conversely, the study identified that social and psychological support, coupled with improved health literacy, had a positive impact on individuals' self-esteem and their ability to better cope with mental and physical health challenges. For example, social support, such as that provided by family and friends, can reinforce a sense of belonging and help individuals feel more connected, leading to engagement in social and physical activities. Psychological support involving professional services can help individuals improve their resilience and better manage their mental and physical health. Furthermore, participants indicated that improving health literacy allowed them to gain increased control over their social and psychological issues and engage in early intervention to improve physical health.

The study's findings are consistent with the World Health Organization's recommendation to reduce physical health problems through lifestyle changes and psychosocial support (Bull et al., 2020). The results of this GT analysis underscored the importance of health professionals, such as nurses working in mental health settings, empowering young people with FEP to manage their mental and physical health. Additionally, the study highlighted the need to further examine the support that primary caregivers, such as parents, provide to their son/daughter who has FEP.

Chapter 5 details the findings of Study 2 where parents of young people with FEP were interviewed about how the psychosis impacted their son/daughter's physical health and their caregiving role. A similar research process following Study 1 was applied in this study to guide data collection and analysis. Parents described the challenges they faced and the strategies they used when providing support for their son/daughter's physical health.

CHAPTER 5

STUDY 2: QUALITATIVE STUDY WITH PARENTS OF YOUNG PEOPLE WITH FEP

5.1 Introduction

Chapter 5 presents the second qualitative component of this mixed methods research. Study 2 explored the physical health of young people with FEP from the parental perspective. The findings are presented in Publication 3. Parents are frequently the primary caregivers of young people with FEP and as such develop considerable expertise in providing care and supporting their son/daughter's health and wellbeing. They are the key enablers to provide support to their son or daughter experiencing FEP as evidenced in the findings of Study 1. However, as identified in the literature review in Chapter 2, parental concerns about exposing their son or daughter to invasive procedures such as blood tests can become a barrier to detecting metabolic syndrome in a young person who is being treated with antipsychotic medications. Based on findings from Study 1 and the literature review the researcher sought to explore more fully the role parents play in assisting their son/daughter to maintain their health and wellbeing when receiving treatment for FEP.

5.2 Publication 3: Study 2

Chee, G. L., Wynaden, D., & Heslop, K. (2019). Parents' perceptions of the physical health outcomes of young people diagnosed with first episode psychosis. *Issues in Mental Health Nursing, 40*(10), 880-886. doi:10.1080/01612840.2018.1537322

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Statement of Originality

We, the PhD. candidate and the candidate's principal supervisor, certify that the following text, figures and diagrams are the candidate's original work.

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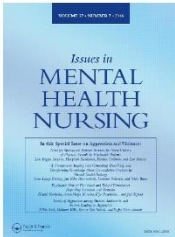
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Figure 5.1. Page one of Publication 3 – Study 2 (Permission was granted by the copyright owner to duplicate the published work in this thesis – see Appendix A.3)



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Parents' Perceptions of the Physical Health Outcomes of Young People Diagnosed with First Episode Psychosis


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Title

Parents’ perceptions of the physical health outcomes of young people diagnosed with first episode psychosis

ABSTRACT

This study explores parents’ perceptions of their son/daughter’s physical health needs following a first episode psychosis diagnosis and commencement on antipsychotic medication. The research process was guided by grounded theory methodology and data were collected using semi-structure interviews with 16 parents. Four categories were identified. Participants described the importance, challenges and strategies for their son/ daughter to maintain their physical health, and the need to improve young people’s health literacy, particularly in areas of physical health, diet and lifestyle. These findings will assist health professionals to provide parents with information to better support their son/daughter to maintain their physical health.

INTRODUCTION

Having a psychosis can be a debilitating and life-changing experience for young people, especially at the time of diagnosis (Gibb, Fergusson, & Horwood, 2010). Even though the prognosis of a full recovery is possible with evidence-based treatment, many young people continue to experience ongoing persistent psychotic symptoms (Reed, 2008). Moreover, the occurrence and treatment of first episode psychosis (FEP) can adversely affect the young person’s physical health and general wellbeing (Curtis, Newall, & Samaras, 2012; Murphy et al., 2015). Longitudinal research reports that the majority of young people diagnosed with FEP experience poorer physical health than young people who do not have a psychosis (Mitchell et al., 2013). These physical health issues include obesity, diabetes and cardiovascular disease (Curtis et al., 2012). The young person’s use of alcohol and other drugs may further impact their mental and physical health (Carney, Cotter, Bradshaw, & Yung, 2017; McCloughen, Foster, Kerley, Delgado, & Turnell, 2016). Furthermore, taking antipsychotic medications makes them more likely to develop physical health problems earlier in life than young people in the general population (Correll et al., 2014; Curtis et al., 2011). Changes in weight and lipid parameters are also reported to be more significant in young people than in adults taking antipsychotic medications (Kryzhanovskaya et al. 2012).

Many young people diagnosed with FEP will have a lifelong psychotic disorder which may place a substantial caregiving burden on their parents and family (McCann, Lubman, & Clark, 2011). In Australia, it is estimated that 2.4 million people (15% of the population) provide care to people with mental illness (Bailey et al., 2018).

Parents are the most common caregivers (Poon, Curtis, Ward, Loneragan, & Lappin, 2018) providing functional, financial, social and emotional support to their son/daughter (Bailey et al., 2018). This support plays a significant role in their son/daughter’s ability to manage their illness and on their recovery trajectory (Small et al., 2017). Cree et al. (2015) highlights that carers must be included as collaborative members in the care of their family members. Yet mental health policy in many countries place carers as central to many aspects of care (Happell, Wilson, Platania-Phung, & Stanton, 2017a); several challenges remain when a person takes on a caregiving role (Bailey et al., 2018; Wynaden, 2007). Parents often feel unsupported in their caregiving role and as a result their own mental and physical health may be compromised (Poon et al., 2018; Wynaden, 2007).

Parents may be the first to notice changes in the physical and/or mental health of their son/daughter with FEP (Cree et al., 2015; Onwumere, Howes, Shiers, & Gaughran, 2018). Noticing emerging co-morbid physical health problems resulting from their son/daughter's illness, lifestyle choices and the effects of prescribed medications to treat the psychosis can cause parents additional distress and further increase their anxiety and caregiving burden (Chang, Chiou, & Chen, 2010). How health professionals educate parents to assist their son/daughter to address emerging physical health problems is not well documented (Happell, Wilson, Platania-Phung, & Stanton, 2017b; McCann et al., 2011). This paper documents the findings of research conducted with parents to obtain insights into their understanding of the physical health issues that their son/daughter may experience following a diagnosis of FEP. Qualitative research methodology was used as it is a methodology of choice when little is known about the issue being investigated. The findings of this work will assist health professionals involved in FEP programs to provide education to young people and to their parents/carers about the importance of maintaining physical health and making good lifestyle choices.

METHOD

Design

The grounded theory method was used in this research to describe parents' perceptions of the physical health of their son/daughter following diagnosis of a FEP. Data were collected using semi-structured interviews. The researchers did not set out to develop a substantive theory but used the grounded theory method as described by Glaser and Strauss (1967) to guide data collection and analysis. Purposeful and theoretical sampling techniques were used along with grounded theory coding techniques and the use of the constant comparative method of analysis. This allowed the emergence of categories that described participants' experiences. The Western Australian South Metropolitan Area Health Service Research Ethics Committee and the Curtin University Human Research Ethics Committee approved the research. Data were collected between July 2015 and June 2016.

Recruitment

Initially purposeful sampling was used with parents of young people enrolled in FEP program at one mental health service in Western Australia. A total of 24 parents were invited to participate and they were given an information sheet outlining the research and what their voluntary participation would involve. Sixteen parents agreed to be interviewed. The principal researcher who conducted the interviews had no prior clinical involvement with either the young mental health consumers or their parents.

Procedure

All participants provided written informed consent to participate before being interviewed. Semi-structured interviews were conducted at pre-arranged locations convenient to participants such as their home or at the health care facility. Interviews were digitally audio recorded. A semi-structured interview guide was used to provide structure and consistency for each interview. These questions not only guided the interview but also allowed the researcher flexibility to explore each participant's responses. Each interview lasted approximately 45 minutes. After the 10th interview, based on concurrent data collection and analysis, theoretical sampling was employed to recruit participants who had different or expanded experiences to those recruited during initial purposeful sampling. These experiences included participants' pre- and post-engagement with their son/daughter's FEP clinicians and with the adult mental health service after their son/daughter completed the FEP program and care was transferred to

adult service. Data collection continued until saturation was reached and no new information was being obtained. At this time data were rich in descriptions and categories clearly defined.

Data analysis

As in keeping with grounded theory methodology, data collection and analysis occurred concurrently. The audio-recorded interviews were transcribed verbatim by the researcher along with field notes, and imported into a computer software, NVIVO 11 after each interview was completed. Participants' details were de-identified to ensure confidentiality. Each interview was then coded according to grounded theory coding families. The constant comparative method of analysis was used to analyze the individual interview and to compare each interview with others. As each transcript was read and re-read line by line for data familiarization, open coding was applied to break down, examine, compare, conceptualize and categorize the information provided by the parents. The data were then reconnected through formation of linkages between emerging categories and its subcategories. The process of linking data in axial coding determines the common features in the transcripts. The process continued with revision and creation of codes from the interviews to formulate the key characteristics of the data. Distinctive categories were mapped during the selective coding process.

Trustworthiness of data

Trustworthiness of data during collection, analysis and identification of categories was ensured by adhered to grounded theory method (Foley & Timonen, 2015). The creation of an audit trail to link raw data and codes with categories and sub-categories increased the confirmability and dependability of the data. Furthermore, the principal researcher carried out the initial data analysis and another co-researcher reviewed the information independently. A semi-structured interview guide was used to ensure the interviews was conducted in a consistent manner to strengthened credibility. Participant quotes are presented to fully describe their experiences (Cooney, 2011; Foley & Timonen, 2015). Data were reported according to the consolidated criteria for reporting qualitative research (COREQ) guideline (Tong, Sainsbury, & Craig, 2007).

RESULTS

Of the 16 parents who participated, 14 (87.5%) were female. Participants' age ranged between 43 and 63 years (mean = 55.5, SD = 7.3). Ten parents (62.5%) reported that their son/daughter lived with them. The remaining six parents had either face-to-face meetings with their son/daughter or contacted them via phone calls on a weekly basis. Four categories emerged from the data that described participants' views about their son/daughter's physical health: (1) importance of physical health to overall health; (2) impact of taking antipsychotic medication; (3) lack of information about the need to stay healthy; and (4) strategies to improve physical health.

Category 1: Importance of physical health to overall health

Participants spoke of a healthy mind and body as two key factors that determined a person's quality of life and how young people can function more effectively when they are physically and mentally well. However, when their son/daughter was diagnosed with a FEP it impacted on their son/daughter's physical health as one participant described:

I think mental illness and taking the medication [for the illness] is tied up with physical illness. If you don't feel like getting out of bed, you're not going to go for exercise and then if you don't do any exercise, you'll probably end up being obese. So that is a vicious circuit that sort of tie all up. If you're doing physical exercise I think it makes you feel better as the activity produces endorphins and you'll be physically well. (P8)

Parents spoke about the importance for young people with FEP remaining physically healthy to assist them to improve their mental health: “Your physical wellbeing affects mental and emotional wellbeing. If you don’t feel well physically, you are not up to do things, and your thoughts aren’t in tune” (P4). They explained that young people with FEP experience sleep dysfunction, loss of appetite, low energy levels and other physiological repercussions due to the constant disturbing presence of their psychotic symptoms. Having good physical health was viewed as a balancing factor as it increased their son/daughter’s ability to manage the impact of their mental illness. Parents described numerous benefits of maintaining good physical health which included improved sleep pattern, increased energy level, enhanced self-esteem, and more positive mood and attitudes: “When you are physically fit and well, your mind works much better. When you exercise, you have better sleep at night because your energy is expended – definitely there is a relationship between physical and mental health” (P16).

Parents expressed that their son/daughter with FEP had a higher chance of leading a healthier, longer and more fulfilling life if they maintained a good level of physical health: “I think physical health is important because one can live to an old age. It is important for people around you too, if you are healthy, other people will also feel healthy as well” (P2). They believed that their son/daughter would enjoy a better quality of life because regular physical exercise released endorphins which produced the ‘feel good factor’ lifting a person’s mood: “You have to be physically fit otherwise you’ll feel grumpy or sad. I think going for a walk with the dog or exercise is the best thing. It improves fitness, your physical health affects mental health” (P12). However, they witnessed their son/daughter’s efforts and setbacks to engage in physical activities: “It’s a vicious cycle! When you get unmotivated, you look for vices – you look for drinks [alcohol], you eat too much ... it’s definitely hard on the self-esteem and this pattern continues on, it’s not good for anybody’s physical health” (P12). Another participant explained that young people with FEP needed to be:

Comfortable in their body and be able to do the things they want to do. They can go rock climbing if their weight is 20 kilos lesser, their quality of life is better. They don’t want to get overweight, have high blood pressure or be unable to do things physically. (P14)

Participants recognized the importance of regular physical activity in preventing physical health problems and the need to provide their son/daughter with positive encouragement to maintain good physical health. They believed the emphasis on maintaining physical health should be an integral part of all FEP programs.

Category 2: Impact of taking antipsychotic medication

Parents expressed that the antipsychotic medication their son/daughter took for their psychosis was a catalyst for the development of physical health issues. When young people commenced taking the medications parents witnessed decreased levels in motivation in their son/daughter to engage in physical activities:

Well I don’t nag at him [son], I don’t tell him what he knows, what he should be doing you know, nobody likes that. I just like to encourage him – I go easy on him, it isn’t easy for him to keep up his physical health. I think after being on medication for a while he doesn’t feel motivated, he feels tired all the time, the medication makes a difference. (P4)

Parents believed that the effects of the medication led their son/daughter to lead a sedentary lifestyle which became difficult for them to change:

Well he’s got to lose weight, I mean he put on so much weight so easily but losing weight is not easy. He doesn’t feel like exercising all the time, that doesn’t help

he is unmotivated. He just doesn't have the energy to get up and exercise and do what need to be done to get back in shape. (P4)

Parents also spoke how antipsychotic medication decreased their son/daughter's level of motivation and overall capacity to function on a daily basis:

I've noticed that there is a link between the psychosis and his [son] physical health. Since he started taking the medication [antipsychotic] it destroys his self-motivation and kills his competitive attitude. He gains too much weight, he dips to the lowest, sloppy unhealthy denominator I have ever seen. The fight back from there is a difficult one. (P9)

Another participant provided a similar account:

Definitely no motivation, definitely the medication caused it, you know the once a month needle [Paliperidone, depot medication]. When he [son] has the injection all he does is sleep all day. He doesn't talk to anyone, no one can bother him for two weeks. After the second week, as the [medication] wears off, he starts to come good. He wants to go out and do things. Then he has another needle and he goes back to the same pattern. (P2)

Category 3: Lack of information about the need to stay healthy

Health literacy was viewed as important in order for parents to assist their son/daughter to make informed health care decisions. However, participants reported that they were not routinely provided with any education from the health professionals they had contact with: "Yeah, a lack of information can prevent people [son/daughter] from getting healthier" (P11). They wanted to be better informed so they could identify signs and symptoms of physical health deterioration:

He [son] has been physically unhealthy for a very long time. I think it is lack of routine over time, but he has been in this state for a very, very long time [and] it didn't happen overnight. I didn't think there is anything wrong with him physically, I thought he was okay. What to do, I didn't see that [deterioration in his physical health] coming, I had no idea, no clue, no information, no support [in a frustrated tone]. (P3)

Parents spoke of how health professionals did not collaborate with them or provide education in areas such as physical health and drug education and the negative influences this had on their son/daughter's physical health:

Well there was going to be a family meeting, but it never happened. There wasn't a lot of information about physical health given to me. He doesn't eat, doesn't do anything, I think he is going to die. I don't know what to do. I need help too. (P2)

One parent stated that her daughter's age was a factor in limiting the information provided to the family about her illness:

There was a lack of information, like in terms of medication – what sort of medication she [daughter] was taking? I felt that the doctors wouldn't really explaining much about the illness [psychosis] and other potential physical problems to her. Maybe because of her age, being sixteen she was a young adolescent when she first started seeing the psychiatrist. (P5)

Participants spoke of the need for physical health education to be an integral part of FEP programs as it was essential that their son/daughter acquired this information so they were informed about the need to maintain their physical health:

I think different people [son/daughter] need different information [and it] depends on where they are at in their life. For example, getting back to as close as what a person [with FEP] is doing before they get physically unwell – getting back to work, being able to function properly. It is a process; it all takes time, maybe longer for some. (P1)

Category 4: Strategies to improve physical health

Role modeling was considered by parents to be an effective strategy to raise the importance of maintaining physical health for their son/daughter: “Role modeling, if I am healthy, eating and drinking healthy, people around me should follow my footsteps” (P2). One parent explained:

I think there are a lot of challenges. In some people [who experience FEP], they’re not well enough to take care of themselves properly so their physical health does deteriorate. They need lots of reassurance, encouragement to build them up. They just need that support, reassurance and I show them what and how to do it until they’re a bit more stable. (P7)

Promoting a healthy diet was also a strategy used by parents to help their son/daughter to be more physically healthy. Parents understood that good dietary habits was an essential part of leading a healthy lifestyle and combining physical activity could help their son/daughter maintain a healthy weight, reduce their risk of chronic physical illnesses and promote their overall health: “He [son] is getting chubbier all the time and eating rubbish. So I cook for him and give him fruits and yogurt. I think he is starting to eat healthier and getting physically active” (P12). Other parents provided these perspectives:

I think it has a lot to do with his [son] motivation to keep an optimal physical health. He changed to drinking honey and healthy herbal tea and eating lots of nuts that is good for him. No fats, he eats eggs, lean meat, fish and all sort of proteins. He also has his mother’s cooked meals and a good support structure from his two brothers. (P15)

When he [son] recovered mentally, I got him on a stable diet, I also got him a bike to get some exercise. He caught up with his sleep, and he did quick mathematical equation to exercise his mind. He would eat, exercise, sleep in a natural way and it becomes a habit. But he needs a mentor, someone or a group who can help him to go to the next level so that he can form a relationship with other people. (P3)

Although the level of physical activity and good diet seem to be critical for young people to maintain physical wellness, another strategy central to improving physical health identified by participants was support from family and friends. A parent shared: “We’re a good family, we stick together and love each other and help each other through the bad times” (P5); while another parent indicated: “Her [daughter’s] peer support worker was a motivating factor for her to exercise and to establish her daily routines. We [family members also] helped her and she had a lot of supportive friends” (P6). Parent also explained that young people should be empowered to make informed physical health decisions:

Well I guess it’s really important to have information and knowledge about physical health care – especially on self-care and medication [antipsychotic] side effects because it is empowering. I think people [with FEP] should write down their goals so that they have something to work toward. We [parents] can encourage them and reassure them, sometimes help them organize simple tasks as well as to set strategies just to get them through. It empowers them to be able to make the right choices. (P7)

DISCUSSION

The findings of this research describe the distress that parents experience when their son/daughter is diagnosed with a FEP and their feelings of helplessness as their son/daughter’s physical health also begins to decline. While early and prompt treatment promises a good mental health outcome for young people with FEP (Mitchell et al., 2013), they remain a high risk group of developing physical health issues early in life (De Hert, Detraux, Van Winkel, Yu, & Correll, 2011). As a result, they have a reduced life expectancy when compared to young people in the general population. Although there is an increasing awareness of the physical comorbidities occurring in adults diagnosed with a mental illness, emerging literature is now

increasingly focused on the poor physical health outcomes in young people diagnosed with FEP (Hetrick et al., 2017). These poor health outcomes are often exacerbated by the early use of antipsychotic medications (De Hert et al., 2011; Murphy et al., 2015).

Young people with FEP are often supported by their parents who provide substantial hours of unpaid care to their son/daughter (Happell et al., 2017a). This caring role impacts on the parents' level of wellbeing and causes carer burden (Onwumere et al. 2018). While parents use strategies to assist their son/daughter to maintain their established lifestyle before to their diagnosis of FEP, parents often lack the support and partnership of health professionals in their caregiving journey. For example, Happell et al. (2017a) reported that health professionals did not listen to carers when they raised concerns about their family members' physical and mental health. This finding is counterproductive to mental health policy directions to involve carers collaboratively in care.

This current gap identified in practice devalues parents' role in their son/daughter's recovery and leaves them ill prepared to care effectively. It also ignores the integral role parents play in the provision of emotional support, advocacy and day-to-day care of their family member (Happell et al., 2017a; Onwumere et al. 2018; Wynaden, 2007). Furthermore, parents receive little education to improve their health literacy in the area of physical and mental health and are left to struggle to find effective ways to encourage, motivate and support their son/daughter to care for their physical health (Nilsen, Frich, Friis, & Rossberg, 2014).

Parents in this research reported the close links between mental and physical health problems and expressed concern about the impact of the medications used to treat their son/daughter's mental illness on their physical health outcomes. Their concerns have been previously identified by other researchers (Happell et al., 2017b; McCann et al., 2011) and commonly relate to weight gain and problems with diet after commencing antipsychotic medication regimes. This is consistent with the literature that notes increased appetite and glucose tolerance which are known side effects of some prescribed medications (Onwumere et al, 2018).

The experiences of parents involved in this research suggest that parents and their son/daughter both require health education to increase their health literacy, particularly in relation to medication taken to treat FEP. This will assist parents to make informed decisions with their son/daughter to maintain their physical health at an optimum level (Cree et al., 2015; Happell et al., 2017a). This includes the need to participate in regular metabolic screening and monitoring procedures in line with recommended international guidelines to reduce the risk of weight gain and metabolic side effects associated with antipsychotic medications (O'Donoghue, Schäfer, Becker, Papageorgiou, & Amminger, 2014).

Early psychosis programs must include education on interventions that parents can initiate to improve their son/daughter's lifestyle and life skills such as increase exercise and healthy diet to reduce the risk of early weight gain and the development of metabolic syndromes (Curtis et al., 2016). Since parents know their son/daughter's interests and preferences, and behavior patterns and triggers, health professionals need to acknowledge that parents are active members of the treatment team, and that their views and concerns are important to overall care delivery (Eassom, Giacco, Dirik, & Priebe, 2014). Parents can provide the continuity of care to their son/daughter who is more likely to feel safe, comforted and secure in a familiar family environment. This may also lead to improved adherence with pharmacological and psychosocial interventions (Onwumere et al., 2018).

Parents should also be linked with primary health care practitioners to promote improved physical health near to their homes after discharge from specialist mental health services. This enables them to remain integrated and active in their community (Funk, Saraceno, Drew, & Faydi, 2008). The pathway towards recovery for each young person experiencing FEP is challenging but this can be alleviated with the support from their parents. Parents must be

actively engaged in care when the young person is enrolled in FEP program. They should be encouraged to attend appointments, ask questions and be involved in care planning. They should be viewed by health professionals as active members of the care team.

Limitations

Several limitations to this research need to be considered. Data were collected at only one site which might impact on transferability of the findings. Although both fathers and mothers were invited to participate in this study, most participants were females (87.5%, $n = 14$). While this indicates that most caregivers are mothers, it limits the findings to one gender. Fathers may have different caregiving experiences. Future research might benefit if the opinions of other family members and support persons are obtained.

Conclusion

The benefits of integrating physical health care into mental health settings and removing everyday barriers to deliver integrated care to the young person with FEP is significant. Early interventions in physical health can reduce risk factors associated with the use of antipsychotic medication and improve an individual's quality of life. As importantly mental health professionals have to foster a positive collaborative culture with the young people's parents who are often the primary caregiver in the community. Parents need to feel respected and supported to be able to play an active and effective role in their son/daughter's mental health recovery. This is paramount towards helping young people maintain physical wellness while they recover from their mental illness.

Disclosure statement

No potential conflict of interest was reported by the authors.

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5.3 Summary of Chapter 5

Study 2 provided new insights into the physical health challenges experienced by young people with FEP, as perceived by their parents. The study utilised the GT method and purposeful and theoretical sampling techniques to collect, analyse and group data into meaningful categories from a psychological and social interpretative lens. This approach emphasised the importance of the meanings, perceptions, and interpretations that parents attributed to their experiences regarding the physical health of their son/daughter when recovering from FEP. By comparing individual and group experiences, the researcher captured all dimensions of the experiences, ensuring data saturation and robustness of categories, which led to a deeper understanding of the phenomenon under study.

The findings of the GT study indicated that parents had low health literacy, which increased their feelings of helplessness and uncertainty in supporting their son/daughter's recovery. Furthermore, parents reported that psychological factors such as psychotic symptoms and lack of motivation had a significant impact on their son/daughter's overall wellbeing and ability to navigate various life situations, including caring for their own physical health. The young person's low self-esteem also contributed to social isolation and difficulty interacting with others, exacerbating the challenges of recovery. To address these issues, parents emphasised the importance of being positive role models themselves by maintaining good dietary habits and regularly engaging in physical activities. This could influence their son/daughter to adopt similar behaviours and improve their physical health.

In conclusion, the psychological and social interpretive approach in this study provided a framework for understanding the subjective experiences and perspectives of the parents, revealing the psychological and social factors that shaped their behaviour, attitudes, and beliefs about their son/daughter's physical health. The study underscored the need for the health professionals to adopt a holistic approach that considers the social, psychological, and

physical health context of care to support parents in helping their son or daughter navigate the challenges of having FEP.

Chapter 6 presents Study 3 which is a survey of nurses working in mental health settings because they play a critical role in providing comprehensive health care to young people with FEP. This cross-sectional study was analysed using a non-parametric test to examine the relationship between nurses' educational preparation and their attitudes, confidence levels and perceived barriers to the provision of physical health care in mental health. It also investigated the impact of differences in nursing educational preparation on nurses' clinical practice to identify areas for improvement.

CHAPTER 6

STUDY 3: QUANTITATIVE STUDY WITH MENTAL HEALTH NURSES

6.1 Introduction

A quantitative component of this mixed methods research design was completed in Study 3 and presented as Publication 4 in this chapter. It is well recognised that mental and physical health are interconnected (World Health Organization, 2018b) and that nurses working in mental health services have an integral role to play in supporting both the mental and physical health of young people with FEP. In Australia, registered nurses working in mental health have completed either a psychiatric/mental health or comprehensive/generalist nursing education program, so it was conceivable that the nurses' educational background influenced their nursing practices such as the provision of physical health care in mental health settings. It was hypothesised that comprehensive/generalist trained nurses were more likely to provide physical health care to young people with FEP than psychiatric/mental health trained nurses. To achieve the aim of this study, a validated questionnaire was used to survey nurses working in Australian mental health services to evaluate their attitudes, confidence levels and nursing practices in providing physical health care to young people with FEP. Study 3, a cross-sectional quantitative study with nurses working in mental health is reported in Publication 4.

6.2 Publication 4: Study 3

Chee, G. L., Wynaden, D., & Heslop, K. (2018). The provision of physical health care by nurses to young people with first episode psychosis: A cross-sectional study. *Journal of Psychiatric and Mental Health Nursing*, 25(7), 411-422. doi:10.1111/jpm.12487

Higher Degree Research Thesis by Publication

Curtin University


Statement of Originality

We, the PhD. candidate and the candidate's principal supervisor, certify that the following manuscript including text, figures and diagrams are the candidate's original work.

Type of work	Page number(s)
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Name of candidate: Gin Liang CHEE

Name and title of principal supervisor: Associate Professor Karen HESLOP



Candidate signature

1st December 2022

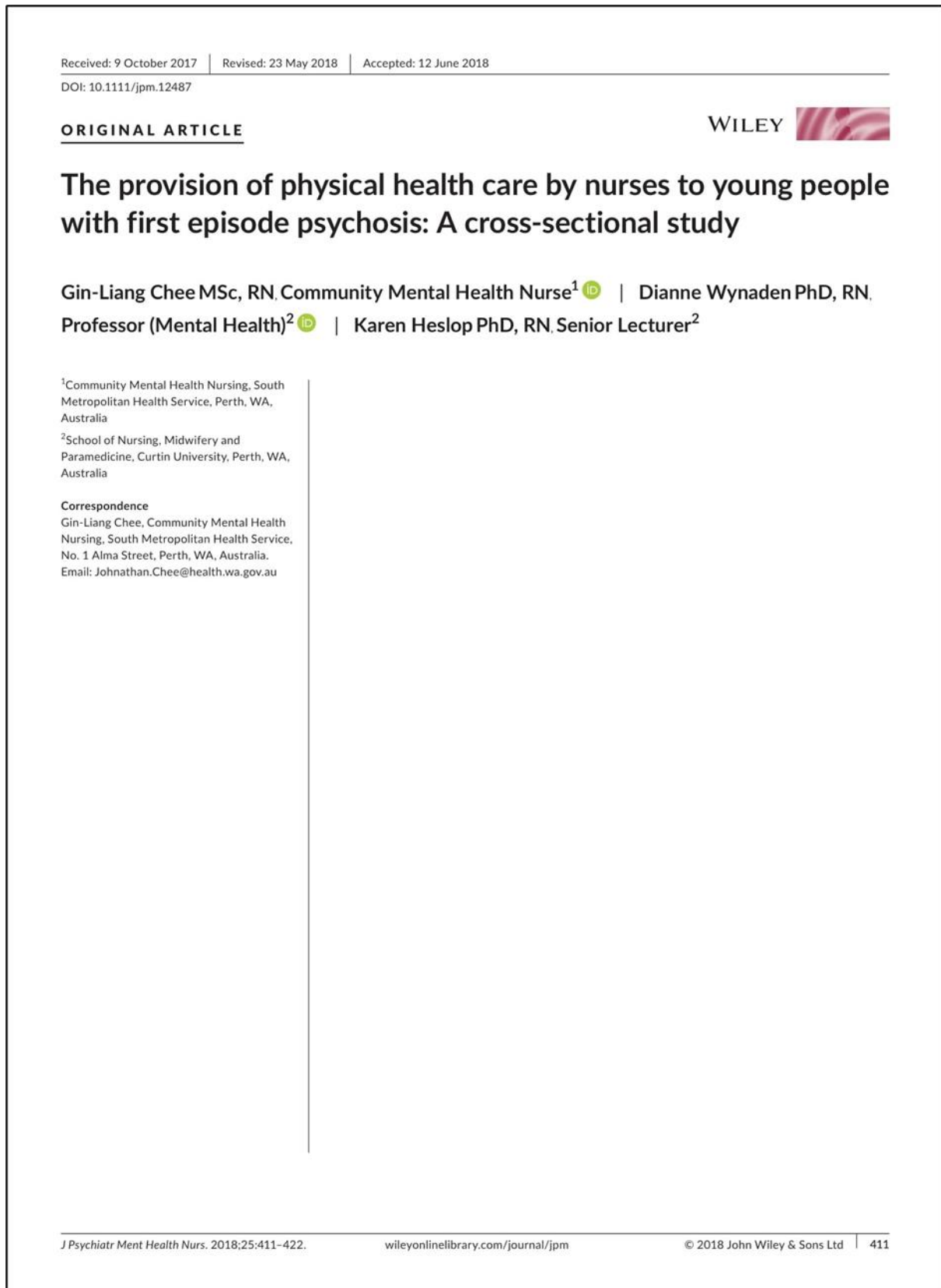
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Figure 6.1. Page one of Publication 4 – Study 3 (Permission was granted by the copyright owner to duplicate the published work in this thesis – see Appendix A.4)



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Title

The provision of physical health care by nurses to young people with first episode psychosis:
A cross sectional study

Accessible summary

What is known on the subject?

- This paper addresses an identified gap in the international literatures related to physical health care of young people with first episode psychosis. Previous studies indicate that nurses’ skills, knowledge and attitudes influence physical health outcomes for service users. The educational preparation of nurses influences their physical health care nursing practices. Nurses who have a high level of skills, knowledge and positive attitudes towards the provision of physical health care are more likely to initiate this care to young people experiencing first episode psychosis.
- Young people experiencing first episode psychosis are more likely to have physical health comorbidities and less likely to receive treatment for them than young people in the general population.

What does this study add to existing knowledge?

- Psychiatric/mental health educated nurses are more likely to provide routine physical health care, for example checking that service users have a general practitioner for health care follow ups, while comprehensive/generalist educated nurses also consider the young person’s more complex physical health care needs such as smoking cessation and sexual health.
- The length of nurses’ employment in mental health did not have any significant influence on their physical health care practices to young people.

What are the implications for practice?

- Nurses working in the mental health setting provide physical health care to young people experiencing first episode psychosis, so it is important to determine if their educational preparation affects their physical health care practices.
- Provision of professional education opportunities and resources will enable nurses to improve their knowledge, skills and increase their awareness of the importance of providing comprehensive physical health care to young people experiencing first episode psychosis.
- Education providers need to emphasize the importance of providing physical health care to young people as part of mental health content in undergraduate nursing curricula.

Abstract

Background: Registered nurses working in the area of mental health complete either a psychiatric/mental health or comprehensive/generalist nursing program, and their education preparation influences their physical health care nursing practices. The differences in educational preparation may be a contributory factor to nurses’ delivery of physical health care to young people experiencing first episode psychosis. This paper addresses an identified gap in nursing practices related to physical health care of young mental health service users.

Aim: To examine the relationship between the educational preparation of nurses and attitudes, confidence level, perceived barriers and physical health care nursing practices.

Method: A cross-sectional survey was conducted in 2015 with 207 nurses using the modified Physical Health Attitude Scale for Mental Health Nurses (PHASe).

Results: Comprehensive/generalist prepared nurses were more likely to provide education on heart disease prevention and sexual health and support young people to stop cigarette smoking than psychiatric/mental health nurses. However, as the length of service progresses, the propensity for psychiatric/mental health nurses to be involve in smoking cessation increases.

Implication for practice: It is important to identify how nurses' educational preparation affects their nursing practices so as to address the gaps in their physical health literacy.

1 | INTRODUCTION

Psychosis is a common mental disorder that affects young people (Thornicroft, Brohan, Rose, Sartorius, & Leese, 2009). Following diagnosis, the young person is usually enrolled in an intervention program for first episode psychosis (Breitborde, Srihari, & Woods, 2009). This allows them to receive a range of comprehensive health and welfare resources to address their health care needs (Fowler et al., 2018). These early interventions provide the young person and their family with support and education about their illness to facilitate their recovery and continued integration in their community (Eapen & John, 2011; Hetrick et al., 2010).

Mental and physical health are crucial aspects of life that are deeply interdependent and exert reciprocal influences on each other (Martin, 2016; McCloughen, Foster, Huws-Thomas, & Delgado, 2012). Stanley and Laugharne (2011) claim that positive mental health outcomes are linked to the provision of effective physical health care such as the assessment and management of lifestyle risk factors, early diagnosis and treatment of physical comorbidities and regular health monitoring and screening procedures. Yet, historically mental health professionals have focused on providing care to improve the person's mental health and their physical health has not been viewed as a priority area of care (Gray & Brown, 2017; Hetrick et al., 2010; Howard & Gamble, 2011; Walker & McAndrew, 2015). This focus has increased service users' risk of developing comorbid physical health problems and of these problems not being identified or treated (Mai, Holman, Sanfilippo, Emery, & Stewart, 2010; Martin, 2016).

Some authors have highlighted that nurses' skill and confidence level to provide physical health care may be associated with their educational preparation as a nurse (Blythe & White, 2012; Hayman-White, Happell, Charleston, & Ryan, 2007; Walker & McAndrew, 2015). In some countries, for example Australia, nurses' graduate from comprehensive/generalist nursing programs and following registration, they can be employed as a first level practitioner in mental health (Hayman-White et al., 2007). All registered comprehensive/generalist nurses are prepared to provide both physical and mental health care to service users. Following their initial educational preparation, these nurses may specialise at postgraduate level in the area of mental health nursing (Foster, Lewis, Marshall, & Lewis, 2013). A second group of nurses working in the mental health setting have completed specialist psychiatric/mental health nursing education programs which are available in many countries (Walker & McAndrew, 2015). These nurses are qualified to provide specialist mental health nursing care but their physical health care knowledge and skills may be less developed when compared to comprehensive/generalist nurses (Bradshaw & Pedley, 2012; Chadwick, Street, McAndrew, & Deacon, 2012; Howard & Gamble, 2011).

In recent years there has been an increasing awareness by nurses and other mental health professionals of the importance of improving the physical health care outcomes of service users and practice guidelines have been implemented in many services to support this process (National Institute for Health and Care Excellence, 2017; Stanley & Laugharne, 2011). However, at the clinical level providing physical health care remains a challenge for many nurses working in mental health setting (Ward, Wynaden, & Heslop, 2018; Wynaden et al., 2016). Several studies (Bressington et al., 2018; Ganiah, Al-Hussami, & Alhadidi, 2017; Happell, Platania-Phung, & Scott, 2013; Robson, Haddad, Gray, & Gournay, 2013) have been completed to gain an improved understanding of the challenges nurses experience using a

quantitative measurement tool developed by Robson and Haddad (2012), and to evaluate attitudes nurses hold towards physical health promotion activities (Happell & Platania-Phung, 2015; Wynaden et al., 2016). A qualitative study also identified the need for mental health nurses to change their nursing practices to address the unmet physical health care needs of mental health service users (Gray & Brown, 2017).

This paper reports the findings of research that focused on nurses' provision of physical health care to young people with first episode psychosis as there is a misconception by many health professionals that this group are young, fit and therefore have no physical health issues (Mai et al., 2010). Yet, evidence suggests that the early onset of psychosis is reported to greatly increase the young person's risks of poorer physical health outcomes on a long-term trajectory (Mai et al., 2010; Martin, 2016).

1.1 | Rationale

It is now generally accepted that the provision of high quality mental health care involves holistic approaches that incorporate both mental and physical health interventions (McCloughen, Foster, Marabong, Miu, & Fethney, 2015). The provision of physical health care to young people with psychosis may be overlooked by nurses but providing this care can reduce the risk of physical comorbidities occurring and promote healthy lifestyles. Integrating physical and mental health care remains a challenge for nurses working within mental health settings (Foster et al., 2013). Previous research indicates nursing educational preparation is a factor linked to positive physical health care outcomes for mental health service users.

1.2 | Objectives

The research objectives were to determine: a) nurses' attitudes, confidence level and nursing practices in the area of physical health care when working with young people diagnosed with psychosis; and b) whether nurses' educational preparation was associated with attitudes, confidence level, perceived barriers and nursing practices in the provision of physical health care to this group of young people. It was hypothesised that comprehensive/generalist prepared nurses would be more likely to provide physical health care to young people experiencing psychosis than psychiatric/mental health nurses.

2 | METHODS

2.1 | Study design, sample and setting

A cross-sectional study design using a self-report questionnaire was used for this research. We administered the questionnaire in 2015 to two convenience samples of nurses at a breakfast meeting for mental health nurses and at an international mental health conference held in Australia. A paper version of the questionnaire was distributed to the 38 breakfast attendees and 387 conference delegates directly to maximise the response rate (Brennan & Charbonneau, 2005; McColl et al., 2001). Participants were also able to complete the survey through the Australia College of Mental Health Nurses website between August and December 2015. To eliminate the possibility of duplicate results, participants were reminded on the accompanying information sheet that they must only complete the survey once. All responses were anonymous, and participants gave implied consent by returning the completed questionnaire.

2.2 | Measures

To collect data related to physical health care for young people experiencing psychosis, we modified the Physical Health Attitude Scale for Mental Health Nurses (PHASe) by Robson and Haddad (2012) to tailor the PHASe to young people in the Australian context. Permission was granted by the principal author to make the modification.

The amended version comprised 28 closed-ended questions based around four subscales: (a) nurses' attitude in providing physical health care; (b) confidence level to deliver physical health care; (c) perceived barriers in care delivery; and (d) attitude towards cigarette smoking (Robson & Haddad, 2012). Questions were rated using a 5-point Likert scale response, where 1=strongly disagree and 5=strongly agree. A higher score indicated a higher level of self-reported agreement with the individual subscale item. Some questions were negatively worded to reduce response bias, and these items were reverse-coded during analysis.

There were also 12 questions related to the frequency of nursing practices involving physical health care (scored 1=never to 5=always). Demographic data including age group, gender, types of nursing educational preparation and years of employment in mental health were added to the original PHASe measurement tool. Nursing educational preparation was categorized into two sub-groups: psychiatric/mental health or comprehensive/generalist education while the number of years employed in mental health ranged from less than 6 years, 6 to 15 years, 16 to 20 years, and more than 20 years. Participants were also asked to provide a 'yes' or 'no' response to a question about whether they have worked with young people experiencing psychosis; even when the participants responded 'no' to this question, their data would still be included in the analysis as this group of participants constitute part of the mental health workforce and their views on physical health care is as important as those nurses who have worked with young people experiencing psychosis.

The modified PHASe questionnaire was reviewed by a panel of three senior mental health nurses and two academics for domain coverage, relevance and comprehension (Presser et al., 2004). The questions were then uploaded to a secure commercial internet survey (Survey Monkey) site and piloted with 20 registered nurses working in mental health to ensure face validity, flow and precision of data collection (Presser et al., 2004). These nurses did not participate in the larger study.

2.3 | Study size

To test the null hypothesis that there is no difference in physical health care nursing practices between psychiatric/mental health nurses and comprehensive/generalist prepared nurses who work in mental health setting, a power analysis using the G*Power statistical program (Faul, Erdfelder, Lang, & Buchner, 2007) determined that an approximate priori sample size of 207 was needed to achieve a medium (0.3) effect size for this study assuming an alpha of 0.05 and a power of 95%.

2.4 | Ethical consideration

Ethical approval for this study was granted by the university institutional ethics committee in Western Australia (approval number: RDHS-81-15). The participant information sheet explaining the purpose of the research together with the modified PHASe questionnaire was provided to participants to allow them to make an informed decision to participate in the research.

2.5 | Data analysis

Cronbach's alpha values were calculated for each PHASe subscale to indicate the internal consistencies; with Cronbach's alpha value close to 1 demonstrating subscale items were each measuring the same construct.

Descriptive statistics (frequencies, percentages and χ^2) were used to analyse participant demographic characteristics. Mann-Whitney *U* tests were used (as subscale data were not normally distributed) to compare between group difference (psychiatric/mental health and comprehensive/generalist prepared nurses) for nursing educational preparation and physical health care nursing practices and to determine group difference relating to nursing educational

preparation and number of years worked in mental health, and physical health care nursing practices. All analyses were performed using SPSS 21.0 program and in all statistical tests, *p*-values of < 0.05 were considered statistically significant (Fisher, 1926).

2.6 | PHASe internal consistency

The internal consistency of the modified PHASe questionnaire was satisfactory for the whole scale, with an overall Cronbach's alpha value of 0.72, 0.83 for attitudes of nurses involved in physical health care, 0.74 for confidence of nurses in delivering physical health care, 0.69 for perceived barriers in delivering physical health care, and 0.60 for attitudes of nurses relating to smoking. These alpha values were relatively consistent with Robson and Haddad (2012) Cronbach's alpha subscales of 0.86, 0.74, 0.67 and 0.61 respectively.

3 | RESULTS

3.1 | Demographic characteristics

The total number of participant responses received was 216 giving a response rate of 50.8%. Data from nine participants was discarded due to large amount of missing data on the questionnaire. The participants' demographic characteristics are presented in Table 1. Of the 207 participants, 155 (74.9%) were female and 52 (25.1%) were male. There were 104 (50.2%) nurses who completed specialist psychiatric/mental health nursing education programs. A total of 118 nurses (57%) had worked in mental health setting for over 20 years, and 12 nurses (5.7%) had never worked with young people experiencing first episode psychosis. There was no significant demographic difference between the two groups of nurses (*p* > 0.05). The data from 12 nurses who had no prior exposure to working with young people was included in the analysis because the purpose of this study was to identify whether their educational preparation influence their attitudes and nursing practices. The inclusion of the data from these 12 participants made no significant difference to the overall results so these data were included in the final analysis.

Table 1: Demographic characteristics (*n* = 207)

	P/MHN		C/GN		χ^2	df	<i>p</i>
	<i>n</i>	%	<i>n</i>	%			
Gender					1.004	1	0.316
Male	23	22.1	29	28.2			
Female	81	77.9	74	71.8			
Age (years)					0.203	3	0.977
21 – 30	5	4.8	4	3.9			*0.983
31 – 40	10	9.6	10	9.7			
41 – 50	32	30.8	34	33.0			
Over 50	57	54.8	55	53.4			
Work experience in mental health (years)					2.837	3	0.417
Under 6	12	11.5	15	14.6			
6 – 15	20	19.2	17	16.5			
16 – 20	16	15.4	9	8.7			
Over 20	56	53.8	62	60.2			
Have worked with young people experiencing psychosis					0.077	1	0.782
Yes	98	94.2	97	94.2			
No	6	5.8	6	5.8			

Notes. P/MN: Psychiatric/Mental Health Nurses;

C/GN: Comprehensive/Generalist Nurses.

*Fisher's exact test.

3.2 | Nurses' responses about providing physical health care

Group differences in nursing educational preparation were detected on 14 items of the PHASe questionnaire: four of these were in the 'attitudes of nurses involved in physical health care roles' subscale; one was related to their confidence level in providing physical health care; four were associated with perceived barriers in delivering physical health care; and five was linked to attitude of nurses related to cigarette smoking.

Comprehensive/generalist prepared nurses (Mean Rank = 113, $n = 103$) were more likely to agree that ensuring young people had cancer screening should be a nursing role compared to psychiatric/mental health nurses (Mean Rank = 95, $n = 104$), $U = 4445$, $z = -2.20$, $p = .028$, two-tailed. Comprehensive/generalist prepared nurses were also more likely to provide education on the importance of breast self-examinations to female mental health service users ($U = 4260$, $z = -2.65$, $p = .008$, two-tailed) and testicular self-examination to male service users ($U = 4408$, $z = -2.19$, $p = .028$, two-tailed) and advised on heart disease prevention ($U = 4282$, $z = -2.72$, $p = .007$, two-tailed) than psychiatric/mental health nurses.

Comprehensive/generalist prepared nurses (Mean Rank = 112, $n = 103$) reported that they confidently knew which psychotropic medication increases cardiac problems than psychiatric/mental health nurses (Mean Rank = 96, $n = 104$), $U = 4530$, $z = -2.09$, $p = .037$, two-tailed.

Psychiatric/mental health nurses (Mean Rank = 117, $n = 104$) were more likely to perceive that providing information on the adverse effects of antipsychotic medication to young people was a barrier to providing physical health care than comprehensive/generalist prepared nurses (Mean Rank = 91, $n = 103$), $U = 4003$, $z = -3.37$, $p = .001$, two-tailed. Psychiatric/mental health nurses, compared with comprehensive/generalist prepared nurses, also believed that young people experiencing first episode psychosis have difficulties adhering with healthy diets ($U = 4260$, $z = -2.65$, $p = .008$, two-tailed), were not interested in improving their physical health ($U = 4238$, $z = -2.86$, $p = .004$, two-tailed) and have physical health concerns mainly because of their mental illness ($U = 4347$, $z = -2.45$, $p = .014$, two-tailed).

In regard to the attitudes relating to cigarette smoking, comprehensive/generalist prepared nurses were more inclined than psychiatric/mental health nurses to believe that staff ($U = 4419$, $z = -2.44$, $p = .015$, two-tailed) and young people diagnosed with first episode psychosis ($U = 2450$, $z = -2.15$, $p = .032$, two-tailed) should be banned from smoking on health care premises. Psychiatric/mental health nurses felt that young service users should not be encouraged to quit smoking ($U = 4452$, $z = -2.24$, $p = .025$, two-tailed) rather cigarettes should be provide to the service users ($U = 4530$, $z = -2.27$, $p = .023$, two-tailed), and smoking together with them helped establish therapeutic relationship ($U = 4518$, $z = -2.07$, $p = .038$, two-tailed) when compared to the responses of comprehensive/generalist prepared nurses.

Overall, 194 (94.2%) nurses agreed that providing advice to young people experiencing psychosis about heart disease prevention was a nursing role. There were 202 (97.6%) nurses who agreed that the nursing role should include helping young people with weight management; and 191 (92.3%) were in agreement for providing nutritional advice; while 167 (80.7%) concurred that nurses should provide advice on exercise. However, the participants were less certain about their physical health care roles, particularly around health promotion issues that are usually undertaken in the primary care setting. Specifically, 114 (55.1%) nurses would advise young people to attend cancer screening, 129 (62.6%) nurses would check that young people had ocular examination, 139 (67.1%) nurses would ensure young people had regular dental visits and 149 (72%) nurses would provide contraceptive advice to young people.

Of the 207 nurses, 204 (98.6%) were confident in measuring blood pressure, and 174 (84.5%) informed that they could accurately assess hyperglycaemia while 163 (78.7%) could assess a young person for hypoglycaemia. There were 160 (77.3%) nurses who were able to identify potential cardiac risks associated with taking antipsychotic medications but 139 (67.6%) nurses were unsure about negative ocular effects associated with using antipsychotic medications. A minority of 56 (27.3%) nurses identified that their workload prevented them from providing physical health care. A small number of 19 (9.2%) and 28 (13.5%) nurses respectively indicated that the young person's level of motivation or interest in physical health care and providing information about the adverse effects of antipsychotic medication were barriers to providing physical health care.

There were 25 (12.1%) nurses who believed that smoking together with young people helped build rapport and achieve therapeutic goals. A total of 121 (58.5%) nurses indicated that cigarette smoking should be banned within health premises for young people experiencing first episode psychosis, and likewise 171 (82.6%) wanted staff smoking to be banned. The Mann-Whitney *U* test results of the PHASe items associated with attitudes, confidence level and perceived barriers for provision of physical health care between the two groups of nurses (psychiatric/mental health and comprehensive/generalist prepared nurses) are presented in Table 2.

3.3 | Nurses' responses about physical health care practices

In general 164 (79.2%) nurses reported their nursing practices would involve providing advice on exercise to young people. A total of 155 (74.9%) reported that they would provide dietary advice and 148 (71.5%) stated they would offer weight management recommendations. Among the participants, 138 (66.7%) reported that their current physical health care practices with young people frequently involved smoking cessation discussion, 130 (62.8%) would measure weight routinely, 126 (60.9%) would monitor blood pressure, 112 (54.1%) would assist young people with personal hygiene and 108 (52.4%) would assess glucose level. There were 82 of the 207 participants who stated that they would provide advice on contraception to young people, and 91 (44%) would give dental health information while 101 (48.8%) would provide bowel health guidance.

The Mann-Whitney *U* test revealed a small difference ($r = .14$) in the degree to which nurses were involved in the nursing practice of checking that young people experiencing psychosis are engaged with a general practitioner (GP) to follow up the young person's health care in the community; psychiatric/mental health nurses being more involved (Mean Rank = 110.71, $n = 104$) than comprehensive/generalist nurses (Mean Rank = 96.15, $n = 102$), $U = 4554$, $z = -2.01$, $p = .044$. Mann-Whitney *U* test also revealed a small difference ($r = .14$) in the likelihood that nurses engaged with young people in smoking cessation interventions, with comprehensive/generalist nurses were significantly more likely to engage with young people in smoking cessation interventions (Mean Rank = 112, $n = 102$) than psychiatric/mental health nurses (Mean Rank = 95.6, $n = 104$), $U = 4488$, $z = -2.03$, $p = .043$, two-tailed. Table 3 shows the group differences between psychiatric/mental health and comprehensive/generalist nurses in relation to nursing educational preparation and physical health care nursing practices.

There was no statistically significant difference between the two groups of nurses for length of employment in mental health and physical health care nursing practices.

Table 2: Responses to PHASe subscale items (P/MHN $n = 104$, C/GN $n = 103$)

PHASe Items	Groups	Mean Rank	Sum of Ranks	Mann-Whitney U	Z	Asymp. Sig. (2-tailed)
1. Attitudes of nurses to involve in physical health care roles						
Provide nutritional advice	P/MHN	100.08	10,409	4949	-1.060	0.289
	C/GN	107.96	11,120			
Helping young clients with weight management	P/MHN	100.52	10,455	4995	-0.975	0.330
	C/GN	107.51	11,074			
Provide advice on how to prevent heart disease	P/MHN	93.57	9638	4282	-2.717	0.007*
	C/GN	113.43	11,683			
Educate female clients about importance of breast self-examination	P/MHN	93.46	9720	4260	-2.651	0.008*
	C/GN	114.64	11,808			
Educate male clients about importance of testicular self-examination	P/MHN	94.88	9868	4408	-2.191	0.028*
	C/GN	112.28	11,453			
Provide contraceptive advice	P/MHN	102.58	10,668	5208	-0.366	0.715
	C/GN	105.44	10,860			
Ensure clients have their eyes checked regularly	P/MHN	101.20	10,525	5065	-0.596	0.551
	C/GN	105.85	10,797			
Ensure clients register with a dentist	P/MHN	101.38	10,544	5084	-0.666	0.505
	C/GN	106.64	10,984			
Ensure clients have had cancer screening checks	P/MHN	95.24	9905	4445	-2.201	0.028*
	C/GN	112.85	11,624			
Not to provide advice about exercise	P/MHN	110.17	11,458	4715	-1.577	0.115
	C/GN	97.77	10,071			
2. Confidence level of nurses in delivering physical health care						
Measuring blood pressure accurately	P/MHN	100.08	10,408	4948	-1.274	0.203
	C/GN	107.96	11,120			
Resuscitating a client who had a cardiac arrest	P/MHN	102.18	10,627	5167	-0.495	0.620
	C/GN	105.84	10,902			
Assessing signs and symptoms of hypo-glycaemia	P/MHN	104.56	10,770	5196	-0.279	0.780
	C/GN	102.44	10,552			
Knowing which psychotropic drugs increase cardiac problems	P/MHN	96.05	9990	4530	-2.087	0.037*
	C/GN	112.02	11,539			

Assessing signs and symptoms of hyper-glycaemia	P/MHN	106.70	11,097	5075	-0.700	0.484
	C/GN	101.27	10,431			
Knowing which psychotropic drugs may cause damage to the eyes	P/MHN	98.31	10,126	4770	-1.307	0.191
	C/GN	108.69	11,196			
3. Perceived barriers in delivering physical health care						
It is difficult to get clients to follow healthy eating advice	P/MHN	106.60	11,087	4260	-2.651	0.008*
	C/GN	101.37	10,442			
It is difficult to get clients to follow weight management advice	P/MHN	109.80	11,420	4753	-1.482	0.138
	C/GN	98.14	10,109			
Clients are not motivated to exercise	P/MHN	106.31	10,950	5016	-0.730	0.465
	C/GN	100.69	10,372			
Informing clients about the adverse effects of medication on their physical health may increase non-adherence	P/MHN	117.01	12,169	4003	-3.371	0.001*
	C/GN	90.86	9359			
My workload prevents me doing physical health promotion to clients	P/MHN	106.04	10,923	4940	-0.782	0.434
	C/GN	99.63	10,193			
Clients with early or first-episode of psychosis are not interested in improving their physical health	P/MHN	114.75	11,934	4238	-2.864	0.004*
	C/GN	93.15	9594			
Physical health worries of clients are mostly due to their mental illness	P/MHN	112.80	11,619	4347	-2.447	0.014*
	C/GN	94.20	9703			
4. Attitudes of nurses related to smoking						
Staff should be banned from smoking on all health care premises	P/MHN	94.99	9879	4419	-2.441	0.015*
	C/GN	113.10	11,649			
Staff and clients smoking together helps build therapeutic relationship	P/MHN	112.06	11,654	4518	-2.072	0.038*
	C/GN	95.86	9874			
Clients should be banned from smoking on all health care premises	P/MHN	70.56	5151	2450	-2.150	0.032*
	C/GN	85.48	7095			
Clients should not be encouraged to give up smoking as they have enough to cope with	P/MHN	112.70	11,721	4452	-2.243	0.025*
	C/GN	95.22	9808			
Clients should be given cigarettes to help achieve therapeutic goals	P/MHN	111.95	11,643	4530	-2.274	0.023*
	C/GN	95.98	9886			

Notes. Abbreviations for education preparation: P/MNH: Psychiatric/Mental Health Nurses; C/GN: Comprehensive/Generalist Nurses.

* $p < 0.05$.

Table 3: Physical health care nursing practices (P/MHN $n = 104$, C/GN $n = 103$)

Nursing practices	Group	Mean Rank	Sum of Ranks	Mann-Whitney U	Z	Asymp. Sig. (2-tailed)
Benefit of exercise consultation	P/MHN	107.54	11,184	4988	-0.933	0.351
	C/GN	100.43	10,344			
Check service user has a general practitioner	P/MHN	111.62	11,608	4564	-2.106	0.035*
	C/GN	96.31	9920			
Healthy eating advice	P/MHN	102.99	10,711	5251	-0.263	0.793
	C/GN	105.02	10,817			
Weight management	P/MHN	103.29	10,742	5282	-0.184	0.854
	C/GN	104.72	10,786			
Initial physical examination	P/MHN	110.76	11,519	4653	-1.772	0.076
	C/GN	97.17	10,009			
Smoking cessation discussion	P/MHN	95.79	9963	4503	-2.105	0.035*
	C/GN	112.29	11,566			
Routine weight measurement	P/MHN	102.13	10,621	5161	-0.482	0.630
	C/GN	105.89	10,907			
Blood pressure monitoring	P/MHN	106.42	11,068	4952	-1.012	0.312
	C/GN	100.52	10,253			
Assist with personal hygiene	P/MHN	108.74	11,309	4864	-1.233	0.218
	C/GN	99.22	10,220			
Glucose monitoring	P/MHN	106.42	11,068	5000	-0.770	0.442
	C/GN	100.52	10,253			
Bowel habits assessment	P/MHN	99.30	10,327	4867	-1.242	0.214
	C/GN	108.75	11,201			
Dental health advice	P/MHN	100.30	10,432	4972	-0.996	0.319
	C/GN	107.73	11,097			
Contraception advice	P/MHN	101.77	10,584	5124	-0.614	0.539
	C/GN	106.25	10,944			

Notes. P/MNH: Psychiatric/Mental Health Nurses; C/GN: Comprehensive/Generalist Nurses.

* $p < 0.05$.

4 | DISCUSSION

The findings of this study support previous research that nurses' educational preparation influenced their physical health care practices in the mental health setting (Blythe & White, 2012; Hayman-White et al., 2007; Walker & McAndrew, 2015) and expands previous findings to the care of young people experiencing first episode psychosis. When providing care to young people with psychosis comprehensive/generalist prepared nurses reported they would provide more integrated and complex physical health care practices than psychiatric/mental health prepared nurses. This integrated care comprised working with the young person to address sexual health issues and to facilitate cancer screening which has traditionally not been addressed by nurses working in the area of mental health. Comprehensive/generalist nurses were also more likely to encourage smoking cessation in this cohort of service users.

The findings also support the premise that while psychiatric/mental health nurses are proficient in providing mental health care they do not have the same level of confidence in the provision of physical health care to young people (Hemingway, Clifton, Stephenson, & Edward, 2014). Psychiatric/mental health nurses in this study also report that they were cautious to inform young people about adverse effects of antipsychotic medication because such information would cause nonadherence with treatment. Haddad, Brain, and Scott (2014) reported that mental health service users were more willing to discuss issues pertaining to medication-taking with a psychiatric nurse than with a psychiatrist. Hence psychiatric/mental health nurses should take the opportunity to work closely with service users to discuss adverse effects of antipsychotic medications. This should occur before starting medication to support service users to make informed choices to improve adherence and for nurses to plan strategies to manage any potential treatment-emergent physical health problems instead of avoiding medication-taking discussion with young people (Blythe & White, 2012).

As there is a close association between the use of antipsychotic medication and the increased risk for metabolic syndrome in young people experiencing first episode psychosis all nurses working in the area of mental health irrespective of their educational preparation will be increasingly accountable for addressing the physical health care needs of this group of service users to identify those at risk and provide early intervention to reduce the development of physical health comorbidities (Chee, Wynaden, & Heslop, 2017; Howard & Gamble, 2011). Increasing responsibility will also be placed on those who administer antipsychotic medication to young people to demonstrate accountability in the area of metabolic screening and monitoring (NICE, 2017; Ward, Wynaden, & Heslop, 2018). Therefore nurses should take the initiative to implement metabolic care within the mental health setting as a pathway to reduce the prodromal health risk associated with metabolic syndrome (Stanley & Laugharne, 2011). Furthermore, nurses can promote healthy lifestyle and encourage young people to participate in physical wellness programs to improve diet and increase physical activity (Curtis et al., 2016).

Apart from poorer physical health related to antipsychotic-induced weight gain and metabolic disturbances, a young person experiencing first episode psychosis may also experience lower life satisfaction, reduced confidence and self-esteem, and eventually have more addiction-related problems (Haddad, Brain, & Scott, 2014). Gurillo, Jauhar, Murray, and MacCabe (2015) identified that cigarette smoking was prevalent in young people with first episode psychosis, and that smokers developed psychosis at an earlier age than non-smokers. Smoking can cause many negative life-threatening health outcomes and is widely recognised as a risk factor of comorbid physical health problems (Gurillo et al., 2015; McGrath et al., 2016). It also potentiates adverse pharmacotherapy effects because the nicotine consumed from smoking cigarettes interferes with the metabolism of antipsychotic medication (McGrath et al., 2016). Young people experiencing first episode psychosis taking antipsychotic medication are more likely to smoke cigarettes compared to the general population and may require higher

doses of antipsychotic medication which increases their risk of developing metabolic syndrome (Eapen & John, 2011; Wynaden et al., 2016). As such psychiatric/mental health and comprehensive/generalist nurses in this study share a general consensus that young people with first episode psychosis should be counselled to stop smoking and that mental health service user and hospital staff should be banned from smoking on health care premises.

Nurses working in mental health are increasingly aware of the disparities in physical health of mental health service users but it seems that more needs to be done (Bradshaw & Pedley, 2012; Howard & Gamble, 2011). Nurses need to increase their physical health literacy through professional development and formal educational training so that they are prepared to engage effectively in transparent and therapeutic dialogues with young people experiencing first episode psychosis in the areas of physical health such as metabolic care and smoking cessation (Walker & McAndrew, 2015; Ward, Wynaden, & Heslop, 2018).

The expectation for nurses working within mental health setting to address physical health needs of young people with first episode psychosis is clear as physical and mental health care are so closely interconnected (McCloughen et al., 2015). Nurses should strive to achieve the best possible health outcomes for young people taking antipsychotic medication by integrating physical health assessment, monitoring and intervention into their mental health nursing practices (Chee, Wynaden, & Heslop, 2017; Hetrick et al., 2010). As nurses increase their knowledge of physical health care best practices and become more confident in providing physical health care to young people, they will be effective drivers to translate clinical guidelines into practices to support optimal recovery for service users in a holistic manner.

4.1 | Study limitations

There are several limitations acknowledged by the authors. First, the differences in physical health care practices between psychiatric/mental health nurses and comprehensive/generalist nurses should be interpreted with caution as cross-sectional design cannot elicit a longitudinal causal relationship between the nurses' skills and knowledge and their nursing practices. Second, the generalizability of the findings is limited due to its cross-sectional design and convenience sampling strategy. Nurses who attended the conference and breakfast meeting may be different (in relation to attitude and confidence level about physical health care provision) to nurses in routine practice. Third, the respondents were predominantly above 50 years old and have been practising in mental health for more than 20 years thus creating a possible bias that they are adequately prepared in terms of skills and knowledge to undertake physical health care. Fourth, there remains a possibility that participants responded to the questionnaire in a manner which they considered socially acceptable even though their responses were confidential. Finally, the non-adjustment for multiple testing was a limitation.

4.2 | Implications to nursing practices

Nurses working in mental health play an important role in the management of young people's physical health particularly when the first onset of psychosis is present at an early age (McCloughen et al., 2015). These young people will normally be prescribed antipsychotic medication therapy. As such, nurses need to reflect on their level of physical health care provision for young people with first episode psychosis because of the risk for long-term metabolic complications and comorbidities to the young person's future physical health from using antipsychotic medication (Robson et al., 2013; Ward, Wynaden, & Heslop, 2018).

It is therefore necessary for psychiatric/mental health prepared nurses to increase their physical health literacy so that they can continue to provide evidence-based physical health care to their service users. The provision of physical health care within mental health setting should be viewed as investing into the young person's recovery to lead a satisfying and meaningful lifestyle (Curtis et al., 2016).

Nurses need to be actively involved in the young person's health recovery journey (Howard & Gamble, 2011). Early intervention in physical health care will benefit young people experiencing first episode psychosis and improve their long-term health. It will also decrease the individual's dependence on health services as comorbidities reduce, thus lowering future health care cost.

5 | CONCLUSION

Nurses working in mental health need to be competent to provide physical health care to service users (McCloughen et al., 2015) but their educational preparation can influence their physical health care provision. Professional development to increase all nurses' physical health literacy and skills is important to improve the health disparity experienced by mental health service users (Bressington et al., 2018; Hemingway et al., 2014).

6 | RELEVANCE STATEMENT

Young people experiencing first episode psychosis are vulnerable to poor physical health outcomes, particularly when they are prescribed antipsychotic medication. Therefore, all nurses working in mental health need to be able to provide comprehensive physical health care to young people to reduce their risk of developing comorbid physical health problems. This paper presents the findings of research that examined factors that influenced nurses' provision of physical health care to young people experiencing first episode psychosis.

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Declaration of interest

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Ethical statements

The conduct of the survey for the article titled "The provision of physical health care by nurses to young people with first episode psychosis: A cross-sectional study" has been granted approval by Curtin University Human Research Ethics Committee (approval number: RDHS-81-15) dated 14-May-2015 in Western Australia.

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6.3 Summary of Chapter 6

This chapter presented the quantitative findings of Study 3 that highlighted the inconsistencies in nursing practices among nurses working in mental health due to differences in their educational preparation which affected the quality of care provided to young people with FEP. It was found that comprehensive/generalist trained nurses were more likely to provide physical health-related interventions such as smoking cessation and education on heart disease prevention and sexual health to individuals experiencing FEP compared to psychiatric/mental health trained nurses. However, regardless of educational preparation, it is the nurses' role and responsibility to provide comprehensive health care in mental health settings to individuals whose ability for self-care is compromised by psychotic symptoms. Nurses working in mental health must give equal attention to the physical health of young people with FEP as is given to mental health and capitalise on the opportunities they have to make sure the physical health needs of this cohort are met.

Chapter 7 follows and presents Study 4 reporting empirical evidence on the physical health status between young people with FEP and a comparison group in the clinical environment. This quantitative study used within- and between-groups statistical tests to determine whether the physical health of two different groups of consumers was different from one another over 12 months. It was found that young people with FEP were more likely to develop physical health co-morbidities than participants in the comparison group. Hence, early intervention for physical health care is needed to improve young people's physical health.

CHAPTER 7

STUDY 4: QUANTITATIVE STUDY ON THE HEALTH STATUS OF YOUNG PEOPLE WITH FEP

7.1 Introduction

This chapter presents Study 4 which is the second quantitative component of the mixed methods research design conducted to evaluate the physical health status of young people with FEP. There is an increasing body of evidence suggesting that people with mental disorders such as schizophrenia have a greater risk of diabetes and lipid abnormalities associated with taking antipsychotic medications (O'Donoghue et al., 2014; Stroup & Gray, 2018). Young people presenting with FEP may in the future meet the diagnostic criteria for a mental disorder such as schizophrenia if their psychosis progresses over time (Enderami et al., 2017; Fusar-Poli et al., 2016). Hence, they are enrolled in EIP programs to receive intensive individualised and comprehensive care to improve their mental health outcomes and long-term health prognosis, but their physical health is not given the same care priority level (McCloughen et al., 2012; McGorry, 2015; Wright et al., 2020). Furthermore, many young people with FEP lack insight into their condition and are unaware of the changes to their physical health (Kim et al., 2019). The development of physical co-morbidities is now being highlighted as a growing concern in this cohort of young people who take antipsychotic medications as part of their treatment for FEP (Malla & McGorry, 2019). To better understand the physical health status of young people with FEP enrolled in an EIP program, it was important for the researcher to explore if these young people had the same level of risk of developing physical health problems when compared to a group of adults with long-term psychosis who were also receiving antipsychotic medications. The comparison group of

adults are referred to as “people with psychosis” in Publication 5 which presents the research completed in Study 4 and is the focus of this chapter.

7.2 Publication 5: Study 4

Chee, G.-L., Wynaden, D., & Heslop, K. (2021). Exploring the health status of people with first-episode psychosis enrolled in the early intervention in psychosis program. *Issues in Mental Health Nursing, 42(1)*, 57-64. doi:10.1080/01612840.2020.1797251

Higher Degree Research Thesis by Publication

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Statement of Originality

We, the PhD. candidate and the candidate's principal supervisor, certify that the following manuscript including text, figures and diagrams are the candidate's original work.

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Name of candidate: Gin Liang CHEE

Name and title of principal supervisor: Associate Professor Karen HESLOP

1st December 2022

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Date

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Date

Figure 7.1. Page one of Publication 5 – Study 4 (Permission was granted by the copyright owner to duplicate the published work in this thesis – see Appendix A.5)



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Exploring the Health Status of People with First-Episode Psychosis Enrolled in the Early Intervention in Psychosis Program


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Title

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ABSTRACT

People diagnosed with mental disorders are at risk of developing physical health co-morbidities. An exploratory “within-subject” and “between-group” design examined the health outcomes of a group diagnosed with first-episode psychosis enrolled in an early intervention in psychosis program over 12 months. The findings were compared with a group diagnosed with psychosis for more than two years. Participants with first-episode psychosis recorded a significant increase in weight over 12 months when assessed against the comparison group. The findings show that the potential for developing physical health co-morbidities begins from the time of diagnosis and commencement of antipsychotic medications.

INTRODUCTION

Contemporary mental health services in developed countries have specialized Early Intervention in Psychosis (EIP) programs that deliver specialized care to people with first-episode psychosis (FEP) (Moe et al., 2018; Petrakis, Penno et al., 2012). These specialized programs are purported to deliver comprehensive, integrated health care including mental and physical health tailored to the needs of the person with FEP (Hodgekins et al., 2017; Mouko & Sullivan, 2017). The programs assist interventions to be delivered promptly to the person to reduce the severity and intensity of their psychotic symptoms. Such programs include the use of specific pharmacotherapy, particularly antipsychotic medications to reduce psychotic symptoms, improve executive functioning and prevent future relapse of their psychosis (Hodgekins et al., 2017). When the person’s psychosis is stabilized, they transfer from the EIP program to continuing care programs for ongoing treatment and support (Petrakis et al., 2012).

Antipsychotic medications play a key role in the treatment of psychosis. Approximately 92% of people are prescribed antipsychotic medication at the time of diagnosis to treat psychotic symptoms (Lappin et al., 2018). Although clinical guidelines recommend that only one antipsychotic medication should be used (Galletly et al., 2016), the concurrent use of more than one antipsychotic medication occurs (Sun et al., 2014; Westaway et al., 2016). These medications alter the levels of neurotransmitters in the brain to lessen psychotic symptoms and prevent a relapse of the psychosis occurring (Haring et al. 2015; Karson et al., 2016). People taking more than one antipsychotic medication are more likely to experience side effects and to receive higher than recommended antipsychotic doses than those taking monotherapy (Westaway et al., 2016). Side-effects include weight gain, which can increase the person’s risk for developing long-term physical health problems, for example, metabolic syndrome increasing their risk for type II diabetes, stroke and cardiovascular disease (O’Donoghue et al., 2014; Stroup & Gray, 2018).

It is well known that people diagnosed with a psychosis are more likely to have a poorer physical health status than the general population (Gates et al., 2015; Lee et al., 2018; Stubbs et al., 2016). People with a psychosis are more likely to be obese, develop metabolic abnormalities and at higher risk of developing pulmonary heart disease and myocardial infarction (Stroup & Gray, 2018). They have a 2.5 times higher risk of premature mortality and their life expectancy is 10 to 32 years less than the general population (Gates et al., 2015; Kuipers et al., 2014).

The long-term physical health effects from taking antipsychotic medications are documented in the scientific literature (Martín Otaño et al., 2013; Vázquez-Bourgon et al., 2018). Rapid early onset in weight gain within the first three months of commencement of antipsychotic medication is reported (Martín Otaño et al., 2013; Zhai et al., 2017). As such, international guidelines, for example, “American Diabetes Association/American Psychiatric Association guidelines” (American Diabetes Association et al., 2004), “the Lester Tool” (The Royal College of Psychiatrists, 2020) and “Healthy Active Lives” (International Physical Health in Youth Stream, 2019) highlight the importance on routine ongoing monitoring of the physical health of people from the time of commencing antipsychotic medications. Curtis et al. (2012) also recommend that EIP programs provide comprehensive health care that includes interventions such as encouraging smoking cessation, lifestyle modification, regular exercise and health education to reduce the risk of long term physical health conditions related from the use of antipsychotic medications.

There is evidence to support the benefits of EIP programs and that they help to improve the mental health of the individual (Malla & McGorry, 2019). However, the evidence that such programs decrease the risk of long-term physical health problems is less definitive (Penno et al., 2017). Health professionals may perceive people diagnosed with FEP to be physically healthy and therefore interventions to maintain and promote the person’s physical health are not the focus of care or research (Knaak et al., 2017). While the poor physical health of people with severe mental illness is well-documented, less research has focused on the physical health outcomes in people newly diagnosed with psychosis. The researchers set out to explore when changes in physical health began in this patient group. The research aimed to determine the health outcomes at baseline and 12 months in a group of people diagnosed with FEP enrolled in an EIP program.

METHOD

Study design

This study was a secondary analysis of retrospective data where the cohort was part of a larger study group examining the health outcomes of people with mental illness. The study used an exploratory “within-subject” and “between-group” design to examine the mental and physical health status at baseline and 12 months of the observational group enrolled in the EIP program and the comparison group engaged in a continuing care program. The 12-month mental and physical health status of both groups were compared. The EIP group had been taking antipsychotic medications for 12 months and the comparison group for two years or more. It was hypothesized that there would be no difference in the health outcomes of both groups between baseline and endpoint and no difference in the physical health status between groups at 12-months.

Sample

All participants were well enough to participate in the research and provided informed consent. The inclusion criteria were the same as the primary study, which were people diagnosed with a mental illness based on the World Health Organization (WHO) Tenth Revision of the International Classification of Disease (ICD-10) and receiving treatment at a tertiary mental health service. Participants were placed in either the EIP (A) or comparison (B) group:

A) People with FEP – i) newly diagnosed with FEP based on the WHO ICD-10 classification; ii) taking antipsychotic medication for the first time during the 12 month study period, and iii) enrolled in an EIP program.

B) People with psychosis – i) diagnosis of psychosis according to WHO ICD-10 classification; ii) taking antipsychotic medications regularly for 2 or more years, and iii) enrolled in continuing care program and cared for by community mental health team.

Setting

Data collection was completed in 2017 at a tertiary mental health service in Perth, Western Australia. The mental health service covers a geographical catchment area of approximately 240 square kilometres, servicing a population of about 200,000. It provides acute, inpatient and community-based mental health services to people aged 18 to 65 years and to older adults over 65 years. Within this service, there are different community teams of health professionals delivering specialized EIP, adult and older adult continuing care programs. The specialized EIP program delivers intensive tailored mental health interventions aimed at shortening the course and decreasing the severity of the psychosis for highly vulnerable people experiencing the onset of psychosis. The adult continuing care program supports the treatment and recovery of people with mental illness in the community setting.

Ethics

Ethical approval to conduct the research was obtained from the South Metropolitan Health Service Human Research Ethics Committee in Western Australia (approval number 14/12). The Curtin University Human Research Ethics Committee had also granted reciprocal ethics approval for this research (approval number HR 61/2014).

Data collection

The principal researcher collected baseline sociodemographic and clinical data such as anthropometric and physical health measurements, mental health status and quality of life indicators at baseline and again at 12 months (endpoint). Participants were assigned an alpha-numerical code so that no personally identifiable information was extracted during data analysis to maintain confidentiality.

Elements of anthropometry recorded were height, weight, body mass index, waist circumference, and chest measurement (males) or hip measurement (females). An electronic scale measuring up to 180 kilograms assessed weight. Body mass index (BMI) was calculated with the equation: $\text{weight}/\text{height}^2$. Waist circumference was taken at the end of expiration around the abdomen at the level of the hip bone. For male participants, chest circumference was measured with a measuring tape at the end of expiration under the axilla, around the broadest part of the chest. For female participants, the hip measurement was taken with a tape measure wrapped evenly around the broadest part of their hip at the end of a normal breathing cycle.

Physical health status such as blood pressure and resting heart rate, and carbon monoxide levels to obtain an objective indication of smoking status were recorded. Blood pressure was measured with the participant seated electronically with an appropriately sized cuff wrapped around the upper arm above the elbow. Resting heart rate was taken at the wrist for 60 seconds with the participant seated. Carbon monoxide level in exhaled breath was measured with a smokerlyzer.

Mental health assessments were conducted using (1) The Brief Psychiatric Rating Scale (BPRS) measures the severity of psychiatric symptoms with higher scores indicating more severe symptoms; (2) The Health of the Nation Outcome (HoNOS) Scale compares clinical status between two points in time where the worsening of a condition/problem is represented by higher scores at endpoint; and (3) The Kessler Psychological Distress (K10) Scale evaluates the level of distress where scores of 30 or more suggesting a very high level of stress.

Additionally, all participants completed clinical questionnaires on substance use and quality of life. The use of alcohol and other substances was assessed using the Alcohol, Smoking & Substance Involvement Screening Test (ASSIST) to identify the level of risk for each substance (i.e. tobacco, alcohol and cannabis) and to determine the appropriate intervention. No intervention is required for scores three or less; scores between four and 26 warrant brief intervention; and scores above 26 indicate the need for intensive intervention. The psychometric properties of life satisfaction were measured using the World Health Organization Quality of Life (WHOQoL-BREF) questionnaire where a higher score indicates a greater level of satisfaction.

Statistical analysis

Demographic characteristics were reported using descriptive statistics. Paired-samples *t*-tests compared two means (i.e. baseline and endpoint data) collected from each group of participants. Independent *t*-tests compared physical health status at endpoints between the two different groups. Statistically, a significant difference is indicated by $p < 0.05$ (Gerald, 2018). The Statistical Package for Social Sciences, Version 25 (IBM Corp., 2017) was used to analyze data.

RESULTS

Demographic characteristics

One hundred and four participants met the inclusion criteria and their demographics is summarized in Table 1. They represented 11% of the people using mental health services at the data collection site. Twenty-nine people with FEP had started treatment with antipsychotic medication and participated, representing 58% of the population enrolled in the EIP program receiving specialized care at the mental health service. The comparison group consisted of 75 people with psychosis enrolled in continuing care program. They have been taking antipsychotic medications for at least two years.

Table 1. Characteristics of participants (n=104)

Demographics	<i>People with FEP enrolled in EIP program (n=29)</i>	<i>People with psychosis not enrolled in EIP program (n=75)</i>
Age, mean (SD)	27 (3.9)	46 (10.4)
Gender		
Male	27 (93)	54 (72)
Female	2 (7)	21 (28)
Ethnicity		
Caucasian	23 (79)	58 (77)
Aboriginal and TSI	0 (0)	3 (4)
Others	6 (21)	14 (19)
Tobacco smoker		
Yes	19 (66)	54 (72)
Cannabis user		
Yes	9 (31)	16 (21)
Alcohol drinker		
Yes	23 (79)	51 (68)

Values are frequency (%) unless otherwise indicated

The average age of participants experiencing FEP was 27 years ($n=29$) while those in the comparison group was 46 years ($n=75$). There were more males than females in both groups. More than 60% of the participants smoked tobacco and consumed alcohol. Of the tobacco smokers, 52% of people with FEP were considered high risk requiring intensive intervention compared to 19% in the comparison group. No participant was at high risk of alcohol and cannabis use.

At baseline, the average weight of people enrolled in the EIP program was approximately six kilograms lighter than the comparison group. Approximately 40% of the participants in each group were taking at least two different types of antipsychotic medications. The most common prescription medication was Quetiapine (35%) while Asenapine (0.7%) and Haloperidol (0.7%) were the least prescribed medications (see Table 2). Other than the antipsychotic medications, 35% ($n=36$) of participants were also prescribed antidepressants, 8% ($n=8$) were on mood stabilizers and 6% ($n=6$) were taking both antidepressants and mood stabilizers.

Table 2. Antipsychotic medication prescription profile

	<i>People with FEP enrolled in EIP program (n=29)</i>	<i>People with psychosis not enrolled in EIP program (n=75)</i>
Number of antipsychotic medication(s) prescribed		
One	19 (66)	52 (69)
Two or more	10 (34)	23 (31)
Type of antipsychotic medication prescribed		
Amisulphide	3 (7.5)	4 (4)
Aripiprazole	4 (10)	8 (8)
Asenapine	1 (2.5)	0 (0)
Chlorpromazine	1 (2.5)	1 (1)
Clozapine	5 (12.5)	11 (11)
Haloperidol	1 (2.5)	0 (0)
Olanzapine	6 (15)	12 (12)
Paliperidone	2 (5)	11 (11)
Pipothiazine	0 (0)	2 (2)
Quetiapine	11 (27.5)	38 (38)
Risperidone	4 (10)	11 (11)
Zuclopenthixol	2 (5)	2 (2)
Total	40 (100)	100 (100)

Values are frequency (%)

Within-subject analysis of mental health status and quality of life

Total BPRS scores reduced by 4.2 (14%) and 3 (9%) points respectively for people enrolled in EIP and continuing care programs following 12 months of antipsychotic treatment. There were significant decreases in behaviour and social problems indicated on the HoNOS subscales with Cohens $d=0.55$ and 0.79 (for people enrolled in EIP), and $d=0.39$ and 0.44 (for people enrolled in continuing care program). There were statistically significant decreases (more than 12%) in WHOQoL-BREF subscales scores for quality of life and quality of health for people enrolled in the EIP program. They reported a 50% reduction in using cannabis at 12-month follow-up (see Table 3).

Table 3. Within-subject analysis of mental health status and quality of life

Clinical scale	<i>People with FEP enrolled in EIP program</i>						<i>People with psychosis not enrolled in EIP program</i>					
	<u>Baseline</u>		<u>12-month</u>		<i>t</i> (<i>N</i>)	<i>p</i>	<u>Baseline</u>		<u>12-month</u>		<i>t</i> (<i>N</i>)	<i>p</i>
Mean	SD	Mean	SD	Mean			SD	Mean	SD	Mean		
BPRS total score	29.9	6.27	25.7	8.01	2.81 (28)	0.009*	32.4	8.30	29.4	7.10	3.64 (74)	0.001*
HoNOS subscales												
1. Behaviour problems	6.10	3.59	4.24	2.52	2.95 (28)	0.006*	6.51	3.12	5.08	2.97	3.32 (74)	0.001*
2. Impairments	0.79	0.98	0.48	0.63	1.88 (28)	0.071	1.63	1.37	1.31	1.75	1.98 (74)	0.051
3. Symptomatic problems	3.17	1.95	2.69	1.69	1.17 (28)	0.25	3.48	1.71	2.77	1.69	2.81 (74)	0.006*
4. Social problems	2.55	2.63	1.14	1.43	4.32 (28)	0.0*	2.48	1.88	1.60	1.46	3.77 (74)	0.0*
K10 total score	36.0	8.9	35.9	7.60	0.016 (28)	0.68	36.0	8.6	37.6	9.1	3.77 (74)	0.061
WHOQoL-BREF subscales												
1. Quality of life rating	3.66	0.67	3.08	0.73	2.12 (28)	0.043*	3.65	1.47	3.48	1.06	1.10 (74)	0.28
2. Quality of health rating	3.58	1.05	3.14	0.95	2.07 (28)	0.048*	3.47	1.31	3.29	1.15	1.29 (74)	0.21
3. Physical	14.5	2.01	14.4	2.41	0.077 (28)	0.94	13.7	3.08	14.3	3.04	-1.92 (74)	0.060
4. Psychological	11.7	2.95	13.1	2.73	-2.59 (28)	0.015*	12.8	2.29	12.7	3.56	0.22 (74)	0.83
5. Social relationships	12.3	3.59	12.4	3.72	-0.11 (28)	0.92	12.4	3.97	12.5	3.58	-0.31 (74)	0.76
6. Environment	13.9	2.43	14.1	2.37	-0.53 (28)	0.61	13.9	3.06	13.9	3.09	0.16 (74)	0.91
ASSIST												
1. Tobacco	13.6	10.6	13.0	11.3	0.40 (28)	0.69	12.9	11.3	11.9	9.60	1.24 (74)	0.22
2. Cannabis	8.38	9.22	4.41	4.89	2.21 (28)	0.036*	2.68	6.59	2.33	5.67	0.48 (74)	0.64
3. Alcohol	3.59	8.76	2.38	6.65	0.72 (28)	0.48	4.75	7.11	5.19	6.92	-0.61 (74)	0.55

**p* < 0.05

BPRS: Brief Psychiatric Rating Scale

HoNOS: Health of the Nation Outcome Scales

K10: Kessler Psychological Distress Scale

WHOQoL-BREF: World Health Organization Quality of Life Instruments

ASSIST: Alcohol, Smoking, Substance Involvement Screening Tool

Table 4. Within-subject analysis of physical health status

Variables	<i>People with FEP enrolled in EIP program</i>						<i>People with psychosis not enrolled in EIP program</i>					
	<u>Baseline</u>		<u>12-month</u>		<i>t (N)</i>	<i>p</i>	<u>Baseline</u>		<u>12-month</u>		<i>t (N)</i>	<i>p</i>
	Mean	SD	Mean	SD			Mean	SD	Mean	SD		
Anthropometrics												
Height (m)	1.77	0.078	1.77	0.077	-0.627 (28)	0.535	1.73	0.112	1.73	0.11	1.69 (74)	0.095
Weight (kg)	84.8	17.2	91.0	18.2	-2.34 (28)	0.026*	90.9	19.8	92.0	22.2	-0.99 (74)	0.37
Body mass index	26.5	5.11	28.0	5.32	-2.52 (28)	0.017*	30.0	6.10	30.7	7.10	-1.61 (74)	0.11
Waist circumference (cm)	97.7	14.0	101	12.5	-1.19 (28)	0.247	110	14.6	110	14.1	0.32 (74)	0.75
Chest/hip-waist ratio	0.97	0.073	0.98	0.060	-0.592 (28)	0.558	0.99	0.061	0.99	0.063	0.46 (74)	0.65
Blood pressure												
Systolic (mmHg)	125	15.2	121	15.5	1.51 (28)	0.142	124	16.9	121	15.9	1.84 (74)	0.069
Diastolic (mmHg)	76.7	11.5	77.9	12.4	-0.567 (28)	0.575	84.7	12.3	82.8	11.2	1.74 (74)	0.085
Resting heart rate (bpm)	82.5	17.2	85.8	14.4	-1.10 (28)	0.279	87.6	13.4	89.8	14.5	-1.43 (74)	0.16
CO level (%)	2.46	1.74	2.82	2.30	-1.27 (27)	0.216	3.06	1.95	2.91	2.08	0.79 (74)	0.43

**p* < 0.05

CO: Carbon monoxide

Table 5. Between-groups analysis on physical health status

Differences between baseline and endpoint measures at 12-month

Variables	<u>People with FEP enrolled in EIP program</u>		<u>People with psychosis not enrolled in EIP program</u>		<i>t</i> (<i>N</i>)	<i>p</i>
	Mean	SD	Mean	SD		
Anthropometrics						
Height (m)	-0.012	0.023	-0.006	0.020	-1.44 (103)	0.15
Weight (kg)	6.21	13.2	1.15	12.1	2.01 (103)	0.047*
Body mass index	1.85	3.56	0.65	3.76	1.60 (103)	0.12
Waist circumference (cm)	3.15	11.4	-0.28	8.02	1.84 (103)	0.067
Chest/hip-waist ratio	0.008	0.072	-0.003	0.048	0.92 (103)	0.36
Blood pressure						
Systolic (mmHg)	-4.24	16.2	-3.52	17.7	-0.21 (103)	0.84
Diastolic (mmHg)	1.21	12.3	-2.34	11.3	1.51 (103)	0.14
Resting heart rate (bpm)	3.33	17.4	3.22	15.9	0.035 (103)	0.97
CO level (%)	0.37	1.57	-0.16	1.83	1.38 (102)	0.17

* $p < 0.05$

CO: Carbon monoxide

Within-subject and between-groups analysis of physical health status

The results for physical health status in Table 4 highlighted that between the time of initial data collection and at 12-month follow-up, people enrolled in the EIP program gained significant weight, averaging four kilograms. A corresponding significant increase in body mass index (BMI) with Cohens $d = 0.29$ (for BMI) and 0.24 (for weight) indicating a small effect size was observed. The number of people with FEP whose body mass index was in the overweight or obese range rose from 12 to 19 (10 were overweight and nine were obese) while only one increment (from 56 to 57) in the comparison group at endpoint. No assumption of normality was violated for all variables. Equal variances could be assumed as equality of variances tested was non-significant.

The only statistically significant difference in the between-groups analysis at endpoint (12-month follow-up) was related to weight as shown in Table 5.

DISCUSSION

The mental health of people with FEP enrolled in the EIP program improved significantly after treatment with antipsychotic medications. Contrary to our hypothesis, a decline in physical health occurred in people enrolled in the EIP program. They experienced significant increased weight and body mass index and self-reported reduced quality of life. Historically, many clinicians assumed that physical health co-morbidities and metabolic abnormalities associated with antipsychotic medications took years to develop and hence previously metabolic changes may have gone unnoticed in people commenced on antipsychotic medication in the early stages of psychosis (Bardi & Moorly, 2016; Lee et al., 2018).

McCloughen et al. (2016) reported that people with FEP are generally more sensitive to antipsychotic medications, particularly to atypical antipsychotics like clozapine. Galletly et al. (2016) report that the clinical practice guidelines of the Royal Australian and New Zealand College of Psychiatrists advise against the prescription of more than one type of antipsychotic medication to people experiencing FEP because antipsychotic polypharmacy and high dose prescribing practices precipitate a high risk of adverse side-effects. However, more than 30% of the people with FEP in this study were prescribed at least two different types of antipsychotic medications, and 28% of the study population received a combination of antipsychotic and other psychiatric medication.

Young people may be fit and healthy prior to commencement of antipsychotic medications, but such medications have a higher propensity to cause weight gain leading to obesity. Eventually this can lead to metabolic syndrome and co-occurring physical health problems earlier in life when compared with the normal aging process (Martín Otaño et al., 2013; Vázquez-Bourgon et al., 2018). Bressington et al. (2016) urge prescribers of antipsychotic medication for people diagnosed with FEP to commence with those with the least side-effects and to titrate the doses continuously during the treatment phase according to individual needs.

Given the documented physical health risks associated with taking antipsychotic medications, maintaining a balance between managing mental health treatment and reducing long-term physical health risks faced by people with FEP is one of the most difficult conundrums for mental health professionals (Curtis et al., 2012; Gray & Deane, 2016). Galletly et al. (2016) highlight that regular and systematic monitoring of emerging physical health co-morbidities including metabolic syndrome is an integral intervention for people recovering from FEP.

The Early Psychosis Guidelines Writing Group and EPPIC National Support Program (2016) and the National Institute for Health and Care Excellence (NICE) clinical guidelines (Kuipers et al., 2014) recommend comprehensive care that addresses both mental and physical health is required for early detection of physical health problems. These guidelines have urged the need to conduct routine metabolic monitoring and screening and early intervention on

changing lifestyles to reduce the risks for physical health problems in people with FEP. It is, therefore, important for health professionals like nurses to adhere to practice guidelines to improve the management of physical health problems, with the aim of decreasing morbidity and premature mortality in people diagnosed with psychosis (Mouko & Sullivan, 2017; Ward et al., 2018).

Nurses providing care for people with FEP play a vital role in monitoring metabolic health and intervening with health education to ensure the person has the best chance to alleviate physical health risks such as weight gain associated with the use of antipsychotic medication and their psychosis (Bradshaw & Pedley, 2012; Happell et al., 2019). Therefore, they have a role as a consumer advocate and the responsibility to reduce the overuse of antipsychotic medications (Galletly et al., 2016; Gray & Brown, 2017; Morrison et al., 2018). They need to be competent in using assessment tools to routinely evaluate the extent of antipsychotic medication side-effects (Morrison et al., 2018). Nonetheless, nurses do not always complete routine metabolic monitoring and screening as part of physical health care within a mental health setting (Ewart et al., 2016). Chee et al. (2018) and Robson et al. (2013) found that the type of nursing education nurses received affected the provision of nursing care. As such, nurses require continuous professional development to improve and broaden their knowledge and expertise in all areas of nursing care so that management plans place equal emphasis on mental health and physical health (Dickens et al., 2019).

It is well-recognized that tobacco smoking can counteract the effects of antipsychotic medications leading to higher antipsychotic doses often being prescribed to people experiencing psychotic symptoms who smoke tobacco (Sagud et al., 2009). Tobacco smoking remained prevalent among people with FEP as more than 60% in this current study still reported smoking tobacco. The effect of health promotion for smoking cessation that actively discourages the general public from tobacco smoking does not seem to resonate among people with mental illness (Morgan et al., 2012). This appears to be a missed opportunity to improve the health of people with FEP in the early stages of their illness. Taylor et al. (2014) report that tobacco smokers with co-existing mental illness who engaged in smoking cessation programs were more likely to report improvement in their quality of life and mental health including reduced depression, anxiety and stress compared to those who continued to smoke. Health professionals delivering specialized and continuing care programs should also promote smoking cessation as part of health intervention for people experiencing FEP or psychosis.

Study limitations

The study data were collected at only one site and may have limited transferability to other health care services/settings where the characteristics of the recipients of health care could be different. The participants in this study were predominantly males, which reflected the gender make-up of the people managed by the specialized community team facilitating the EIP program at the time when the research was completed. A literature review identified men as being more likely to experience first-episode psychosis and at an earlier age than women (Ochoa et al., 2012). Despite this fact, gender difference may still reduce generalizability of this study and therefore may be a limitation. Furthermore, clinical data did not include laboratory tests that have shown to be part of a routine metabolic screening due to the availability of resources. Finally, the duration of follow-up may not have been sufficient to identify the impact of physical health conditions that may progress over time and are slower to develop in people with FEP.

CONCLUSION

Specialized mental health care programs often focus on managing the mental illness while overlooking the physical health of the person with FEP. This occurs as many health

professionals may hold the belief metabolic and physical changes occur after years of living with psychosis and taking antipsychotic medications, not in the early stage of the illness (Strassnig et al., 2017; Wynaden et al., 2016). The reduced focus on providing physical health care and the resulting lack of metabolic monitoring, physical health screenings and health education impact the person's long-term physical health outcomes (Stubbs et al., 2016; Ward et al., 2018). Evidence in this study supports the need for more proactive physical health care interventions so that people with FEP will receive holistic and person-centred treatment. Health professionals such as nurses need to be aware that antipsychotic medication-induced weight gain and obesity are modifiable risk factors for developing cardiovascular, respiratory and metabolic diseases (Bradshaw & Pedley, 2012) that can be reduced through regular metabolic monitoring and better antipsychotic prescribing practices (Curtis et al., 2012). As the needs and demands of people with FEP evolve, nurses working in mental health settings need to better coordinate, collaborate and implement individualized multi-disciplinary physical health interventions that promote better lifestyle choices, improved health literacy and quality of life (Gray & Brown, 2017; Happell et al., 2019; Watkins et al., 2020; Williams, Sevdalis, & Gaughran, 2019).

Declaration of interest

The authors report no conflicts of interest.

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7.3 Summary of Chapter 7

The quantitative findings of Study 4 described the physical health status of young people with FEP and adults with psychoses and concluded that although young people with FEP psychosis symptoms improved after they received antipsychotic treatment, there were indications that the individuals were at risk for developing physical co-morbidities. For example, young people with FEP developed physical health issues such as significant weight gain and increased body mass index within 12 months of commencing antipsychotic medication compared to adults with psychoses. At the same time, the young person's quality of life decreased. These results will assist mental health services to provide more comprehensive care to young people with FEP that emphasise the importance of screening and monitoring physical health early and providing interventions to prevent or address physical health problems.

Chapter 8 presents the discussion chapter where the key findings of the research, incorporating two qualitative and two quantitative studies are drawn together and discussed. Recommendations to improve physical health care for young people with FEP and needs for further research are presented.

Chapter 8

Discussion

8.1 Introduction

This final chapter provides an overview and discussion of the major findings of the work presented in this thesis which comprised a systematic literature review and two qualitative and two quantitative studies conducted concurrently using the convergent parallel mixed methods design. The research sought to better understand the physical health issues encountered by young people diagnosed with FEP as well as the experiences of parents providing support to their son or daughter with FEP, and nurses working with this cohort of young people. This chapter details how the research contributes to scholarly knowledge and an improved understanding of physical health issues impacting young people with FEP and their implications for clinical practice. The knowledge and understanding from this research can translate to physical health promotion and prevention strategies and interventions to support improved physical health outcomes in this cohort of health consumers and recommendations on how this can occur are presented. Recommendations for future research in the area are also discussed.

8.2 Overview of research findings

8.2.1 Key findings from published articles presented in this thesis

A systematic review of literature in the subject area along with four research studies that simultaneously involved young person, their parents and nurses working in mental health settings as key informants explored the physical health of young people with FEP. A summary of key findings from the literature review and the four studies is presented in Table 8.1.

Table 8.1. Overview of key research findings

Published paper	Component	Methodology	Main findings
1	Literature review	Systematic review	<p>A review of 15 published articles identified the different types of interventions that improved metabolic monitoring rates in young people taking antipsychotic medication to treat FEP. Factors influencing the outcomes of the interventions were explored. The key findings were: i) eleven interventions, which include health promotion, a metabolic monitoring system with overdue alert reminders and a physical health clinic co-located in a mental health facility, increased metabolic monitoring rates; ii) a single-intervention approach was as effective as multifaceted approaches in improving rates for metabolic monitoring; iii) non-invasive metabolic parameters (e.g., blood pressure and waist circumference) were more commonly monitored than invasive parameters (e.g., full blood picture); and iv) three stakeholder groups – young people with FEP, their parents/caregivers and health professionals including nurses working in mental health – were identified as important contributors to increase metabolic monitoring rates and improved physical health outcomes.</p>
2	Study 1 Qualitative	Semi-structured interviews with 24 young people with FEP using an application of the GT method	<p>Participants in the research reported that they felt embarrassed and stigmatised when they were told they had FEP. They identified the following experiences (related to physical health) when being treated for FEP: i) they were not provided with adequate levels of health education about FEP and the associated physical health risks; ii) they assumed that because they were young they would remain healthy and so there was no need to modify behaviours (e.g., tobacco smoking, and physical inactivity) that increased their risk of developing physical health issues; iii) that health professionals were primarily focused on treating the psychosis and physical health care was not always included as routine care; iv) participants often discontinued their antipsychotic regimen due to medication side effects such as low energy level, lack of motivation and weight gain; v) their use of self-medicating with marijuana and alcohol to seek relief from psychotic symptoms after discontinuing their prescribed antipsychotics; and vi) that family and peer support was vital in supporting them to remain physically healthy.</p>

3	Study 2 Qualitative	Semi-structured interviews with 16 participants using an application of the GT method	<p>Parents were the primary caregivers of young people who had FEP. They acknowledged the importance for their son or daughter to maintain good physical health while receiving treatment for psychosis.</p> <p>The challenges to physical health care described by parents were: i) there was a lack of communication with health professionals about how they could support their son or daughter to remain physically healthy; ii) their observations on the lifestyle changes in their son or daughter, for example, lack of motivation affecting daily functioning and living a more sedentary lifestyle; and iii) their low levels of health literacy about the physical health risks associated with FEP and side effects of treatment.</p> <p>Parents also identified strategies to improve their son or daughter's health outcomes such as i) obtaining an improved level of education and health literacy about psychosis so they could better support their son or daughter to make informed health care decisions; ii) seeking opportunities to collaborate with health professionals to ensure the mental and physical needs of their son or daughter were met; and iii) being a good role model, for instance, maintaining good dietary habits and engaging in regular physical activities.</p>
4	Study 3 Quantitative	Cross-section survey with 216 participants	<p>Nurses' educational background impacted their delivery of physical health care to young people with FEP. In Australia, nursing education prepares a comprehensive/generalist nurse who can work in both mental and general health care settings. Other countries have educational programs that prepare nurses to only work in the mental health area. The findings of this study identified that comprehensive/generalist educated nurses were more likely to provide complex physical health care, for example, sexual health and support young people to stop smoking cigarettes than those nurses who completed specialist mental health nursing programs. While all participants were confident in measuring blood pressure only 50% reported they would routinely monitor blood pressure in this young cohort when they were receiving mental health treatment for FEP.</p>

5	Study 4 Quantitative	Observational cohort design with 104 participants enrolled in an EIP program	This study provided evidence that physical health changes in young people with FEP occur during the first year. It highlighted the person's risk for physical co-morbidities increased when they started taking antipsychotic medication. The main findings of this study were: i) young people gained an average of four kilograms in the first 12 months of treatment with antipsychotic medications; ii) they reported a significant decrease in their quality of life; iii) they described a significant reduction in cannabis use at 12-month follow-up; iv) there was no statistically significant change in young people's smoking and alcohol use over 12 months; v) they had a high risk of developing physical co-morbidities such as increased body mass index, overweight and obesity in the first 12 months of commencing antipsychotic treatment; and vi) thirty-four per cent of young people were treated with two or more antipsychotic medications.
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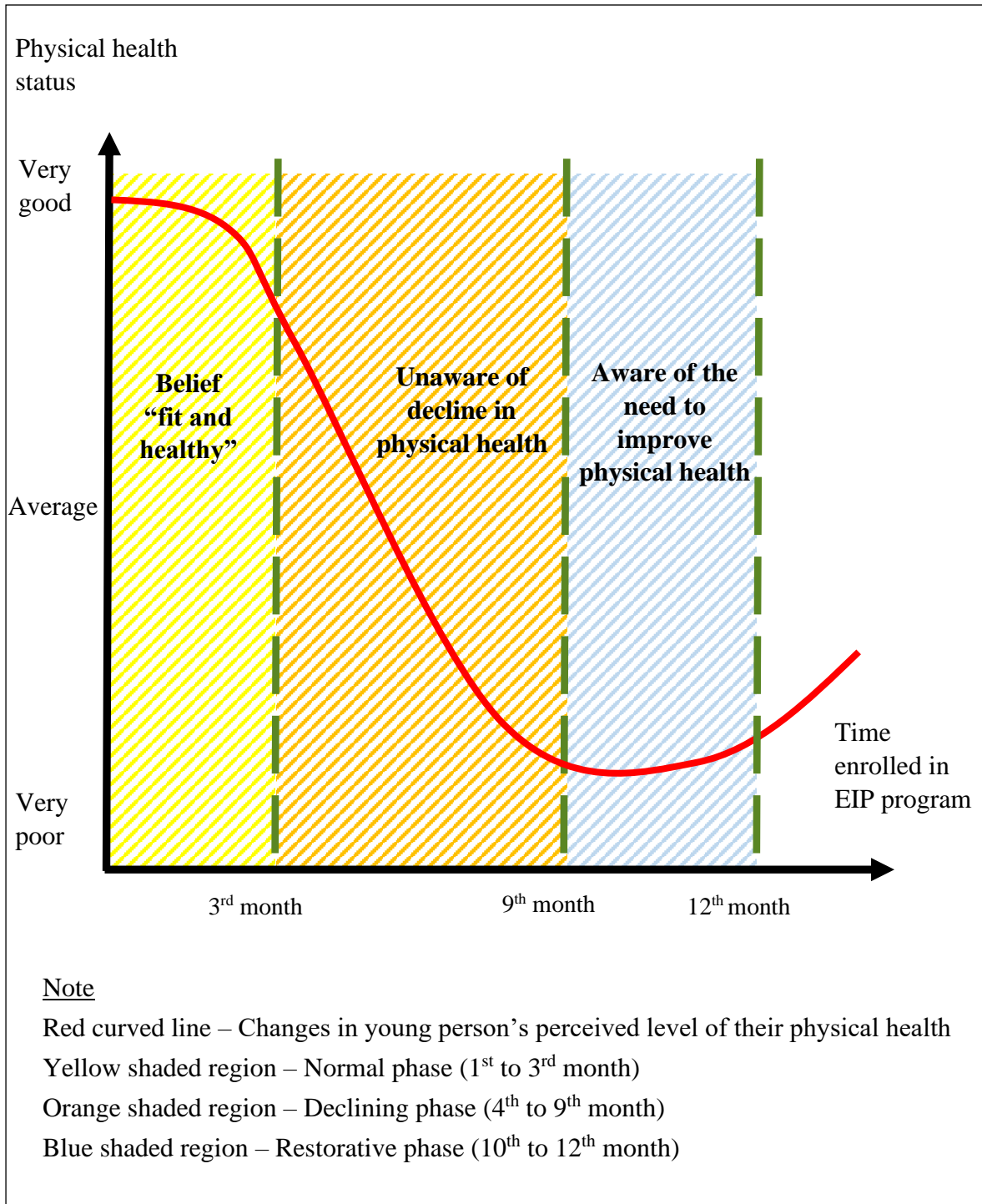
The overview of findings of the systematic review and four studies reported in this thesis highlight that physical health changes begin to emerge in young people with FEP within the first 12 months of commencing treatment with antipsychotic medications. The following section will discuss these findings in more detail.

8.2.2 Discussion of research findings

Synthesis of the research findings provided an improved understanding of the physical health journey of young people with FEP over a 12-month period from the time they commenced mental health treatment for their psychosis. This journey comprises three phases: 1) Normal phase (first three months of receiving treatment for FEP), 2) Declining phase (four to nine months of receiving treatment), and 3) Restorative phase (ten to twelve months of receiving treatment).

The phenomenon of how young people with FEP enrolled in an EIP program perceived their physical health status over 12 months is graphically depicted in Figure 8.1.

Figure 8.1. Changes in the perception of physical health status associated with changes in physical health of young people with FEP enrolled in an EIP program



8.2.2.1 Normal phase (0 to 3 months)

In the first three months of receiving treatment for FEP, young people who participated in this research received consistent and comprehensive mental health care to increase their chances of mental health recovery (Shiers et al., 2015). However, physical health care was not provided with the same level of importance as nurses and other health professionals working in mental health settings generally viewed these young people as being physically healthy. This finding is supported by other researchers (Gray & Brown, 2017; Roberts et al., 2018; Stomski & Morrison, 2017). Similarly, young people with FEP who participated in this research believed their physical health was good when they commenced treatment including the use of antipsychotic medications to manage psychotic symptoms. They indicated that they were less concerned about their physical health than mental health due to their low levels of knowledge of physical health problems associated with psychosis and treatment. Symptoms of psychosis, such as cognitive decline, social isolation, and paranoid tendencies, can interfere with their ability to recognise and seek treatment for physical health symptoms (Kim et al., 2019; Mitchell et al., 2013; Moreno et al., 2013). Therefore, physical health care was of secondary importance as their main concerns were related to improving their mental health.

Although physical health problems may not be immediately apparent to either mental health professionals or young people experiencing FEP in the first three months of receiving treatment, EIP programs must include physical health care such as health education and metabolic screening as part of routine care in this phase. For example, health education in the areas of nutrition, exercise, smoking cessation, the importance of reducing alcohol and illicit substance use, how psychosis and the treatment will affect an individual's physical health, and information about changes such as increased waist circumference and weight gain that may occur must be provided. This is particularly important in this cohort who are receiving antipsychotic medications for the first time (Reist, Valdes, Ren, Wright, & Rubio, 2021). In

addition, parents of young people with FEP must have access to high-quality and evidence-based information to support the young person make informed decisions and taking preventive actions against physical health risks. Nurses and other mental health professionals working in EIP programs need to view FEP as a health issue affecting both mental and physical health outcomes and continuously support consumers and their parents access reliable and credible sources of health information to encourage the promotion and maintenance of good physical health (Hui, Garvey, & Olasoji, 2021; Shiers et al., 2015).

8.2.2.2 Declining phase (4 to 9 months)

The physical health of young people with FEP who participated in this research began to decline from the fourth to the ninth month. One of the main factors causing physical health issues was that they commenced antipsychotic medications. For example, participants taking antipsychotic medications gained on average four kilograms which increased their risk of developing metabolic syndrome (Kolenic et al., 2018). Recent research (Gaughran et al., 2020; Meepring et al., 2022; Whitson et al., 2021) confirmed that young people present with metabolic risk during the first year of taking antipsychotic medications to treat their FEP. If present, metabolic syndrome increases their chances of developing serious health problems including diabetes and hypertension early in life (Lee et al., 2018; Pillinger, Beck, Stubbs, & Howes, 2017; Stroup & Gray, 2018). In addition, Whitson et al. (2021) highlighted that this young cohort is more at risk to develop stroke and cardiometabolic disease within 10 years if they continued long-term use of antipsychotic medications. Therefore, it is important to ensure that the prescription and administration of antipsychotic medications are kept within clinical guidelines and that those taking antipsychotics are screened/monitored regularly for adverse metabolic events associated with antipsychotics so that they can receive early

intervention to prevent further decline in their physical health (Ali et al., 2020; Bardi & Moorley, 2016).

The use of antipsychotic medications is not the only factor that increases a young person with FEP's risk of developing physical health issues. Participants in this research reported experiencing negative symptoms of psychosis which included social withdrawal and losing interest and motivation in life and wanting to participate in activities. As a result, during this phase, they reported they led a more sedentary lifestyle, had reduced levels of physical activity, had poor dietary habits and increased tobacco use which further impacted their physical health. Similarly, Smith, Griffiths, Band, and Horne (2020) reported young people with FEP who had poor dietary habits and an inactive lifestyle had a higher body mass index and abdominal adiposity, high blood pressure, and raised glucose levels than their peers who did not have FEP. Haddad et al. (2014) found that young people with FEP used alcohol, tobacco, and cannabis as a form of self-medication often increasing their risk of psychosis exacerbation and the need for prolonged antipsychotic medication treatment. The use of alcohol, tobacco, and illicit substances (e.g., marijuana and methamphetamine) is associated with physical health issues, for example, abnormal heart rhythm and raise blood pressure, and can increase an individual's risk of developing long-term physical health problems such as cardiovascular diseases (Schulte & Hser, 2014; Stubbs et al., 2016).

Young people with FEP in this research were unable to recognise the changes in their physical health during this phase, and even when they noticed that their physical health had declined, they lack the motivation to make changes due to contributing factors such as psychotic symptoms and sedating effects of antipsychotic medications. Although the provision of health education can increase knowledge and impart new skills in the normal phase, it may not be sufficient to induce behaviour change in this phase (Kristiansen, Juel, Hansen, Hansen, Kilian, & Hjorth, 2015). Individuals must also have the capacity,

willingness, and motivation to act on the knowledge and take appropriate actions, for instance, attend routine physical examinations, increase physical activity, eat a balanced diet, reduce the use of alcohol and illicit substances, and engage in smoking cessation program (Gray & Deane, 2016; Kristiansen et al., 2015). Hence, young people with FEP need a support system including their parents and health professionals to help them begin the process of restoring their physical health leading to better health outcomes associated with quality of life and levels of physical health (Coates et al., 2019; Haddad et al., 2014; Stubbs et al., 2016).

8.2.2.3 Restorative phase (10 to 12 months)

Lifestyle risk factors (e.g., unhealthy diet, smoking) and challenges (e.g., poor health literacy, the impact of medication) to living healthily have a negative impact on the young person's physical health trajectory; however, changes can be made to improve their health (Cocoman & Casey, 2019). In the 10- to 12-month (restorative phase) marking the first-year milestone of having FEP, participants in this research began to recognise the importance of "getting the basics right" to keep themselves physically healthy with the support of their parents, nurses, and other health professionals. In fact, families and caregivers play an important role in supporting physical health care for young people with FEP because they are often the first to notice a change in the young person's physical health (Happell et al., 2017b). For instance, parents in this research reported that they noticed a change in their son or daughter's physical health and then intentionally modelled and guided them to develop better lifestyle habits to improve physical health. Together, young people with FEP and their parents identified different aspects of physical health care including making lifestyle changes such as getting enough sleep and good nutrition, reducing the use of alcohol and cannabis,

engaging in smoking cessation programs, increasing their health literacy through education, and accessing peer support to enhance physical health.

Practical strategies associated with encouraging the person to attend appointments for metabolic/physical health examination, participate in exercise programs, develop healthy eating habits, and engage in smoking cessation programs should be included as part of the routine clinical activities in EIP programs to mitigate the risk of young people developing physical health problems (Firth, Schuch, & Mittal, 2020; Firth et al., 2019; Gaughran et al., 2020; Smith et al., 2020). For example, Curtis et al. (2016) implemented the ‘Keeping the body in the mind’ (KBIM) lifestyle program in Australia while Midtgaard et al. (2021) conducted a randomised trial of an exercise program in Denmark. Both programs engaged a dietician and an exercise physiologist to deliver targeted interventions comprised of dietetic support and education and supervised exercise sessions for young people with FEP to help them improve physical fitness and prevent weight gain. In more recent Canadian studies to promote physical health care in EIP programs (Melamed et al., 2022; Selby et al., 2021), a qualified health coach provided online coaching on physical activity, nutrition, and smoking cessation for young individuals with FEP. These studies have produced a positive effect on physical health outcomes and a change in attitude toward modifying unhealthy lifestyles (Curtis et al., 2016; Melamed et al., 2022; Midtgaard et al., 2021; Selby et al., 2021).

In summary, it is important that all EIP programs promote the importance of maintaining physical health and ensure the use of antipsychotic medications is in line with current prescribing guidelines (Firth et al., 2019; Hui et al., 2021).

8.3 Significance of the research findings

Several significant findings from this research emerged that advance the existing understanding of physical health in this young cohort of health consumers. These will now be discussed.

8.3.1 The need for research evidence about young people's physical health

Relevant information on the physical health status of young people with FEP enrolled in an EIP program is important to guide service provision and improvement to ensure quality clinical outcomes (Young et al., 2017). One of the challenges in promoting physical health care as an essential component of EIP programs has been the lack of empirical evidence on the need to focus care in this area (Carney, Imran, Law, Firth, & Parker, 2021; Nyström, Karlun, Keller, & Andersson Gäre, 2018). The three phases of change in young people's physical health status identified in this research (in Figure 8.1) have shown that a combination of factors such as symptoms of psychosis, medication side effects, and an inactive lifestyle contributed to a decline in physical health including the occurrence of rapid weight gain within the first year of having FEP. This indicates that adhering to clinical practice guidelines when using antipsychotic medication is imperative so that timely intervention can be provided when clinically relevant metabolic syndrome deterioration occurs. This research increases knowledge in the area and updates previous findings (O'Donoghue et al., 2014; Olfson et al., 2015) where the risk for metabolic syndrome was projected to occur between two and five years after the onset of FEP in people receiving ongoing mental health care and taking antipsychotic medication. The improved knowledge and understanding of when and why physical health problems emerge in young people with FEP can provide policymakers and health care providers with reliable data to guide their clinical decision-making (Rickwood et al., 2019; Young et al., 2017). Data-driven decision-

making ensures that the funding invested in administrating EIP programs facilitates the best possible consumer health outcomes (Rickwood et al., 2019).

8.3.2 The need for early physical health intervention in EIP programs

Evidence in this research showed the trajectory of changes in the physical health of young people and identified that metabolic risk factors (e.g., abdominal obesity) are present in this group of consumers from the onset of FEP and commencing treatment. These risk factors were related to the use of antipsychotic medications, symptoms of psychosis, and unhealthy lifestyle choices, for instance, physical inactivity, tobacco smoking, and alcohol use. Therefore, this research highlights that early physical health interventions including the use of antipsychotic medications according to clinical guidelines, monitoring of medication side effects, preventive education on physical health, and modification of lifestyle habits such as smoking, diet, and exercise are warranted from the onset of FEP (Hui et al., 2021; Gaughran et al., 2019).

8.3.2.1 The need to improve health literacy as part of early intervention

Low health literacy was identified as a contributing factor for the poor physical health care decisions made by young people with FEP in this research. Participants with FEP reported having low levels of knowledge of physical health problems associated with psychosis and the treatment. As a result, they were less concerned about the likelihood of suboptimal physical health or the risk of developing serious physical health conditions because their initial focus was on the treatment of psychotic symptoms (as documented in Table 8.1). Their experiences were mirrored in an independent care quality audit where 40% of British people receiving mental health care reported having low health literacy which affected their capacity to make informed decisions pertaining to their own health care (Fisher,

O'Dowd, Keeble, & Kossarova, 2016). Improving individual health literacy, for example through the provision of information, effective communication, and structured education, should be part of comprehensive care that is person-centred in an EIP program (McDaid et al., 2016). This is essential to increase the ability of consumers to actively participate in their own health care and make informed health care decisions in close partnerships with health professionals, and simultaneously involving their parents/caregivers in their health care (Dixon et al., 2016; Kim et al., 2019).

Health literacy is also important for families and caregivers (Ho, Li, Gray, Ho, & Bressington, 2022). In this research, parents of young people with FEP voiced that they wanted to increase their health literacy and to have more opportunities to collaborate with health professionals to provide better support in their son/daughter's recovery. An improved level of health literacy can minimise barriers to safe and high-quality care that stem from misunderstanding and miscommunication between different stakeholder groups leading to improve access to health services and reduces disparities and inequities in health (Ho et al., 2022; McDaid et al., 2016).

8.3.2.2 The need to increase preventive measures as part of early intervention

Identifying when metabolic risk first occurs through metabolic screening and monitoring is critical so that appropriate interventions can be provided at the earliest possible time to prevent or delay the onset of physical health problems and improve health outcomes (Bressington & White, 2015; Hui et al., 2021; Vancampfort et al., 2016). However, a lack of preventive interventions including metabolic screening and physical health monitoring by nurses and other health professionals working in EIP programs was a finding in this research, which highlights a missed opportunity for them to proactively provide such care. The low use of metabolic monitoring guidelines in clinical practice is of concern and indicates that this

group of consumers did not receive adequate screening and monitoring for metabolic complications when enrolled in an EIP program. Nurses and health professionals should be using screening/monitoring results to guide the treatment of identified metabolic abnormalities with appropriate interventions. Early detection, identifying high-risk consumers, and early treatment must be part of daily practice to prevent the exacerbation of physical health issues in young people with FEP (Mouko & Sullivan, 2017).

Antipsychotic medications are useful in treating psychosis, but inappropriate prescribing can cause serious harm to the consumers leading to poor health outcomes and higher health care costs (Galletly et al., 2016; Gray & Deane, 2016). In this research, 34% of the young people with FEP have been prescribed two or more antipsychotics concurrently, which is not recommended in international practice guidelines (International Physical Health in Youth Stream, 2015; National Institute for Health and Care Excellence, 2017; World Health Organization, 2018a). Prescribing antipsychotics outside best practice guidelines has negative consequences for consumers and the health care system (Bressington et al., 2016). These effects include increased risk of adverse drug events, increased hospital admissions and increased mortality rates (Bressington et al., 2016; Gray & Deane, 2016; McCloughen et al., 2016). Therefore, nurses, being the largest group of health professionals providing care in EIP programs, should advocate for responsible antipsychotic prescribing practices to promote safe and clinically optimal prescribing of antipsychotic medication for young people with FEP.

8.3.3 The need to involve different stakeholder groups in this research

The goal of stakeholder engagement in this research was to generate relevant and trustworthy evidence-based knowledge in the area and to inform gaps in mental health nursing practices (Murphy et al., 2021). This research engaged young people experiencing

FEP, their parents and nurses working in mental health, who had valuable information to share and a vested interest in the subject area and which increase the reliability of the findings (Nyström et al., 2018; Todd & Nutbeam, 2018). Each group of stakeholders contributed their unique perspectives about why the provision of physical health care was essential in EIP programs which, in turn, translated to a more insightful analysis of the data (as illustrated in Figure 8.1). Likewise, nurses as participants while explaining the importance of the provision of physical health care to this consumer group identified differences in their confidence and skill levels, and attitudes to provide such care. The research evidence highlights the education-practice gap in physical health care informing nurses working in mental health settings to continue upskilling to enhance their practice. In summary, the diversity in participation of different stakeholder groups in this research ensured their current experiences, knowledge, and insights were equitably represented (Banfield et al., 2018). Their involvement in this research provided a more comprehensive understanding of the research problem to inform the need for changes in current clinical practices to improve health outcomes (Morse, Forbes, Jones, Gulliver, & Banfield, 2021).

8.3.4 How the use of mixed methods can increase research credibility

Nursing research has traditionally been conducted using either qualitative or quantitative methods and the findings of these standalone studies often have limitations (Rutberg & Bouikidis, 2018). However, the use of a convergent parallel mixed methods study design in this research allowed the integration of data collected from different sources. For example, young people with FEP reported (in a qualitative study) that their appetite increased when they started taking antipsychotics and increased their risk of rapid weight gain. This qualitative finding was supported by objective measures such as weight and body mass index (in a quantitative study) of the young person's physical health over 12 months. Concurrently,

parents and nurses working in mental health shared their personal experiences and views on the challenges in supporting young people with FEP to remain physically healthy while the person recovered from psychosis, thus, contributing to a broader research perspective in this area. The integration of qualitative findings and quantitative statistical results has reduced limitations associated with single source bias (Creswell, 2014). As such, the researcher can be confident that the research findings were accurate and representative of key informants' points of view (Morse et al., 2021; Todd & Nutbeam, 2018) which increased the reliability and credibility of the research findings (McKim, 2015; Rutberg & Bouikidis, 2018).

8.4 Research implications and recommendations

The poor physical health of young people with FEP enrolled in EIP programs must receive the clinical attention that it deserves. Several implications were identified in this research as important to improve the consumers' physical health and their care. They are grouped into three levels: health organisation, clinical practice, and health literacy/education. The following sections elaborate on the implications at each level with recommendations for improvement. Recommendations for future research in the area are presented.

8.4.1 Implications for health organisation and recommendations to improve services

An EIP program provides individualised mental health treatment/services to young people experiencing FEP (Robert et al., 2018). Reducing the young person's psychotic symptoms is often the primary focus of care (as reported by young people with FEP in this research), hence, potential opportunities to initiate interventions that maintain the person's current level of physical health may be missed. Although current Australian mental health policy is focused on securing better physical health care for consumers to reduce early mortality, such policy is not always translated to the delivery of clinical care (Butler et al.,

2020). Therefore, a continuing effort is needed to translate research evidence to practice changes regarding physical health care as an essential component of care for all people seeking mental health support (Williams et al., 2022).

8.4.1.1 Providing physical health care in EIP programs

Young people with FEP in this research reported that physical health interventions such as the provision of health information to increase their understanding of health issues related to psychosis and the side effects of antipsychotic medication and education on the importance to change their lifestyle to improve their physical health are beneficial. Multiple studies (Curtis et al., 2016; Firth et al., 2020; Melamed et al 2022; Midtgaard et al., 2021) have demonstrated that exercise, diet, and broader lifestyle interventions can reduce weight gain and improve a broad spectrum of metabolic health outcomes. In recognition of this, the National Institute for Health Care and Excellence in the United Kingdom and the Orygen Youth Health in Australia have strongly supported the implementation of physical health interventions in EIP programs, in line with evidence-based practice (Gaughran et al., 2020; O'Donoghue et al., 2020). The World Health Organization (2018a) has developed a best practice guideline on delivering high-quality physical health care that is safe, of value and provides an ideal consumer experience. While there is a plethora of evidence supporting the benefits of interventions to improve an individual's physical health, this research identified that such knowledge is not always reflected in clinical practice. For example, participants in this research indicated that physical health interventions were not consistently offered in an EIP program that they attended. Therefore, existing mental health policies need to be strengthened continuously placing equal emphasises on both physical and mental health care in EIP programs. In addition, policymakers need to ensure policies are consistently implemented to improve the physical health of young people with FEP.

8.4.1.2 Strengthening policy related to caring for consumers' physical health

This research illustrates the complex recovery journey that young people with FEP lived through – from physical health symptoms recognition to risk factors modification. It highlights that physical health promotion, prevention, and early intervention in EIP programs can have a positive impact on individual health and wellbeing. Hence, policies that advocate and guide health promotion and physical health care and educational intervention in EIP programs are important (Mouko & Sullivan, 2017). Such policies can be a strong platform for clinical governance which is vital for mental health organisations to ensure that health care provided to health consumers is comprehensive, safe and of high standards (Firth et al., 2019; Malla et al., 2015). Policies can also guide the monitoring of metabolic and physical health practice standards in mental health so that the delivery of high-quality health care to young people with FEP is ensured. On a broader level, when young people with FEP have an improved understanding of health policy and learn about their health care rights, they will be empowered to make informed health decisions to improve their health and health care (Fisher et al., 2016; Murphy et al., 2015; Nyström et al., 2018). To narrow the disparity in the physical health of young people with FEP, it is recommended that the development of policy in the future should increase engagement with this group of consumers and their families and caregivers, in policy planning and evaluation regarding physical health care.

8.4.2 Implications to clinical practice and recommendations for improvement

8.4.2.1 Expanding clinical practice of the nursing workforce in mental health

Nurses are one of the largest groups of health professionals in the health care system (Australian Institute of Health and Welfare, 2019) and play an important role in the management of young people's physical health (Salmond & Echevarria, 2017). This research

indicated that physical health problems experienced by young people with FEP happened sooner rather than later in life, and this group of consumers must be provided with comprehensive care to meet their physical health needs from the time they commence treatment for FEP. Any disparity in health care provision contributes to poor physical health outcomes for young people with FEP (Bressington et al., 2018; Hemingway et al., 2014; McCloughen et al., 2015). Nurses working with young people with FEP must provide initial support and treatment, and ongoing planning and monitoring of their physical health care (Mwebe, 2017; Happell et al., 2019). Furthermore, nurses working in mental health should continuously evaluate, re-design and implement evidence-based clinical nursing practices that provide quality care (Bressington et al., 2018; Gray & Brown, 2017; Happell et al., 2019). Ultimately, nurses working in mental health are responsible for providing accurate information and education to enable young people with FEP to make informed decisions that will improve physical health outcomes.

8.4.2.2 Screening and monitoring for physical health problems

Nurses working in EIP programs should screen and monitor young people's physical health because they are often prescribed antipsychotic medications which may increase their risk for developing metabolic syndrome (Vázquez-Bourgon et al., 2018; Westaway et al., 2016). In this research, routine screening and monitoring for metabolic syndrome are recognised as critical first-line physical health intervention. The processes of metabolic screening and monitoring help nurses detect early signs and symptoms of physical health deterioration in young people with FEP. To effectively support nurses in providing metabolic screening and physical health monitoring, it is recommended that a system/tool such as a physical health checklist be incorporated into the young person's health record (Kioko, Williams, & Newhouse., 2016; Latoo et al., 2015). An option of including automatic

reminders in the system/tool can prompt nurses when the consumers' regular metabolic measurements are due and follow-up contacts to remind them of the importance and need to complete the metabolic monitoring process (Fehily et al., 2020). This systematic approach to screening and monitoring young people's physical health may increase the rates of metabolic screening and monitoring (Fehily et al., 2020; Kioko et al., 2016). The timely provision of early interventions related to diet, exercise and medication optimisation is recommended to prevent consumers' physical health complications and improve their health outcomes (Fehily et al., 2020).

8.4.2.3 Advocating responsible prescribing of antipsychotic medication

Nurses working in mental health must provide comprehensive care to minimise medication-related risks and harm to young people with FEP (Jordan, Logan, Turner, & Hughes., 2021). One nursing responsibility is monitoring consumers for medication side effects (Happell et al., 2013; Jordan et al., 2021). Simultaneously, nurses should be consumer advocates to optimise medication safety. In this research, one-third of young people with FEP were prescribed two or more antipsychotics concurrently. While in some circumstances, this practice may be appropriate, for example, changing from one antipsychotic medication to another or when an optimal dose of one antipsychotic is not sufficient to reduce symptoms of psychosis (Galletly et al., 2016). However, antipsychotic polypharmacy at the rate identified in this study is concerning due to the evidence that using more than one antipsychotic concurrently increases the potential for side effects, drug-drug interactions, and difficulties with adherence (Sun et al., 2014; Westaway et al., 2016). Therefore, nurses have a significant role to play in advocating for responsible prescribing and administering of antipsychotic medications using monotherapy at the lowest effective dose and/or providing evidence-based psychotherapy (International Physical Health in Youth Stream, 2015; National Institute for

Health and Care Excellence, 2017). Clearly, nurses must take an active role in supporting antipsychotic optimisation to manage psychotic symptoms while ensuring medication side effects are kept to a minimum and clinical guidelines are followed (Jordan et al., 2021).

8.4.2.4 Continuing nurses' professional development

Nurses who work in mental health settings are already recognised to be highly skilled (Clancy et al., 2019), nonetheless, professional development remains important for them to maintain their clinical proficiency and be more confident in fulfilling their role and job responsibilities, which in turn increase their performance, job satisfaction, and morale (Ganiah, Al-Hussami, & Alhadidi, 2017; Walker & McAndrew, 2015). Nurses should continue to assess individual training needs to improve their capacity and skills in providing comprehensive nursing care leading to better physical health outcomes for young people with FEP. At the same time, employers can create opportunities for formal (i.e., courses and workshops) and informal (e.g., through self-reflection and appraising literature) learning environments for professional development to support nurses maintain, improve, and broaden their knowledge, expertise, and competence and develop personal and professional qualities required throughout their nursing profession (Ganiah et al., 2017).

8.4.3 Implications of health education and recommendations for improvement

Educational-related implications include consumers' awareness of health risks such as side effects of antipsychotic medications and the ability to communicate their health needs and make healthy lifestyle choices related to tobacco smoking, illicit substance use, diet, and physical activity.

8.4.3.1 Increasing health literacy of consumers and caregivers

Health literacy is necessary to increase a person's ability to understand and use information to make informed decisions and take appropriate actions to effectively manage their health and health care (McDaid et al., 2016; Kim et al., 2019). Jayasinghe et al. (2016) found that their research participants who had higher health literacy were more likely to maintain better physical health status and they concluded that health literacy was closely associated with health-related quality of life and physical health. Similarly, this research found that the quality of life and physical health of young people with FEP was significantly reduced when they had lower levels of knowledge regarding psychosis and the impact of antipsychotic treatment on their physical health. This group of consumers were also at risk of not being as engaged in their health care compared to people with higher health literacy (Kim et al., 2019). In addition, this research established that low health literacy had a negative impact on parents' ability to provide adequate care to their son/daughter with FEP. These findings have significant implications for the provision of physical health education in mental health settings. For example, participants with FEP in this research stated that if they have higher knowledge about FEP and can recognise signs and symptoms of common metabolic syndrome caused by using antipsychotic medications for psychosis treatment, they are more likely to use preventive health services to optimise their physical health care, which may lead to a reduced mortality rate (Gronholm et al., 2021; Jayasinghe et al., 2016). Likewise, when parents have higher health literacy, they can provide stronger support in their son/daughter's recovery from FEP. Therefore, it is of paramount importance to deliver structured health promotion programs and education sessions that aim to provide precise and timely health information to young people with FEP and their parents. This would require greater investment/funding to develop and implement health promotion activities and health education within mental health settings for EIP programs to address the complex educational needs of the different groups of stakeholders.

8.4.3.2 Supporting young people to live healthy lifestyles

Conventionally, general practitioners (GPs) and other primary health care providers are recognised for having a legitimate role in providing physical health interventions to young people with FEP (Clancy et al., 2019). However, nurses and health professionals working in mental health must also play an active part in addressing the physical health needs of this group of consumers. Preventive interventions with consumers to cease or reduce tobacco smoking, develop healthier dietary habits, and engage in regular exercise implemented in EIP programs are more cost-effective than treating physical health problems to improve consumers' physical health (Baker et al., 2018; Bardi & Moorley, 2016; Bull et al., 2020; Gronholm et al., 2021). Promoting healthy lifestyles (including participating in social and community activities) to young people with FEP enrolled in EIP programs will reduce health, social and economic burdens, generate good health outcomes, and promote access to care and respect for human rights (Bailey et al., 2018; Coates et al., 2019). Furthermore, EIP programs can act as a catalyst for bringing clinical (i.e., general practitioners) and non-clinical (i.e., financial counsellors and employment services) service providers together to provide comprehensive health and social support for young people with FEP (Stomski & Morrison, 2017).

The following recommendations are made to reduce the gaps in supporting young people with FEP to enhance their physical health. Firstly, a more rigorous, structured mapping of health behaviour change, and its taxonomy of physical fitness can be applied to guide the design, development, and delivery of new structured lifestyle interventions for young people with FEP enrolled in EIP programs. Different groups of stakeholders should consider the best available evidence on the proposed interventions, the potential risks and the young person's circumstances and preferences. Interventions to promote healthy living can

include dietary planning, exercise routine to lose weight and gain muscle, establishing good sleep hygiene, sexual health education, oral care, smoking cessation program, and motivational therapy for alcohol and other substance use (Bull et al., 2020; Gronholm et al., 2021). Secondly, designing and implementing a physical health decision-making matrix that provides a balance between guided structure and personalisation with the intent of integrating personal and professional strategies to meet the physical needs of young people with FEP. Lastly, developing a specialist or advanced practice nursing role to proactively screen and monitor the cardiometabolic health of young people enrolled in EIP programs and coordinate their physical health care (Happell et al., 2019). The nurse in this role would be located within mental health services to focus on metabolic screening and monitoring and to provide health education to this cohort. Young people will receive support, in a shared decision-making process involving their family/caregiver, to navigate and access a wider range of consumer-relevant health services to improve their physical health. Referrals to other health services may include individual/group physical activity sessions, dietetics, diabetes care, reducing alcohol and other substance use, and smoking cessation programs.

8.4.4 Recommendations for future research

Research evidence presented in this thesis has demonstrated that the experiences of having FEP in adolescence and early adulthood can have a profound lifelong impact on a young person's health trajectory through different stages of life. For this reason, there are further research needs in key areas which include:

1. A feasibility and efficacy study including a cost-benefit analysis on how physical health preventive interventions in EIP programs would benefit the body of knowledge and inform policy development. It can include the exploration of healthy lifestyle programs such as health education regarding psychosis and the effective use of antipsychotic medications

and the implementation of physical health interventions related to diet, exercise, and smoking, alcohol and other illicit substance reduction.

2. Families and caregivers are recognised for their knowledge and expertise in the caring role. Therefore, it is more important than ever to actively involve them in future work on the development, implementation, and evaluation of health policy and physical health interventions for young people with FEP enrolled in EIP programs to improve the quality of health care services while also being useful for the families and caregivers.
3. Detailed audits of physical health care in clinical practice including engaging in a consensus-based approach to standardise physical health care outcome measures and developing key performance indicators for measuring physical outcomes in an EIP program.
4. Research to elicit the continuing professional development needs of nurses working in mental health settings to further enhance their capacity to provide physical health care in mental health and the development of an agenda for nurse-led research on physical health care to increase evidence in the area.

8.5 Limitations of this research

This research was conducted in Australia, and this may be a limitation for the generalisation of findings to other mental health services around the world with a different health care system. Young people with FEP who participated in the research were predominately male, and this gender composition was representative of the cohort of consumers receiving care at that time when the research was conducted. Subsequent research using a similar methodology with more females may improve the reliability of data. The researcher took precautionary measures by using a validated questionnaire to survey nurses and comparing the results between two groups of nurses to minimise bias because the survey

results may not be representative of the population being studied in convenience sampling. The sample could include mental health professionals with different backgrounds such as occupational therapists and social workers for higher population validity in future research.

8.6 Conclusion

This is the first convergent parallel mixed methods research in Australia to explore the physical health of young people with FEP. It consists of four studies and a literature review that were conducted concurrently to evaluate the perspectives of different key informants such as young people, their parents and nurses working in mental health settings about the physical health of young people experiencing psychosis for the first time. The thesis began with a presentation of an introductory background on the research topic, followed by a literature review and justification of the research methodology. Studies were simultaneously conducted with young people experiencing FEP, their parents and nurses working in mental health then analysed and reported. Finally, key results of the research were discussed and improvements for clinical practices on preventive and early intervention in physical health within mental health settings were recommended.

The significance and trustworthiness of the research were enhanced by the collaborative relationship between the researcher, consumers and their caregivers, and nurses working in mental health. It enabled the researcher to compare similarities and differences between perspectives from different key informants, and through data synthesis to gain a more nuanced understanding of the physical health of young people who were experiencing psychosis for the first time, as well as to provide a substantial, original, and significant contribution on this subject matter. The research was timely and identified missed opportunities for early intervention in the physical health of young people experiencing FEP. As such, recommendations were made using the results as a foundation to inform the design,

development, implementation, and evaluation of future policies, programs and interventions that aim to promote physical health for this cohort and improve clinical outcomes.

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- A4 Permission to include Publication 4 (Study 3) in this thesis
- A5 Permission to include Publication 5 (Study 4) in this thesis

Ethical approvals

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- B2 Ethics approval for Study 3
- B3 Ethics approval and reciprocal approval for Study 4

Study information sheets

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- C2 Participant's information sheet for Study 2
- C3 Participant's information sheet for Study 3
- C4 Participant's information sheet for Study 4

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Posters to recruit participants

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- E2 Recruitment poster and online circular for Study 3
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- F2 Survey questionnaire for Study 3
- F3 Alcohol, smoking & substance involvement screening tool for Study 4
- F4 Brief psychiatric rating scale for Study 4
- F5 Health of the Nation Outcome scale for Study 4
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Appendix A5. Permission to include Publication 5 (Study 4) in this thesis

From: Flude, Annabel
Sent: Wednesday, 11 May 2022 5:42 PM
To: Chee, Johnathan
Cc: Flude, Annabel
Subject: RE: imhn20:Exploring the Health Status of People with First-Episode Psychosis Enrolled in the Early Intervention in Psychosis Program

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Sent: 11 May 2022 04:38
To: Academic UK Non Rightslink <permissionrequest@tandf.co.uk>
Subject: imhn20:Exploring the Health Status of People with First-Episode Psychosis Enrolled in the Early Intervention in Psychosis Program

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Article title: Exploring the Health Status of People with First-Episode Psychosis Enrolled in the Early Intervention in Psychosis Program
Article DOI: 10.1080/01612840.2020.1797251
Author name: Gin-Liang Chee, Dianne Wynaden & Karen Heslop
Journal title: Issues in Mental Health Nursing
Volume number: 42
Issue number: 1
Year of publication: 2021
Name: Gin-Liang Chee
Street address: 1 Alma Street
Town: Fremantle
Postcode/ZIP code: 6160
Country: Australia
Email: johnathan.chee@health.wa.gov.au
Telephone: +61430735480
Intended use: To be used in your Thesis?
Are you requesting the full article?: Yes
Which University?: Curtin University
Title of your Thesis?: Exploring the physical health of young people with first-episode psychosis
University repository URL:
Is this a "Closed" or "Open" deposit?: open
Additional comments: .

Appendix B1. Ethics approval and amendment approval letter for Study 1 and 2



Government of Western Australia
Department of Health
South Metropolitan Health Service

Human Research Ethics Committee

ac
4 May 2015

Mr Johnathan Chee
89 Price Parkway
Bertram
WA 6067

Dear Johnathan

Project Title: Exploring the Physical Health Care Outcome of People with Early Episodes Psychosis.
HREC Reference: 15/15

Further to my letter dated 15 April 2015 I have received your response to the issues previously raised by the South Metropolitan Health Service (SMHS) Human Research Ethics Committee (HREC) in relation to this project.

I have perused your response and the revised Patient Information Sheet and Consent Form and questionnaire and I am satisfied that you have addressed the concerns raised by the HREC and the revised documents have been amended in accordance with the HREC's recommendations. As the conditions of approval have been addressed, I can confirm that the project now has **scientific and ethical approval**.

The following documents have been approved for use in this project.

Document/s
<ul style="list-style-type: none">• Protocol Version 3 dated, 22/04/2015• Information Sheet – Focus Group Discussion – Version 4, dated 18-Mar-15• Consent Form- Focus Group Discussion – Version 3, dated 18-Mar-15• Focus Group Confirmation Letter- Version 3 dated 18-Mar-15• Poster - Focus Group Discussion Version 2 dated 26-Jan-15• Guiding Questions for Focus Group Discussion Version 1 dated 18-Mar-15• SF-36 Questionnaire (Medical Outcomes Trust, 2006)• WHOQOL-BREF, Australian Version (May 2000)• Patient Information Sheet and Consent Form, Version 1 dated 21 April 2015

Research and Governance & Ethics Office
Fremantle Hospital
Demountable 3, G Block
Postal Address: PO BOX 480 FREMANTLE WA 6959
Telephone: (08) 94312929 Facsimile: (08) 94313930
<http://www.fhhs.health.wa.gov.au> ABN 13 992 250 709

Approval of this project from SMHS HREC, is valid to May 2018 and on the basis of compliance with the 'Conditions of HREC Approval for a Research Project' (attached). The following project specific conditions also apply.

The Committee have agreed to approve Phase 1 but noted that Phase 2 will need to be submitted to the HREC as an amendment once the intervention has been development.

The nominated participating site(s) in this project is/are:

Fremantle Hospital and Health Service

[Note: If the project is extended to include additional sites prior to the commencement of, or during the research project, the Co-ordinating Principal Investigator is required to notify the HREC. Notification of withdrawn sites should also be provided to the HREC in a timely fashion.

This letter constitutes scientific and ethical approval only. This project cannot proceed at any SMHS site until separate site authorisation has been obtained from the relevant site SMHS Executive and the delegate of the SMHS Chief Executive (Executive Director, Fremantle Hospital & Health Service). A copy of this approval letter will be passed to the Research Governance Officer in the SMHS Research Ethics & Governance Office to form part of the site governance review prior to site authorisation.

Should you have any queries about the HREC's consideration of your project, please contact the HREC Office on 9431 3269. A copy of the HREC's Terms of Reference, Standard Operating Procedures, membership and standard forms can be obtained on request from the Research Ethics and Governance Office, or available on the Fremantle Hospital & Health Service website (under "Our Information") at:
<http://www.fhhs.health.wa.gov.au/services/about.aspx?SiteID=1&ServiceID=144>

The SMHS HREC is registered with the Australian Health Ethics Committee (Code EC00265) and operates according to the NHMRC National Statement on Ethical Conduct in Human Research and International Conference on Harmonisation – Good Clinical Practice.

Please quote the following reference number on any future correspondence with the Committee regarding this protocol: 15/15

Yours sincerely



**MR RICHARD WOJNAR-HORTON
A/CHAIRMAN
SOUTH METROPOLITAN HEALTH SERVICE
HUMAN RESEARCH ETHICS COMMITTEE**



Government of Western Australia
Department of Health
South Metropolitan Health Service

**South Metropolitan Health Service
Human Research Ethics Committee (EC00265)**

19 January 2016

Mr Gin Liang Chee
89 Price Pathway
Bertram WA 6067

Dear Mr Chee

Project Title: **Exploring the Physical Health Care Outcome of People with Early Episode Psychosis**

REG Number: **15-015**

The following **amended study documents** have been **approved** on behalf of the South Metropolitan Health Service Human Research Ethics Committee:

Documents
Protocol (amended) – v3A dated 18 January 2016
Key guiding questions (One to One Discussion) -v1, 18 January 2016
Information Sheet (Focus Group Discussion) amended - v5, 18 January 2016
Information Sheet for Carer (Focus Group Discussion) amended - v2, 18 January 2016
Information Sheet (One to One Discussion) - v1, 18 January 2016
Information Sheet for Carer (One to One Discussion) - v1, 18 January 2016
Consent Form (One to One Discussion) - v1, 18 January 2016
Consent Form for Carer (One to One Discussion) - v1, 18 January 2016

Please submit a copy of this approval letter to the Research Governance Office or equivalent body or individual at each participating institution in a timely manner.

Should you have any queries about the HREC's consideration of your project or would like copies of the HREC's Terms of Reference, Standard Operating Procedures, membership and standard forms, please contact the SIRO office on (08) 6151 1180 or SMHS.REG@health.wa.gov.au.

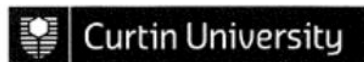
Yours sincerely


DR PHILLIP CLARINGBOLD
Chairman, South Metropolitan Health Service Human Research Ethics Committee

Southern Integrated Research Organisation (SIRO)
Locked Bag 100, PALMYRA DC WA 6961
Telephone: 08 6151 1180
Email: SMHS.REG@health.wa.gov.au
www.southmetropolitan.health.wa.gov.au

Appendix B2. Ethics approval for Study 3

MEMORANDUM



To:	Prof Dianne Wynaden School of Nursing and Midwifery
CC:	Gin Liang CHEE (Jonathan)
From:	Dr Catherine Gangell, Manager Research Integrity
Subject	Ethics approval Approval number: RDHS-81-15
Date:	14-May-15

Office of Research and
Development
Human Research Ethics Office

TELEPHONE 9266 2784
FACSIMILE 9266 3793
EMAIL hrec@curtin.edu.au

Thank you for your application submitted to the Human Research Ethics Office for the project: 5967

Evaluating mental health nurses' attitudes towards promoting, screening and monitoring of physical health care outcomes of people with early episode psychosis

Your application has been approved through the low risk ethics approvals process at Curtin University.

Please note the following conditions of approval:


1. Approval is granted for a period of four years from **14-May-15** to **14-May-19**
2. Research must be conducted as stated in the approved protocol.
3. Any amendments to the approved protocol must be approved by the Ethics Office.
4. An annual progress report must be submitted to the Ethics Office annually, on the anniversary of approval.
5. All adverse events must be reported to the Ethics Office.
6. A completion report must be submitted to the Ethics Office on completion of the project.
7. Data must be stored in accordance with WAUSDA and Curtin University policy.
8. The Ethics Office may conduct a randomly identified audit of a proportion of research projects approved by the HREC.

Should you have any queries about the consideration of your project please contact the Ethics Support Officer for your faculty, or the Ethics Office at hrec@curtin.edu.au or on 9266 2784. All human research ethics forms and guidelines are available on the ethics website.

Yours sincerely,

Dr Catherine Gangell
Manager, Research Integrity

Appendix B3. Ethics approval and reciprocal approval for Study 4

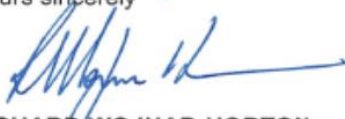
	Government of Western Australia Department of Health South Metropolitan Health Service		
Human Research Ethics Committee			
dm 31 st March 2014			
Professor Dianne Wynaden School of Nursing and Midwifery Curtin University GPO Box U 1987 Perth 6845			
Dear Professor Dianne Wynaden			
Project Title: Pathways to Primary Care: Improving the Physical Health Outcomes of People with Severe Mental Illness.			
HREC Reference: 14/12			
Further to my letter dated 12 th March 2014, I have received your response to the issues previously raised by the South Metropolitan Health Service (SMHS) Human Research Ethics Committee (HREC) in relation to this project.			
I have perused your response and I am satisfied with clarification you provided regarding the concerns raised by the HREC. I can confirm that the project now has scientific and ethical approval.			
The following documents have been approved for use in this project.			
<table border="1"><thead><tr><th>Document/s</th></tr></thead><tbody><tr><td><ul style="list-style-type: none">• Patient Information Sheet and Consent Form Version 1, 1 January 2014• Study Protocol• Patient Assessment Tools</td></tr></tbody></table>		Document/s	<ul style="list-style-type: none">• Patient Information Sheet and Consent Form Version 1, 1 January 2014• Study Protocol• Patient Assessment Tools
Document/s			
<ul style="list-style-type: none">• Patient Information Sheet and Consent Form Version 1, 1 January 2014• Study Protocol• Patient Assessment Tools			
Approval of this project from SMHS HREC, is valid to March 2017 and on the basis of compliance with the 'Conditions of HREC Approval for a Research Project' (attached).			
The nominated participating site(s) in this project is/are:			
Fremantle Hospital and Health Service.			
[Note: If the project is extended to include additional sites prior to the commencement of, or during the research project, the Co-ordinating Principal Investigator is required to notify the HREC. Notification of withdrawn sites should also be provided to the HREC in a timely fashion.			
<u>This letter constitutes scientific and ethical approval only.</u> This project cannot proceed at any SMHS site until separate site authorisation has been obtained from the relevant site SMHS Executive and the delegate of the SMHS Chief Executive (Executive			
151D.doc	Research Governance & Ethics Office Fremantle Hospital Demountable 3, G Block Postal Address: PO 480 Fremantle WA 6959 Telephone: (08) 94312929 Facsimile: (08) 9431 3930 http://www.fhhs.health.wa.gov.au ABN 13 993 250 709		

Director, Fremantle Hospital & Health Service). A copy of this approval letter will be passed to the Research Governance Officer in the SMHS Research Ethics & Governance Office to form part of the site governance review prior to site authorisation.

The SMHS HREC is registered with the Australian Health Ethics Committee (Code EC00265) and operates according to the NHMRC National Statement on Ethical Conduct in Human Research and International Conference on Harmonisation – Good Clinical Practice.

Please quote the following reference number on any future correspondence with the Committee regarding this protocol: (14/12).

Yours sincerely -

A handwritten signature in blue ink, appearing to read 'R. Wojnar-Horton', with a long horizontal flourish extending to the right.

**RICHARD WOJNAR-HORTON
A/CHAIRMAN
SOUTH METROPOLITAN HEALTH SERVICE
HUMAN RESEARCH ETHICS COMMITTEE**

Memorandum

To	Professor Dianne Wynaden, Nursing and Midwifery
From	Professor Peter O'Leary, Chair Human Research Ethics Committee
Subject	Protocol Approval HR 61/2014
Date	14 April 2014
Copy	Dr Karen Heslop, Nursing and Midwifery Professor Brenda Happell, Central Queensland University, Dr Ajay Velayudhan, Fremantle Hospital, Ms Trianta Mallis, Ms Lucia Ferguson, Mr Brett Heslop, Fremantle Mental Health Services, Associate Professor Jon Laugharne, University of Western Australia

Office of Research and Development
Human Research Ethics Committee

TELEPHONE 9266 2784
FACSIMILE 9266 3793
EMAIL hrec@curtin.edu.au

Thank you for your application submitted to the Human Research Ethics Committee (HREC) for the project titled "*Pathways to primary care: Improving the physical health outcomes of people with severe mental illness*". The Committee notes the prior approval by South Metropolitan Health Service (SMHS) HREC (14/12) and has reviewed your application consistent with Chapter 5.3 of the *National Statement on Ethical Conduct in Human Research*.

- You have ethics clearance to undertake the research as stated in your proposal.
- The approval number for your project is **HR 61/2014**. *Please quote this number in any future correspondence.*
- Approval of this project is for a period of four years **14-04-2014 to 14-04-2018**.
- Annual progress reports on the project must be submitted to the Ethics Office.
- If you are a Higher Degree by Research student, data collection must not begin before your Application for Candidacy is approved by your Faculty Graduate Studies Committee.
- The following standard statement **must be** included in the information sheet to participants:
This study has been approved by the Human Research Ethics Committee of (INSERT LEAD HREC NAME) and Curtin University 61/2014.

Applicants should note the following:

It is the policy of the HREC to conduct random audits on a percentage of approved projects. These audits may be conducted at any time after the project starts. In cases where the HREC considers that there may be a risk of adverse events, or where participants may be especially vulnerable, the HREC may request the chief investigator to provide an outcomes report, including information on follow-up of participants.

The attached **Progress Report** should be completed and returned to the Secretary, HREC, C/- Office of Research & Development annually.

Our website https://research.curtin.edu.au/guides/ethics/non_low_risk_hrec_forms.cfm contains all other relevant forms including:

- Completion Report (to be completed when a project has ceased)
- Amendment Request (to be completed at any time changes/amendments occur)
- Adverse Event Notification Form (If a serious or unexpected adverse event occurs)

Yours sincerely



Professor Peter O'Leary
Chair Human Research Ethics Committee



Government of **Western Australia**
Department of Health
South Metropolitan Health Service



Curtin University

Exploring the physical health care outcomes of people with early episode psychosis

INFORMATION SHEET – FOCUS GROUP DISCUSSION

Chief investigator:

Mr Gin Liang CHEE Johnathan – South Metropolitan Health Service / Curtin University

Phone: (08) 94313555

Email: Ginliang.Chee@health.wa.gov.au

Other investigators:

Professor Dianne Wynaden – Curtin University

Phone: (08) 92662203

Email: d.wynaden@curtin.edu.au

Dr Karen Heslop – Curtin University

Phone: (08) 92662090

Email: k.heslop@curtin.edu.au

My name is Johnathan Chee. I am a nurse working at South Metropolitan Health Service in Western Australia. I am completing my PhD with Professor Wynaden and Dr Heslop at Curtin University in the area related to physical health care for people with early episode psychosis. You are cordially invited to participate in this focus group interview as the completion of this research forms part of my PhD program. This information sheet provides details about the research as well as the importance of your role in this project. If you have queries pertaining to this study, please feel free to contact me on my mobile or work number or through email to discuss your concerns.

Overview of study

The purpose of this study is to review the gravity of physical health risks faced by people with early episode psychosis, and then examine whether the use of a self-help education program will increase their physical health care awareness leading to a healthier lifestyle. Physical health care is important because if it is compromised, many of the health benefits will be offset. Physical health problems can contribute to decreased quality of life, lowered self-esteem and reduced life expectancy. Therefore, there is a pressing need to improve health screening, monitoring and promotion of physical health in people with early episode psychosis as part of their overall care.

This study will identify the common physical health issues on people with early episode psychosis caused by prescribed medications and lifestyle factors. Focus groups will be conducted to collect detailed information on the factors affecting physical health care and to gain deeper insight into what can influence and modify early episode psychosis consumers' self-caring habits. This research will also evaluate the knowledge, skills, attitudes and level of confidence of mental health nurses in relation to screening, monitoring and promoting physical health care. Thereafter, a consumer-centred wellness program will be developed and implemented with a group of early episode psychosis consumers to promote healthy, balanced lifestyles. All results will be published in peer reviewed journals.



What does your participation in the research involve?

You are taking part in the focus group interviews of this research. You should receive a copy of the research information sheet and a consent form. You can retain the information sheet for reading but your response by returning the completed consent form indicates agreement to participate in this study. You will be attending a focus group discussion with another 7 to 9 participants. The discussion will run from 45 to 90 minutes and you will have an opportunity to express your ideas and opinions around issues of physical health care for people with early episode psychosis. All the conversations will be tape recorded and your identity will remain anonymous. No one will be identified by name in our research report even though you may be required to provide some demographic information which include your age group and gender.

What will happen to the information that I have provided?

On completion of the focus group discussion, the information you provided will be transcribed and analysed. All processed and unprocessed information will be kept confidential and stored in a locked filing cabinet at a secure location for seven years. Thereafter, all data will be destroyed in accordance to the Western Australian Department of Health retention and disposal procedures. As you have consented to permit the researchers to use the provided data for the research project, the results will be published in peer reviewed journals.

Who is organising and supporting the research?

This study is supported by Curtin University and South Metropolitan Health Service. As a PhD student, I will be supervised by Professor Wynaden and Dr Heslop.

This study has been approved by South Metropolitan Health Service Human Research Ethics Committee – approval number 15/15. If you should have any complaints or concerns about the way in which the study is being conducted, you may contact the Chairman of the South Metropolitan Health Service Human Research Ethics Committee on 9431 2929.

This study has also been approved by the Curtin University Human Research Ethics Committee – approval number RDHS-81-15. If needed, verification of approval can be obtained either in writing to the Curtin University Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9226 2784 or by emailing hrec@curtin.edu.au.

If you have any questions regarding this research, please contact me on (08) 94313555 or 0426245833.

Gin Liang CHEE



Government of Western Australia
Department of Health
South Metropolitan Health Service



Curtin University

Exploring the physical health care outcomes of people with early episode psychosis

INFORMATION SHEET – ONE TO ONE DISCUSSION

Chief investigator:

Mr Gin Liang CHEE Johnathan – South Metropolitan Health Service / Curtin University

Phone: (08) 94313555

Email: Ginliang.Chee@health.wa.gov.au

Other investigators:

Professor Dianne Wynaden – Curtin University

Phone: (08) 92662203

Email: d.wynaden@curtin.edu.au

Dr Karen Heslop – Curtin University

Phone: (08) 92662090

Email: k.heslop@curtin.edu.au

My name is Johnathan Chee. I am a nurse working at South Metropolitan Health Service in Western Australia. I am completing my PhD with Professor Wynaden and Dr Heslop at Curtin University in the area related to physical health care for people with early episode psychosis. You are cordially invited to participate in this one to one interview as the completion of this research forms part of my PhD program. This information sheet provides details about the research as well as the importance of your role in this project. If you have queries pertaining to this study, please feel free to contact me on my mobile or work number or through email to discuss your concerns.

Overview of study

The purpose of this study is to review the gravity of physical health risks faced by people with early episode psychosis, and then examine whether the use of a self-help education program will increase their physical health care awareness leading to a healthier lifestyle. Physical health care is important because if it is compromised, many of the health benefits will be offset. Physical health problems can contribute to decreased quality of life, lowered self-esteem and reduced life expectancy. Therefore, there is a pressing need to improve health screening, monitoring and promotion of physical health in people with early episode psychosis as part of their overall care.

This study will identify the common physical health issues on people with early episode psychosis caused by prescribed medications and lifestyle factors. One to one sessions will be conducted to collect detailed information on the factors affecting physical health care and to gain deeper insight into what can influence and modify early episode psychosis consumers' self-caring habits. This research will also evaluate the knowledge, skills, attitudes and level of confidence of mental health nurses in relation to screening, monitoring and promoting physical health care. Thereafter, a consumer-centred wellness program will be developed and implemented with a group of early episode psychosis consumers to promote healthy, balanced lifestyles. All results will be published in peer reviewed journals.



Government of **Western Australia**
Department of **Health**
South Metropolitan Health Service



Curtin University

What does your participation in the research involve?

You are taking part in a one to one interview of this research. You should receive a copy of the research information sheet and a consent form. You can retain the information sheet for reading but your response by returning the completed consent form indicates agreement to participate in this study. You will be attending a one to one discussion with the researcher. The discussion will run from 15 to 30 minutes and you will have an opportunity to express your ideas and opinions around issues of physical health care for people with early episode psychosis. All the conversations will be tape recorded and your identity will remain anonymous. No one will be identified by name in our research report even though you may be required to provide some demographic information which include your age group and gender.

What will happen to the information that I have provided?

On completion of the discussion, the information you provided will be transcribed and analysed. All processed and unprocessed information will be kept confidential and stored in a locked filing cabinet at a secure location for seven years. Thereafter, all data will be destroyed in accordance to the Western Australian Department of Health retention and disposal procedures. As you have consented to permit the researchers to use the provided data for the research project, the results will be published in peer reviewed journals.

Who is organising and supporting the research?

This study is supported by Curtin University and South Metropolitan Health Service. As a PhD student, I will be supervised by Professor Wynaden and Dr Heslop.

This study has been approved by South Metropolitan Health Service Human Research Ethics Committee – approval number 15/15. If you should have any complaints or concerns about the way in which the study is being conducted, you may contact the Chairman of the South Metropolitan Health Service Human Research Ethics Committee on 9431 2929.

This study has also been approved by the Curtin University Human Research Ethics Committee – approval number RDHS-81-15. If needed, verification of approval can be obtained either in writing to the Curtin University Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9226 2784 or by emailing hrec@curtin.edu.au.

If you have any questions regarding this research, please contact me on (08) 94313555 or 0426245833.

Gin Liang CHEE

Appendix C2. Participant's information sheet for Study 2



Government of Western Australia
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Curtin University

Exploring the physical health care outcomes of people with early episode psychosis

INFORMATION SHEET FOR CARER – FOCUS GROUP DISCUSSION

Chief investigator:

Mr Gin Liang CHEE Johnathan – South Metropolitan Health Service / Curtin University

Phone: (08) 94313555

Email: Ginliang.Chee@health.wa.gov.au

Other investigators:

Professor Dianne Wynaden – Curtin University

Phone: (08) 92662203

Email: d.wynaden@curtin.edu.au

Dr Karen Heslop – Curtin University

Phone: (08) 92662090

Email: k.heslop@curtin.edu.au

My name is Johnathan Chee. I am a nurse working at South Metropolitan Health Service in Western Australia. I am completing my PhD with Professor Wynaden and Dr Heslop at Curtin University in the area related to physical health care for people with early episode psychosis. You are cordially invited to participate in this focus group interview from a care provider perspective as the completion of this research forms part of my PhD program. This information sheet provides details about the research as well as the importance of your role in this project. If you have queries pertaining to this study, please feel free to contact me on my mobile or work number or through email to discuss your concerns.

Overview of study

The purpose of this study is to review the gravity of physical health risks faced by people with early episode psychosis, and then examine whether the use of a self-help education program will increase their physical health care awareness leading to a healthier lifestyle. Physical health care is important because if it is compromised, many of the health benefits will be offset. Physical health problems can contribute to decreased quality of life, lowered self-esteem and reduced life expectancy. Therefore, there is a pressing need to improve health screening, monitoring and promotion of physical health in people with early episode psychosis as part of their overall care.

This study will identify the common physical health issues on people with early episode psychosis caused by prescribed medications and lifestyle factors. Focus groups will be conducted to collect detailed information on the factors affecting physical health care and to gain deeper insight into what can influence and modify early episode psychosis consumers' self-caring habits. This research will also evaluate the knowledge, skills, attitudes and level of confidence of mental health nurses in relation to screening, monitoring and promoting physical health care. Thereafter, a consumer-centred wellness program will be developed and implemented with a group of early episode psychosis consumers to promote healthy, balanced lifestyles. All results will be published in peer reviewed journals.



What does your participation in the research involve?

You are taking part in the focus group interviews of this research as we would also like to consider this issue from the viewpoint of the care providers. You should receive a copy of the research information sheet and a consent form. You can retain the information sheet for reading but your response by returning the completed consent form indicates agreement to participate in this study. You will be attending a focus group discussion with another 7 to 9 participants. The discussion will run from 45 to 90 minutes and you will have an opportunity to express your ideas and opinions around physical health care issues as a carer to people with early episode psychosis. All the conversations will be tape recorded and your identity will remain anonymous. No one will be identified by name in our research report even though you may be required to provide some demographic information which includes your age group and gender. Hence, there is no perceived risk for your involvement in this project.

What will happen to the information that I have provided?

On completion of the focus group discussion, the information you provided will be transcribed and analysed. All processed and unprocessed information will be kept confidential and stored in a locked filing cabinet at a secure location for seven years. Thereafter, all data will be destroyed in accordance to the Western Australian Department of Health retention and disposal procedures. As you have consented to permit the researchers to use the provided data for the research project, the results will be published in peer reviewed journals.

Who is organising and supporting the research?

This study is supported by Curtin University and South Metropolitan Health Service. As a PhD student, I will be supervised by Professor Wynaden and Dr Heslop.

This study has been approved by South Metropolitan Health Service Human Research Ethics Committee – approval number 15/15. If you should have any complaints or concerns about the way in which the study is being conducted, you may contact the Chairman of the South Metropolitan Health Service Human Research Ethics Committee on 9431 2929.

This study has also been approved by the Curtin University Human Research Ethics Committee – approval number RDHS-81-15. If needed, verification of approval can be obtained either in writing to the Curtin University Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9226 2784 or by emailing hrec@curtin.edu.au.

If you have any questions regarding this research, please contact me on (08) 94313555 or 0426245833.

Gin Liang CHEE



Government of Western Australia
Department of Health
South Metropolitan Health Service



Curtin University

Exploring the physical health care outcomes of people with early episode psychosis

INFORMATION SHEET FOR CARER – ONE TO ONE DISCUSSION

Chief investigator:

Mr Gin Liang CHEE Johnathan – South Metropolitan Health Service / Curtin University

Phone: (08) 94313555

Email: Ginliang.Chee@health.wa.gov.au

Other investigators:

Professor Dianne Wynaden – Curtin University

Phone: (08) 92662203

Email: d.wynaden@curtin.edu.au

Dr Karen Heslop – Curtin University

Phone: (08) 92662090

Email: k.heslop@curtin.edu.au

My name is Johnathan Chee. I am a nurse working at South Metropolitan Health Service in Western Australia. I am completing my PhD with Professor Wynaden and Dr Heslop at Curtin University in the area related to physical health care for people with early episode psychosis. You are cordially invited to participate in this one to one interview from a care provider perspective as the completion of this research forms part of my PhD program. This information sheet provides details about the research as well as the importance of your role in this project. If you have queries pertaining to this study, please feel free to contact me on my mobile or work number or through email to discuss your concerns.

Overview of study

The purpose of this study is to review the gravity of physical health risks faced by people with early episode psychosis, and then examine whether the use of a self-help education program will increase their physical health care awareness leading to a healthier lifestyle. Physical health care is important because if it is compromised, many of the health benefits will be offset. Physical health problems can contribute to decreased quality of life, lowered self-esteem and reduced life expectancy. Therefore, there is a pressing need to improve health screening, monitoring and promotion of physical health in people with early episode psychosis as part of their overall care.

This study will identify the common physical health issues on people with early episode psychosis caused by prescribed medications and lifestyle factors. One to one sessions will be conducted to collect detailed information on the factors affecting physical health care and to gain deeper insight into what can influence and modify early episode psychosis consumers' self-caring habits. This research will also evaluate the knowledge, skills, attitudes and level of confidence of mental health nurses in relation to screening, monitoring and promoting physical health care. Thereafter, a consumer-centred wellness program will be developed and implemented with a group of early episode psychosis consumers to promote healthy, balanced lifestyles. All results will be published in peer reviewed journals.



What does your participation in the research involve?

You are taking part in a one to one interview of this research as we would also like to consider this issue from the viewpoint of the care providers. You should receive a copy of the research information sheet and a consent form. You can retain the information sheet for reading but your response by returning the completed consent form indicates agreement to participate in this study. You will be attending a one to one discussion with the researcher. The discussion will run from 15 to 45 minutes and you will have an opportunity to express your ideas and opinions around physical health care issues as a carer to people with early episode psychosis. All the conversations will be tape recorded and your identity will remain anonymous. No one will be identified by name in our research report even though you may be required to provide some demographic information which includes your age group and gender. Hence, there is no perceived risk for your involvement in this project.

What will happen to the information that I have provided?

On completion of the one to one discussion, the information you provided will be transcribed and analysed. All processed and unprocessed information will be kept confidential and stored in a locked filing cabinet at a secure location for seven years. Thereafter, all data will be destroyed in accordance to the Western Australian Department of Health retention and disposal procedures. As you have consented to permit the researchers to use the provided data for the research project, the results will be published in peer reviewed journals.

Who is organising and supporting the research?


This study is supported by Curtin University and South Metropolitan Health Service. As a PhD student, I will be supervised by Professor Wynaden and Dr Heslop.

This study has been approved by South Metropolitan Health Service Human Research Ethics Committee – approval number 15/15. If you should have any complaints or concerns about the way in which the study is being conducted, you may contact the Chairman of the South Metropolitan Health Service Human Research Ethics Committee on 9431 2929.

This study has also been approved by the Curtin University Human Research Ethics Committee – approval number RDHS-81-15. If needed, verification of approval can be obtained either in writing to the Curtin University Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9226 2784 or by emailing hrec@curtin.edu.au.

If you have any questions regarding this research, please contact me on (08) 94313555 or 0426245833.

Gin Liang CHEE



Evaluating the attitudes of mental health nurses in promoting, screening and monitoring the physical health care outcomes of people with early episode psychosis


I would like to thank the Australian College of Mental Health Nurses (ACMHN) for providing the opportunity to distribute this questionnaire to the delegates at the 41st International Mental Health Nursing Conference. This kind gesture contributes significantly towards my postgraduate study as the results from this survey will form an important milestone for the next phase of my project.

If you have recently completed an online survey about the attitudes of mental health nurses in promoting, screening and monitoring the physical health care outcomes of people with early episode psychosis which was advertised through the ACMHN 'Tuesday Times' or 'Research Wrap', I am grateful for your feedbacks. Please do not submit this questionnaire again but do encourage your fellow delegates to complete and return it.

Please kindly deposit your completed questionnaire into the sealed box (labelled Physical Health Survey) at the reception counter before the final day of this conference. Alternatively, you could complete this survey and mail it to Professor Wynaden, School of Nursing, Midwifery and Paramedicine, Curtin University, GPO Box U1987, Perth, Western Australia 6845.

I thank you in advance for participating in this survey. Thank you.

INFORMATION SHEET

<p>Chief investigator: Mr Gin Liang CHEE Johnathan South Metropolitan Health Service, Western Australia Phone: (08) 94313400 Email: Ginliang.Chee@health.wa.gov.au</p> <p>Other investigators: Professor Dianne Wynaden – Curtin University Phone: (08) 92662203 Email: d.wynaden@curtin.edu.au</p>		<p>Dr Karen Heslop – Curtin University Phone: (08) 92662090 Email: k.heslop@curtin.edu.au</p>
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My name is Johnathan Chee. I am a nurse working at South Metropolitan Health Service in Western Australia. I am working on my PhD which is related to the physical health care outcomes of people with early episode psychosis. You are cordially invited to participate in this survey as the completion of this research forms part of my PhD program at Curtin University. This information sheet provides details about the research as well as the importance of your role in this project. If you have queries pertaining to this study, please approach me at the booth outside the conference hall.

Overview of study

The overall purpose of this project is to review the gravity of physical health risks faced by people with early episode psychosis, and then examining whether the use of self-help education program by people with early episode psychosis will increase their physical health care awareness leading to healthier lifestyles. Physical health care is important because if it is compromised, many of the health benefits will be offset. Physical health problems can contribute to decreased quality of life, lowered self-esteem and

Version 6, GLChee@Curtin University, 20-August-2015

reduced life expectancy. Therefore, there is a pressing need to improve health screening, monitoring and promoting physical health in people with early episode psychosis as part of their overall care.

This survey will evaluate the knowledge, skills, attitudes and level of confidence of mental health nurses in relation to screening, monitoring and promoting physical health care. Literatures will be reviewed to identify the common prodromal and pre-morbid physical health issues caused by antipsychotics on people with early episode psychosis. Focus groups will be conducted to collect detailed information on the factors affecting physical health care and to gain deeper insight of what can influence and modify early episode psychosis consumers' self-caring habits. Thereafter, a consumer-centred wellness program will be developed and piloted with a group of early episode psychosis consumers to promote healthy and balance lifestyles.

What does your participation in the research involve?

You should have received a copy of the research information sheet and the survey questionnaire. You can retain the information sheet for reading but your response by returning the completed questionnaire indicates consent to participate in this study. On the questionnaire, you are requested to provide some demographic information which includes your age group and gender but at no time are you required to provide any personal details such as your name or contact number. The survey, which requires selecting the response to each question that best represent your answer, takes approximately 20 minutes to complete. Thereafter, the completed form can be dropped off into the collection box located at the reception near the entrance/exit. Alternatively, you can access the survey online at

<https://www.surveymonkey.com/r/7cglmhneep>

What will happen to the information that I have provided?

On returning of completed questionnaire, you have consented to permit the researchers to use the provided data for the research project. All processed questionnaires will be kept confidential and stored in a locked filing cabinet at a secured location for seven years. Thereafter, all data will be destroyed in accordance to the Curtin University retention and disposal procedures. In addition, the results of the research will be published in peer reviewed journals.

Who is organising and supporting the research?

This study is supported by Curtin University. As a PhD student, I will be supervised by Professor Wynaden and Dr Heslop.

This study has been approved by the Curtin University Human Research Ethics Committee – approval number RDHS-81-15. This process compile with the National Statement on Ethical Conduct in Human Research. For further information on this study contact the researchers named above or the Curtin University Human Research Ethics Committee c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, Western Australia 6845 or by telephoning (08) 92669223 or by emailing hrec@curtin.edu.au.

If you have any questions regarding this research, please contact me on 0416656171.

Johnathan Gin Liang CHEE

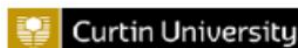
Version 6, GLChee@Curtin University, 20-August-2015



**KEEP AND DO MY
CALM SURVEY**



Government of **Western Australia**
Department of Health
South Metropolitan Health Service



INFORMATION SHEET

Pathways to primary care: Improving the physical health outcomes for people with severe mental illness

Investigators: Professor Dianne Wynaden, Dr Karen Heslop, Associate Professor Jon Laugharne, Professor Brenda Happell, Dr Ajay Velayudhan, Ms Trianta Mallis, Dr Elizabeth Moore and Ms Deborah Nelson

Nature and Purpose of the Study

Many people who have a mental illness also have chronic physical health problems which include: diabetes, nutritional problems, and high blood pressure. New ways of providing care are being implemented to ensure all patients receive regular physical health assessment, screening and monitoring while being case managed at Fremantle Mental Health Service. As many patients do not currently see a general practitioner following discharge from hospital, a Physical Health Clinic has been established at the Alma Street Centre to meet these patients' interim needs. The Physical Health Clinic will be staffed by a nurse practitioner and a general practitioner and aims to link all patients following discharge from the service with community general practitioners.

To evaluate the effectiveness of the Physical Health Clinic, a research study will compare the health outcomes of patients who attend the clinic over a 12 month period with those who do not and are managed by a general practitioner in the community setting.

You are invited to participate in the study which will compare your own health outcomes during a 12 month period and your outcomes with those of other patients enrolled in the study. Before you decide whether to participate it is important that you understand the procedures you will be asked to complete. Please read the following pages, which will provide you with information about what is involved, and the potential benefits of the study. When you have read the information sheet we are also happy to answer any questions you may have.

What the Study Will Involve

If you agree to participate in this study you will be asked to sign a consent form and to participate in a clinical interview with a doctor or nurse. At this interview you will be asked some personal information such as your age, date of birth. You will also be asked some questions about your mental illness, your current symptoms, any physical health problems you have, medications and

PIC V1 January 2014

Fremantle Hospital & Health Service
Mental Health Services
Alma Street Western Australia 6180
Telephone (08) 9431 3333
www.health.wa.gov.au



alcohol and substance use. We may also measure your height, weight and blood pressure. The interview will take approximately 60 minutes and a second interview will occur 12 months after you enrolled in the study.

If you agree to participate you will also be allowing the research team to access the information in your medical records. This information will be used for the purposes of evaluating the results of the study. We will also obtain information from hospital databases. For example, we will examine how many times during the 12 month period you are admitted to hospital and for what reasons the admission occurred. We will also look at the medication you have been prescribed and if changes occur during the 12 month study period.

Benefits

Patients may experience direct benefits from participating in this study and experience improved health outcomes. You may also find it is very educational and helpful to you in making future lifestyle choices. It is hoped that the results of this study will help other people with a mental illness to experience fewer physical health problems and obtain improved health and wellbeing.

Discomforts and Risks

There are no known risks to participating in this study. However, your treating doctor will be informed after the interview if you experienced any difficulties while participating in this study.

Voluntary Participation and Withdrawal from Study

Participation in this study will not in any way interfere with the treatment that you receive from Fremantle Hospital. Your participation is entirely voluntary. If you decide not to participate you will still receive the same standard of clinical care offered to participants but you will not be asked to complete the two interviews which are used for data collection purposes for the research.

If you agree to participate you may withdraw from this study at any time, for whatever reason. Withdrawal will in no way influence future medical or nursing care. If you withdraw from the study you will have all data collected during the study period destroyed.

If you have questions about this research, you may contact Professor Dianne Wynaden on 92662203, Dr Karen Heslop on 9224 3786, or Dr Ajay Velayudhan, on 9431 3427.

This study has been approved by the South Metropolitan Health Service Human Research Ethics Committee – approval number 14/12. If you should have any complaints or concerns about the way in which the study is being



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South Metropolitan Health Service

conducted, you may contact the Chairman of the South Metropolitan Health Service Human Research Ethics Committee on 9431 2929.



Curtin University



This study has also been approved by the Curtin University Human Research Ethics Committee – approval number 61/2014. If needed, verification of approval can be obtained either in writing to the Curtin University Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9226 2784 or by emailing hrec@curtin.edu.au.

Privacy, Confidentiality and Disclosure information

At all times your confidentiality and privacy will be maintained and no information that might identify you will be used in any report, presentation or publication resulting from the research. Thank you for taking the time to read this information sheet. If you have any questions please do not hesitate to contact me or one of the other researchers listed above.

Professor Dianne Wynaden

PIC V1 January 2014

Fremantle Hospital & Health Service
Mental Health Services
Alma Street Western Australia 6160
Telephone (08) 9431 3333
www.health.wa.gov.au



Government of **Western Australia**
Department of **Health**
South Metropolitan Health Service



Curtin University

Exploring the physical health care outcomes of people with early episode psychosis

CONSENT FORM – FOCUS GROUP DISCUSSION

Chief investigator: Mr Gin Liang CHEE Johnathan

Other investigators: Professor Dianne Wynaden and Dr Karen Heslop

Thank you for participating in this wellness education research project. Information gathered during the focus group discuss will be recorded and will solely be used by the researcher for its intended purpose and data published will not disclose your identity. Please read the following statements carefully and direct your queries to the attending researcher before you sign the consent form.

Name of Participant: _____

Date of Birth: _____

Declaration by Participant

1. I agree voluntarily to take part in the above study; I am over 18 years of age.
2. I have been given a copy of the Information Sheet and Consent Form, have read and fully understood the purpose and aims of this study, and what is required from me if I agree to participate.
3. I understand I may keep a copy of the Consent Form.
4. I have had the opportunity to ask questions and I am satisfied with the responses I have received.
5. I agree to participate in the research and understand that I am free to withdraw from the study at any time and that this withdrawal will not affect the future delivery of my health care or medical management.
6. I agree that the research data collected can be published in peer reviewed journals and reports un-restrictively as long as my identity is kept confidential and will not be disclose at all time.
7. I agree that the findings or results from the study can be shared with staff at the health service at the completion of this research.

Signature by Participant

Signature by Researcher

Signed _____

Signed _____

Dated _____

Dated _____



Government of **Western Australia**
 Department of **Health**
 South Metropolitan Health Service



Curtin University

Exploring the physical health care outcomes of people with early episode psychosis

CONSENT FORM – ONE TO ONE DISCUSSION

Chief investigator: Mr Gin Liang CHEE Johnathan

Other investigators: Professor Dianne Wynaden and Dr Karen Heslop

Thank you for participating in this wellness education research project. Information gathered during the one to one discussion will be recorded and will solely be used by the researcher for its intended purpose and data published will not disclose your identity. Please read the following statements carefully and direct your queries to the attending researcher before you sign the consent form.

Name of Participant: _____

Date of Birth: _____

Declaration by Participant

1. I agree voluntarily to take part in the above study; I am over 18 years of age.
2. I have been given a copy of the Information Sheet and Consent Form, have read and fully understood the purpose and aims of this study, and what is required from me if I agree to participate.
3. I understand I may keep a copy of the Consent Form.
4. I have had the opportunity to ask questions and I am satisfied with the responses I have received.
5. I agree to participate in the research and understand that I am free to withdraw from the study at any time and that this withdrawal will not affect the future delivery of my health care or medical management.
6. I agree that the research data collected can be published in peer reviewed journals and reports un-restrictively as long as my identity is kept confidential and will not be disclose at all time.
7. I agree that the findings or results from the study can be shared with staff at the health service at the completion of this research.

Signature by Participant

Signature by Researcher

Signed _____

Signed _____

Dated _____

Dated _____

Appendix D2. Consent form for Study 2



Government of Western Australia
Department of Health
South Metropolitan Health Service



Curtin University

Exploring the physical health care outcomes of people with early episode psychosis

CONSENT FORM FOR CARER – FOCUS GROUP DISCUSSION

Chief investigator: Mr Gin Liang CHEE Johnathan

Other investigators: Professor Dianne Wynaden and Dr Karen Heslop

Thank you for participating in this research project as a care provider to people with early episode psychosis. Information gathered during the focus group discuss will be recorded and will solely be used by the researcher for its intended purpose. The data published will not disclose your identity. Please read the following statements carefully and direct your queries to the attending researcher before you sign the consent form.

Name of Carer: _____

Date of Birth: _____

Declaration by Participant

1. I agree voluntarily to take part in the above study; I am over 18 years of age.
2. I have been given a copy of the Information Sheet and Consent Form, have read and fully understood the purpose and aims of this study, and what is required from me if I agree to participate.
3. I understand I may keep a copy of the Consent Form.
4. I have had the opportunity to ask questions and I am satisfied with the responses I have received.
5. I agree to participate in the research and understand that I am free to withdraw from the study at any time and that this withdrawal will not affect the future delivery of my health care or medical management.
6. I agree that the research data collected can be published in peer reviewed journals and reports un-restrictively as long as my identity is kept confidential and will not be disclose at all time.
7. I agree that the findings or results from the study can be shared with staff at the health service at the completion of this research.

Signature by Carer

Signature by Researcher

Signed _____

Signed _____

Dated _____

Dated _____

Version 1, GLChee@Curtin University, 21-Apr-15



Government of **Western Australia**
 Department of **Health**
 South Metropolitan Health Service



Curtin University

Exploring the physical health care outcomes of people with early episode psychosis

CONSENT FORM FOR CARER – ONE TO ONE DISCUSSION

Chief investigator: Mr Gin Liang CHEE Johnathan

Other investigators: Professor Dianne Wynaden and Dr Karen Heslop

Thank you for participating in this research project as a care provider to people with early episode psychosis. Information gathered during the one to one discussion will be recorded and will solely be used by the researcher for its intended purpose. The data published will not disclose your identity. Please read the following statements carefully and direct your queries to the attending researcher before you sign the consent form.

Name of Carer: _____

Date of Birth: _____

Declaration by Participant

1. I agree voluntarily to take part in the above study; I am over 18 years of age.
2. I have been given a copy of the Information Sheet and Consent Form, have read and fully understood the purpose and aims of this study, and what is required from me if I agree to participate.
3. I understand I may keep a copy of the Consent Form.
4. I have had the opportunity to ask questions and I am satisfied with the responses I have received.
5. I agree to participate in the research and understand that I am free to withdraw from the study at any time and that this withdrawal will not affect the future delivery of my health care or medical management.
6. I agree that the research data collected can be published in peer reviewed journals and reports un-restrictively as long as my identity is kept confidential and will not be disclose at all time.
7. I agree that the findings or results from the study can be shared with staff at the health service at the completion of this research.

Signature by Carer

Signature by Researcher

Signed _____

Signed _____

Dated _____

Dated _____



Government of **Western Australia**
Department of **Health**
South Metropolitan Health Service



Curtin University



Pathways to primary care: Improving the physical health outcomes for people with severe mental illness

Investigators: Professor Dianne Wynaden, Dr Karen Heslop, Associate Professor Jon Laugharne, Professor Brenda Happell, Dr Ajay Velayudhan, Ms Trianta Mallis, Dr Elizabeth Moore and Dr Stephen Bailly

CONSENT FORM

Participants Name:

Date of Birth:

1. I agree voluntarily to take part in *the above study*; I am over 18 years of age.
2. I have been given a full explanation of the purpose and aims of this study, and what is required from me if I agree to participate.
3. I understand that I am entirely free to withdraw from the study at any time and that this withdrawal will not in any way affect my future standard or conventional treatment or medical management.
4. I understand that the information in my medical records is essential to evaluate the results of this study. I agree to the release of this information to the research staff on the understanding that it will be treated confidentially.
5. I understand that I will not be referred to by name in any report or publications resulting from this study. In turn, I cannot restrict in any way the use of the results that arise from this study.
7. I have been given and read a copy of this Consent Form and Information Sheet.

Signature by participant


Signature by researcher

Signed..... Signed:.....


Dated..... Dated:.....

PIC V1 January 2014

Fremantle Hospital & Health Service
Mental Health Services
Alma Street Western Australia 6160
Telephone (08) 9431 3333
www.health.wa.gov.au




Government of **Western Australia**
Department of **Health**
South Metropolitan Health Service



Curtin University

Physical Health Outcome of People with Early Episode Psychosis



My name is Johnathan Chee and I am completing a PhD at Curtin University under the supervision of Professor Dianne Wynaden and Dr Karen Heslop. My research is focused on improving the physical health outcomes of people diagnosed with early episode psychosis.

People with early episode psychosis often experience difficulties living a healthy lifestyle resulting in an increased risk of preventable diseases such as heart disease, stroke and diabetes. In order to actively engage with people with early episode psychosis and their families to fully capture the lived experiences I have organised a number of focus groups over a six month period in 2015.

If you would like to know more about this research and how you may become involved, please contact Johnathan on 0426245833 or send an email to ginliang.chee@student.curtin.edu.au.

This research has been approved by South Metropolitan Health Service Human Research Ethics Committee (approval number 15/15) and Curtin University Human Research Ethics Committee (approval number RDHS-81-15).

Version 3, GLChee@Curtin University, 18-Mar-15

Perspectives of mental health nurses on caring for the physical health of people with early episode psychosis



People with early episode psychosis may experience difficulties living a healthy lifestyle resulting in an increased risk of preventable diseases such as heart disease, stroke and diabetes. I would like to survey mental health nurses to understand their perspectives in relation to the provision of physical health care for people with early episode psychosis.

In order to capture the views of a diverse population of mental health nurses, I have placed a copy of the questionnaires on each chair and provided a box where completed questionnaires can be returned. The accompanying information sheet attached to the questionnaire will also provide an online link to the survey if you prefer to complete it electronically.

If you have any questions regarding about this research, please contact Johnathan on 0426245833 or ginliang.chee@student.curtin.edu.au.

This research has been approved by Curtin University Human Research Ethics Committee (approval number RDHS-81-15).

PHYSICAL HEALTH SURVEY

My name is Johnathan Chee and I am a PhD student at Curtin University in Western Australia. My research is focused on improving the physical health outcomes in people with a mental illness. In particular, it focuses on physical health promotion and illness prevention in people with early episode psychosis.

It is now well known that physical health problems can contribute to decreased quality of life, lowered self-esteems and reduced life expectancy in this group of health consumers. One part of my research is to survey mental health nurses to obtain insights into their attitudes and beliefs in relation to providing physical health interventions to people with a mental illness. The validated 'physical health attitude scale' assessment tool developed by Robson and Haddad (2012) has been modified to use in this research.

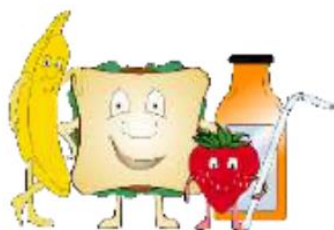
I invite you to participate in this survey as I would like to obtain feedback from mental health nurses throughout Australia. All findings from the survey will be reported as group findings and you will not be able to be identified in any publications. I have ethics approved from Curtin University to conduct the survey - Approval Number RDHS-81-15.

If you would like any further information about the study please contact me on ginliang.chee@health.wa.gov.au.

If you would like to participate please click on the following link which will take you to an information sheet and the survey - <https://www.surveymonkey.com/r/7cglmhneep>

Ver3, GCChee@Curtin University, 6-May-15

PHYSICAL HEALTH STUDY



Many people who have a mental illness also have physical health problems such as diabetes, nutritional problems, and high blood pressure. At Fremantle Hospital Mental Health Services we are conducting research aimed at assisting consumers to improve their physical health outcomes.

If you are a case manager to a consumer who you believe may benefit from the research and you would like to know more about the project please contact Dianne Wynaden on 92662203 or d.wynaden@curtin.edu.au or Johnathan Chee on 0426 245 833 (Wednesdays and Thursdays).

This research has been approved by South Metropolitan Health Service Human Research Ethics Committee (14/12) and Curtin University Human Research Ethics Committee (61/2014).

Version 1 – 22nd August 2014

Appendix F1. Key questions to guide interviews for Study 1 and 2

Key guiding questions for interviews.

Q1. Why do you think physical wellbeing/wellness is important?

Q2. Could you share with us how has your mental health affected your physical health/wellness?

Q3. What strategies have you found most effective in maintaining your physical health at present?

Q4. What do you think is the most difficult part of maintaining a healthy physical wellbeing/wellness for people with early episode psychosis?

Q5. The lack of access to health information can prevent people with early episode psychosis from maintaining a healthy physical health care routines, do you agree or disagree. Probe: Why? Why not?

Q6. Tell us about your experience in relation to receiving physical health care information and health education from your mental health service providers.

Q7. Among these factors (mentioned in Q6), what is the most important to you and why?

Q8. How can the provision of adequate health information influence you to improve your physical health care?

Q9. Which type of health promotion information would you like to receive that will assist you to change your lifestyle for an improved physical health and wellbeing?

These questions may differ slightly according to the responses during the interviews but the main themes of this study remain the same throughout the meetings.

Appendix F2. Survey questionnaire for Study 3

1.0	Please read the statement and tick/cross the box that relates best to your personal opinion	Strongly disagree	Disagree	Uncertain	Agree	Strongly Agree
1.1	People with early episode psychosis have higher rates of premature death than the general population	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Managing the physical health care of people with early episode psychosis was exceptionally challenging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3	Helping people with early episode psychosis manage their weight should be part of the mental health nurses role	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.4	Mental health nurses role include giving nutritional advice to people with early episode psychosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.5	I am confident in assessing signs and symptoms of hyperglycaemia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.6	It should be a mental health nurses to provide advice about exercise to people with early episode psychosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.7	People with early episode psychosis are not interested in improving their physical health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.8	Mental health nurses should be able to give advice on how to prevent heart disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.9	It should be a mental health nursing role to check people with early episode psychosis if they have had cancer screening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.10	I am confident that I can accurately measure the blood pressure for people with early episode psychosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.11	It is difficult for people with early episode psychosis to follow advice on how to manage their weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.12	Ensuring people with early episode psychosis are registered with a dentist should be part of the mental health nursing role	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.13	Mental health nurses should provide people with early episode psychosis with contraceptive advice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.14	People with early episode psychosis should not be encouraged to give up smoking as they have enough to cope with	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.15	Information pertaining to the side effects of medication on physical health will increase non-adherence by clients with early episode psychosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.16	Staff should be banned from smoking on all healthcare premises	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.17	People with early episode psychosis are not motivated to exercise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.18	People with early episode psychosis should be given cigarettes to help them achieve therapeutic goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.19	Mental health nurses should educate female clients with early episode psychosis about the importance of breast self-examination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.20	It is difficult to get people with early episode psychosis to follow healthy eating advice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.21	I am confident in assessing signs and symptoms of hypoglycaemia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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1.22	All clients, including people with early episode psychosis, should be banned from smoking on all healthcare premises	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.23	I am confident that I know which psychotropic drugs increase the risk that people with early episode psychosis may experience cardiac problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.24	Ensuring people with early episode psychosis have regularly checked by an optician should be part of the mental health nurses role	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.25	My workload prevents me from conducting physical health promotion with clients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.26	I am confident that I know which psychotropic drugs may cause damage to the eyes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.27	Mental health nurses should educate male clients with early episode psychosis about the importance of testicular self-examination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.28	I am confident that I could perform resuscitation on an individual who had a cardiac arrest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.29	Physical health worries that people with early episode psychosis experience are mostly due to their mental illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.30	Staff and people with early episode psychosis smoking together helps build a therapeutic relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.0	My current practice involves.....	Never	Rarely	Often	Very often	Always
2.1	Working with people aged between 16 to 35 years old with early episode psychosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2	Checking if clients have had their physical health assessed when they first come into contact with mental health service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3	Checking if clients I work with are registered with a GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.4	Assisting clients to attend to their personal hygiene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.5	Monitoring clients blood pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.6	Giving clients advice on the benefits of exercising regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.7	Helping clients manage their weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.8	Giving clients advice on how to eat healthily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.9	Assessing the client's bowel habits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.10	Giving clients advice on dental health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.11	Testing clients for glucose abnormalities (e.g. checking glucose in urine/checking a client BMI)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.12	Weighing clients routinely throughout their contact with mental health services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.13	Helping clients to stop smoking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.14	Giving clients contraceptive advice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.0	Please tell us more about yourself.					
3.1	What is your gender?					
	<input type="checkbox"/> Male	<input type="checkbox"/> Female	<input type="checkbox"/> Other			
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3.2 Which age group do you belong to?

- 20 years or under 31-40 years 50 years
 21-30 years 41-50 years

3.3 Where do you live?

- ACT SA ASIA
 NSW TAS UK
 NT VIC USA
 QLD WA South Africa

Others: _____

3.4 How long have you been living in Australia?

- Less than 4 years 15-20 years
 5-10 years More than 20 years
 11-14 years

3.5 How long have you been practising as a nurse?

- Less than 5 years 16-19 years
 5-10 years 20-24 years
 11-15 years More than 25 years

3.6 How many years have you been working in a mental health setting?

- Less than 2 years 11-15 years
 3-5 years 16-20 years
 6-10 years More than 20 years

3.7 Are you a credentialed mental health nurse?

- Yes No

3.8 Where did you receive your mental health nursing education (you can choose more than one)?

- ACT SA ASIA
 NSW TAS UK
 NT VIC USA
 QLD WA South Africa

Other: _____

3.9 What is the highest level of nursing education you have completed?

- Hospital based Mental Health Nursing
 Diploma in Mental Health Nursing
 Diploma in Comprehensive Nursing
 Bachelor Degree in Mental Health Nursing
 Bachelor Degree in Comprehensive Nursing
 Hospital based postgraduate qualification in mental health nursing
 University postgraduate qualification in Mental Health Nursing
 Masters in Nursing
 Masters in Mental Health Nursing
 PhD

Others: _____

3.10 What type of AHPRA nursing registration do you hold?

- Enrolled nurse
- Registered nurse
- Registered nurse (mental health specific)
- Nurse practitioner
- Non-practising registration
- Student registration

Others: _____

3.11 The organization you work for is in which of the following:

- Public sector
- Not-for-profit
- Private sector
- Not sure

Others: _____

3.12 Which category of services do you belong to at present (you can choose more than one service)?

- Academic
- Community
- Crisis care
- Inpatient
- Liaison
- Management
- Research
- Rehabilitation
- Dual diagnosis
- Education

Others: _____

3.13 What type of work are you involved in at present?

- Full-time
- Fixed term contract
- Part-time
- Casual

Others: _____

3.14 Where is your location of employment?

- Metropolitan
- Regional
- Overseas
- Rural
- Remote

Others: _____

3.15 Have you managed people with early episode psychosis (or first onset schizophrenia) before?

- Yes
- No

3.16 Are you currently working in the speciality of early episode psychosis in Australia?

- Yes
- No

Thank you for completing the questionnaire.

Appendix F3. Alcohol, smoking & substance involvement screening tool for Study 4

Fremantle Hospital and Health Service Mental Health		SURNAME		UMRN	
ALCOHOL, SMOKING & SUBSTANCE INVOLVEMENT SCREENING TOOL		GIVEN NAMES		BIRTHDATE	
		Patient Label		SEX	
		ADDRESS			

Date: / /										
	A. Tobacco <small>(cigarettes, cigars etc)</small>	B. Alcohol <small>(beer, wine, spirits)</small>	C. Cannabis <small>(marijuana, pot, weed, hash, ganja)</small>	D. Cocaine <small>(coke, crack)</small>	E. Amphetamines <small>(speed, dex, meth, ice, diet pills, ecstasy)</small>	F. Inhalants <small>(nitrous, glue, petrol, paint thinner)</small>	G. Benzodiazepines <small>(Valium, Serepak, Rohypnol)</small>	H. Hallucinogens <small>(LSD, acid, mushrooms, POP)</small>	I. Opioids <small>(heroin, morphine, methadone, codeine)</small>	J. Other <small>(Specify)</small>
Q1 In your life which of the following substances have you used?: (Probe if all answers are negative. E.g. (not even when you were at school?))										
Circle Yes or No for each substances For substances answered YES complete Q2-Q7 If NO stop interview	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Q2 In the past 3 months, how often have you used ? If A = 6 do NRT chart. (If "never" for a substance, skip to question 6)										
0 – Never 2 – Once/ Twice 3 – Monthly 4 – Weekly 6 – Daily / almost daily										
Is withdrawal from substance during admission likely? PTO										
If score 4- 6 refer over the page and check amount and time last used.		<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No			
Q3 During the past 3 months, how often have you had the urge to use _____ ?										
0 – Never 3 – Once/ Twice 4 – Monthly 5 – Weekly 6 – Daily / almost daily										
Q4 During the past 3 months how often has your use of _____ led to health, social, legal or financial problems?										
0 – Never 4 – Once/ Twice 5 – Monthly 6 – Weekly 7 – Daily / almost daily										
Q5 During the past 3 months how often have you failed to do what was normally expected of you because of _____ ?										
0 – Never 5 – Once/ Twice 6 – Monthly 7 – Weekly 8 – Daily / almost daily	Do not code									
Q6 Has a friend or relative or anyone else ever expressed concern about your use of _____ ?										
0 – Never 6 – Yes in the past 3 months 3 – Yes not in the past 3 months										
Q7 Have you ever tried and failed to control, cut down or stop using _____ ?										
0 – Never 6 – Yes in the past 3 months 3 – Yes not in the past 3 months										
TOTAL (add scores Q2 – Q7)										
RISK LEVEL and INTERVENTION (Circle response that relates to score)	0-3 None	0-10 None	0-3 None	0-3 None	0-3 None	0-3 None	0-3 None	0-3 None	0-3 None	0-3 None
	4-26 Brief	11-26 Brief	4-26 Brief	4-26 Brief	4-26 Brief	4-26 Brief	4-26 Brief	4-26 Brief	4-26 Brief	4-26 Brief
	+27 Intensive	+27 Intensive	+27 Intensive	+27 Intensive	+27 Intensive	+27 Intensive	+27 Intensive	+27 Intensive	+27 Intensive	+27 Intensive
Q8 Have you ever used any drug by injection (non medical use)? * If injecting weekly or less or < 3 days in a row – Provide brief intervention + "Injecting risk" card * If injecting > once/week or > 3 days in a row – Further assessment and more intensive treatment										
0 – Never 2 – Yes in the past 3 months 1 – Yes not in the past 3 months										

Alcohol, Smoking & Substance Involvement Screening Tool MR 43.01

Withdrawal Risk Assessment

	How much alcohol did you use? (number of standard drinks)	How much Benzodiazepine have you used?	
		Type	Amount (mg)
Today?			
Yesterday?			
The day before?			
The day before?			
The day before?			

	No	Yes	If yes to any
Heavy Alcohol/Benzodiazepine use ceased in the last 5 days? NB. Account for longer with long acting benzo's.			<ul style="list-style-type: none"> Commence Alcohol Withdrawal Scale. Ensure Diazepam is prescribed.
Client expects withdrawal symptoms?			
Known or stated history of withdrawal seizures?			

Standard Drinks

All Australian standard drink contains 10 grams of Alcohol

Middy/Pot of Beer (285 ml)	Std Drinks
Full Strength (4.8% alc./vol)	1.1
Mid Strength (3.5% alc./vol)	0.8
Low Strength (2.5% alc./vol)	0.6
Stubby / can of beer (375 ml)	
Full Strength (4.8% alc./vol)	1.4
Mid Strength (3.5% alc./vol)	1
Low Strength (2.5% alc./vol)	0.8
Red, white or sparkling wine (12% alc./vol)	
Small Glass (100ml)	1.0
Average restaurant serve (150 ml)	1.4
Bottle (750 ml)	7.5
Fortified Wine (18% alc./vol)	
Standard serve (60ml) ks	0.9
Spirits (40% alc./vol)	
"shot" or "nip" (30ml)	1
Bottle (700ml)	22
Ready-to-drink (RTO) or pre-mixed spirits / wine	
275ml bottle full strength (5.0% alc./vol)	1.1
375ml can/bottle full strength (5.0% alc./vol)	1.5
275ml bottle high strength (7.0% alc./vol)	1.5
375ml can/bottle high strength (7.0% alc./vol)	2.1



(Adapted from Australian guidelines to reduce health risks from drinking alcohol. Canberra National Health and Medical Research Council 2009)

ASSIST Risk Score

Low Risk	Alcohol 0 – 10 All other substances 0 – 3	General Health Information	
Moderate Risk	Alcohol 11 – 23 All Other Substances 4 – 26	Brief Invention Take home booklet and information	
High Risk	Alcohol 27+ All Other Substances 27+	Brief Invention Take home booklet and information Referral to specialist assessment & Treatment	
Moderate or High Risk and Injecting	Injected drugs in the last 3 months (score of 2 on Q8)	Risk of injecting card Brief Invention Take home booklet and information Referral to testing for blood borne viruses Referral to specialist assessment & Treatment	
Print Name	Designation	Signature	Date

References: World Health Organisation: Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) V3, (2008) Humeniuk R, Ali R, Babor TF, Farrell M, Formigoni ML, Jittiwutikam J, De Lacerda RB, Ling W, Marsden J, Monteiro M, Nhwitiwa S, Pal H, Poznyak V, Simon S.. DSSA Research Monograph No 23 Research series Govt South Australia 2007, ST Vincent Hospital 2009.

Appendix F4. Brief psychiatric rating scale for Study 4

BRIEF PSYCHIATRIC RATING SCALE (BPRS)

Patient Name _____ Today's Date _____

Please enter the score for the term that best describes the patient's condition.

0 = Not assessed, 1 = Not present, 2 = Very mild, 3 = Mild, 4 = Moderate, 5 = Moderately severe, 6 = Severe, 7 = Extremely severe

Score

<input type="checkbox"/>	1. SOMATIC CONCERN Preoccupation with physical health, fear of physical illness, hypochondriasis.
<input type="checkbox"/>	2. ANXIETY Worry, fear, over-concern for present or future, uneasiness.
<input type="checkbox"/>	3. EMOTIONAL WITHDRAWAL Lack of spontaneous interaction, isolation deficiency in relating to others.
<input type="checkbox"/>	4. CONCEPTUAL DISORGANIZATION Thought processes confused, disconnected, disorganized, disrupted.
<input type="checkbox"/>	5. GUILT FEELINGS Self-blame, shame, remorse for past behavior.
<input type="checkbox"/>	6. TENSION Physical and motor manifestations of nervousness, over-activation.
<input type="checkbox"/>	7. MANNERISMS AND POSTURING Peculiar, bizarre, unnatural motor behavior (not including tic).
<input type="checkbox"/>	8. GRANDIOSITY Exaggerated self-opinion, arrogance, conviction of unusual power or abilities.
<input type="checkbox"/>	9. DEPRESSIVE MOOD Sorrow, sadness, despondency, pessimism.
<input type="checkbox"/>	10. HOSTILITY Animosity, contempt, belligerence, disdain for others.
<input type="checkbox"/>	11. SUSPICIOUSNESS Mistrust, belief others harbor malicious or discriminatory intent.
<input type="checkbox"/>	12. HALLUCINATORY BEHAVIOR Perceptions without normal external stimulus correspondence.
<input type="checkbox"/>	13. MOTOR RETARDATION Slowed, weakened movements or speech, reduced body tone.
<input type="checkbox"/>	14. UNCOOPERATIVENESS Resistance, guardedness, rejection of authority.
<input type="checkbox"/>	15. UNUSUAL THOUGHT CONTENT Unusual, odd, strange, bizarre thought content.
<input type="checkbox"/>	16. BLUNTED AFFECT Reduced emotional tone, reduction in formal intensity of feelings, flatness.
<input type="checkbox"/>	17. EXCITEMENT Heightened emotional tone, agitation, increased reactivity.
<input type="checkbox"/>	18. DISORIENTATION Confusion or lack of proper association for person, place or time.



Health of the Nation Outcome Scales 65+ Glossary (HoNOS)

HoNOS 65+ rating guidelines

- Rate items in order from 1 to 12.
- Use all available information in making your rating.
- Do not include information already rated in an earlier item.
- Consider both the degree of distress the problem causes and the effect it has on behaviour.
- Rate the most severe problem that occurred in the period rated.
- The rating period is generally the preceding two weeks, except at discharge from inpatient care, when it is the previous three days.
- Each item is rated on a five-point item of severity (0 to 4) as follows:
 - 0 No problem.
 - 1 Minor problem requiring no formal action.
 - 2 Mild problem.
 - 3 Problem of moderate severity.
 - 4 Severe to very severe problem.
 - 9 Not known or not applicable.
- As far as possible, the use of rating point 9 should be avoided, because missing data make scores less comparable over time or between settings.
- Specific information on how to rate each point on each item is provided in the Glossary.



AMHOCN

1 Behavioural disturbance (eg, overactive, aggressive, disruptive or agitated behaviour, uncooperative or resistive behaviour)

Include such behaviour due to any cause, eg, dementia, drugs, alcohol, psychosis, depression, etc.

Do not include bizarre behaviour, rated at Scale 6.

- 0 No problems of this kind during the period rated.
- 1 Occasional irritability, quarrels, restlessness etc., but generally calm and co-operative and not requiring any specific action.
- 2 Includes aggressive gestures, pushing or pestering others; threats or verbal aggression; lesser damage to property (eg, broken cup, window); significant over-activity or agitation; intermittent restlessness or wandering (day or night); uncooperative at times, requiring encouragement and persuasion.
- 3 Physically aggressive to others or animals (short of rating 4); more serious damage to, or destruction of, property; frequently threatening manner, more serious or persistent over-activity or agitation; frequent restlessness or wandering; significant problems with co-operation, largely resistant to help or assistance.
- 4 At least one serious physical attack on others (over and above rating of 3); major or persistent destructive activity (eg, fire-setting); persistent and threatening behaviour; severe over-activity or agitation; sexually disinhibited or other inappropriate behaviour (eg, deliberate inappropriate urination or defecation); virtually constant restlessness or wandering; severe problems related to non-compliant or resistive behaviour.

2 Non-accidental self-injury

Do not include accidental self-injury (due eg, to dementia or severe learning disability); any cognitive problem is rated at Scale 4 and the injury at Scale 5.

Do not include illness or injury as a direct consequence of drug or alcohol use rated at Scale 3, (eg, cirrhosis of the liver or injury resulting from drunk-driving are rated at Scale 5).

- 0 No problem of this kind during the period rated.
- 1 Fleeting thoughts of self-harm or suicide; but little or no risk during the period rated.
- 2 Mild risk during period; includes more frequent thoughts or talking about self-harm or suicide (including 'passive' ideas of self-harm such as not taking avoiding action in a potentially life-threatening situation, eg, while crossing a road).
- 3 Moderate to serious risk of deliberate self-harm during the period rated; includes frequent or persistent thoughts or talking about self-harm; includes preparatory behaviours, eg, collecting tablets.
- 4 Suicidal attempt or deliberate self-injury during period.

3 Problem drinking or drug-taking

Do not include aggressive or destructive behaviour due to alcohol or drug use, rated at Scale 1.

Do not include physical illness or disability due to alcohol or drug use, rated at Scale 5.

- 0 No problem of this kind during the period rated.
- 1 Some over-indulgence but within social norm.
- 2 Occasional loss of control of drinking or drug-taking; but not a serious problem.
- 3 Marked craving or dependence on alcohol or drug use with frequent loss of control, drunkenness, etc.
- 4 Major adverse consequences or incapacitated due to alcohol or drug problems.

4 Cognitive problems

Include problems of orientation, memory, and language associated with any disorder: dementia, learning disability, schizophrenia, etc.

Do not include temporary problems (eg, hangovers) which are clearly associated with alcohol, drug or medication use, rated at Scale 3.

- 0 No problem of this kind during the period rated.
- 1 Minor problems with orientation (eg, some difficulty with orientation to time) or memory (eg, a degree of forgetfulness but still able to learn new information), no apparent difficulties with the use of language.
- 2 Mild problems with orientation (eg, frequently disorientated to time) or memory (eg, definite problems learning new information such as names, recollection of recent events; deficit interferes with everyday activities); difficulty finding way in new or unfamiliar surroundings; able to deal with simple verbal information but some difficulties with understanding or expression of more complex language.
- 3 Moderate problems with orientation (eg, usually disorientated to time, often place) or memory (eg, new material rapidly lost, only highly learned material retained, occasional failure to recognise familiar individuals); has lost the way in a familiar place; major difficulties with language (expressive or receptive).
- 4 Severe disorientation (eg, consistently disorientated to time and place, and sometimes to person) or memory impairment (eg, only fragments remain, loss of distant as well as recent information, unable to effectively learn any new information, consistently unable to recognise or to name close friends or relatives); no effective communication possible through language or inaccessible to speech.

5 Physical illness or disability problems

Include illness or disability from any cause that limits mobility, impairs sight or hearing, or otherwise interferes with personal functioning (eg, pain).

Include side-effects from medication; effects of drug/alcohol use; physical disabilities resulting from accidents or self-harm associated with cognitive problems, drunk driving etc.

Do not include mental or behavioural problems rated at Scale 4.

- 0 No physical health, disability or mobility problems during the period rated.
- 1 Minor health problem during the period (eg, cold); some impairment of sight or hearing (but still able to function effectively with the aid of glasses or hearing aid).
- 2 Physical health problem associated with mild restriction of activities or mobility (eg, restricted walking distance, some degree of loss of independence); moderate impairment of sight or hearing (with functional impairment despite the appropriate use of glasses or hearing aid); some degree of risk of falling, but low and no episodes to date; problems associated with mild degree of pain.
- 3 Physical health problem associated with moderate restriction of activities or mobility (eg, mobile only with an aid – stick or zimmer frame – or with help); more severe impairment of sight or hearing (short of rating 4); significant risk of falling (one or more falls); problems associated with a moderate degree of pain.
- 4 Major physical health problem associated with severe restriction of activities or mobility (eg, chair or bed bound); severe impairment of sight or hearing (eg, registered blind or deaf); high risk of falling (one or more falls) because of physical illness or disability; problems associated with severe pain; presence of impaired level of consciousness.

6 Problems associated with hallucinations and delusions

Include hallucinations and delusions (or false beliefs) irrespective of diagnosis.

Include odd and bizarre behaviour associated with hallucinations or delusions (or false beliefs).

Do not include aggressive, destructive or overactive behaviours attributed to hallucinations, delusions or false beliefs, rated at Scale 1.

- 0 No evidence of delusions or hallucinations during the period rated.
- 1 Somewhat odd or eccentric beliefs not in keeping with cultural norms.
- 2 Delusions or hallucinations (eg, voices, visions) are present, but there is little distress to patient or manifestation in bizarre behaviour, that is, a present, but mild clinical problem.
- 3 Marked preoccupation with delusions or hallucinations, causing significant distress or manifested in obviously bizarre behaviour, that is, moderately severe clinical problem.
- 4 Mental state and behaviour is seriously and adversely affected by delusions or hallucinations, with a major impact on patient or others.

7 Problems with depressive symptoms

Do not include over-activity or agitation, rated at Scale 1.

Do not include suicidal ideation or attempts, rated at Scale 2.

Do not include delusions or hallucinations, rated at Scale 6.

Rate associated problems (eg, changes in sleep, appetite or weight; anxiety symptoms) at Scale 8.

- 0 No problems associated with depression during the period rated.
- 1 Gloomy; or minor changes in mood only.
- 2 Mild but definite depression on subjective or objective measures (eg, loss of interest or pleasure, lack of energy, loss of self-esteem, feelings of guilt).
- 3 Moderate depression on subjective or objective measures (depressive symptoms more marked).
- 4 Severe depression on subjective or objective grounds (eg, profound loss of interest or pleasure, preoccupation with ideas of guilt or worthlessness).

8 Other mental and behavioural problems

Rate only the most severe clinical problem not considered at Scales 6 and 7 as follows: specify the type of problem by entering the appropriate letter: A phobic; B anxiety; C obsessive-compulsive; D stress; E dissociative; F somatoform; G eating; H sleep; I sexual; J other, specify.

- 0 No evidence of any of these problems during period rated.
- 1 Minor non-clinical problems.
- 2 A problem is clinically present, but at a mild level, for example the problem is intermittent, the patient maintains a degree of control or is not unduly distressed.
- 3 Moderately severe clinical problem, for example, more frequent, more distressing or more marked symptoms.
- 4 Severe persistent problems which dominates or seriously affects most activities.



9 Problems with relationships

Problems associated with social relationships, identified by the patient or apparent to carers or others. Rate the patient's most severe problem associated with active or passive withdrawal from, or tendency to dominate, social relationships or non-supportive, destructive or self-damaging relationships.

- 0 No significant problems during the period.
- 1 Minor non-clinical problems.
- 2 Definite problems in making, sustaining or adapting to supportive relationships (eg, because of controlling manner, or arising out of difficult, exploitative or abusive relationships), definite but mild difficulties reported by patient or evident to carers or others.
- 3 Persisting significant problems with relationships; moderately severe conflicts or problems identified within the relationship by the patient or evident to carers or others.
- 4 Severe difficulties associated with social relationships (eg, isolation, withdrawal, conflict, abuse); major tensions and stresses (eg, threatening breaking down of relationship).

10 Problems with activities of daily living

Rate the overall level of functioning in activities of daily living (ADL); eg, problems with basic activities of self-care such as eating, washing, dressing, toilet; also complex skills such as budgeting, recreation and use of transport, etc.

Include any lack of motivation for using self-help opportunities, since this contributes to a lower overall level of functioning.

Do not include lack of opportunities for exercising intact abilities and skills, rated at Scales 11 and Scale 12.

- 0 No problems during period rated; good ability to function effectively in all basic activities (eg, continent – or able to manage incontinence appropriately, able to feed self and dress) and complex skills (eg, driving or able to make use of transport facilities, able to handle financial affairs appropriately).
- 1 Minor problems only without significantly adverse consequences, for example, untidy, mildly disorganised, some evidence to suggest minor difficulty with complex skills but still able to cope effectively.
- 2 Self-care and basic activities adequate (though some prompting may be required), but difficulty with more complex skills (eg, problem organising and making a drink or meal, deterioration in personal interest especially outside the home situation, problems with driving, transport or financial judgements).
- 3 Problems evident in one or more areas of self-care activities (eg, needs some supervision with dressing and eating, occasional urinary incontinence or continent only if toileted) as well as inability to perform several complex skills.
- 4 Severe disability or incapacity in all or nearly all areas of basic and complex skills (eg, full supervision required with dressing and eating, frequent urinary or faecal incontinence).

11 Problems with living conditions

Rate the overall severity of problems with the quality of living conditions, accommodation and daily domestic routine, taking into account the patient's preferences and degree of satisfaction with circumstances.

Are the basic necessities met (heat, light, hygiene)? If so, does the physical environment contribute to maximising independence and minimising risk, and provide a choice of opportunities to facilitate the use of existing skills and develop new ones?

Do not rate the level of functional disability itself, rated at Scale 10.

***NB:** Rate patient's usual accommodation. If in acute ward, rate the home accommodation. If information not obtainable, rate 9.*

- 0 Accommodation and living conditions are acceptable; helpful in keeping any disability rated at Scale 10 to the lowest level possible and minimising any risk, and supportive of self-help; the patient is satisfied with their accommodation.
- 1 Accommodation is reasonably acceptable with only minor or transient problems related primarily to the patient's preferences rather than any significant problems or risks associated with their environment (eg, not ideal location, not preferred option, doesn't like food).
- 2 Basics are met but significant problems with one or more aspects of the accommodation or regime (eg, lack of proper adaptation to optimise function relating for instance to stairs, lifts or other problems of access); may be associated with risk to patient (eg, injury) which would otherwise be reduced.
- 3 Distressing multiple problems with accommodation; eg, some basic necessities are absent (unsatisfactory or unreliable heating, lack of proper cooking facilities, inadequate sanitation); clear elements of risk to the patient resulting from aspects of the physical environment.
- 4 Accommodation is unacceptable: eg, lack of basic necessities, insecure, or living conditions are otherwise intolerable, contributing adversely to the patient's condition or placing them at high risk of injury or other adverse consequences.

12 Problems with occupation and activities

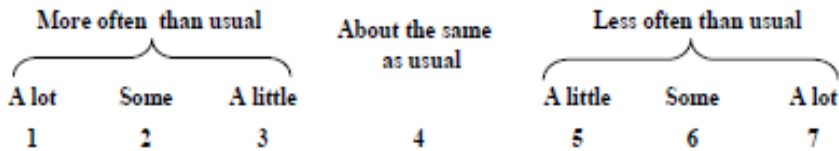
Rate the overall level of problems with quality of day-time environment. Is there help to cope with disabilities, and opportunities for maintaining or improving occupational and recreational skills and activities? Consider factors such as stigma, lack of qualified staff, lack of access to supportive facilities, eg, staffing and equipment of day centres, social clubs, etc.

Do not rate the level of functional disability itself, rated at Scale 10.

NB: Rate the patient's usual situation. If in acute ward, rate activities during period before admission. If information not available, rate 9.

- 0 Patient's day-time environment is acceptable; helpful in keeping any disability rated at Scale 10 to the lowest level possible, and maximising autonomy.
- 1 Minor or temporary problems, eg, good facilities available but not always at appropriate times for the patient.
- 2 Limited choice of activities; eg, insufficient carer or professional support, useful day setting available but for very limited hours.
- 3 Marked deficiency in skilled services and support available to help optimise activity level and autonomy, little opportunity to use skills or to develop new ones; unskilled care difficult to access.
- 4 Lack of any effective opportunity for daytime activities makes the patient's problems worse or patient refuses services offered which might improve their situation.

Q2. The last ten questions asked about feelings that might have occurred during the past 30 days. Taking them altogether, did these feelings occur More often in the past 30 days than is usual for you, about the same as usual, or less often than usual? (If you never have any of these feelings, circle response option "4.")



The next few questions are about how these feelings may have affected you in the past 30 days. You need not answer these questions if you answered "None of the time" to all of the ten questions about your feelings.

Blending margin - do not write

Q3. During the past 30 days, how many days out of 30 were you totally unable to work or carry out your normal activities because of these feelings?

_____ (Number of days)

Q4. Not counting the days you reported in response to Q3, how many days in the past 30 were you able to do only half or less of what you would normally have been able to do, because of these feelings?

_____ (Number of days)

Q5. During the past 30 days, how many times did you see a doctor or other health professional about these feelings?

_____ (Number of times)

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Q6. During the past 30 days, how often have physical health problems been the main cause of these feelings?	1	2	3	4	5

Thank you for completing this questionnaire.

WORLD HEALTH ORGANISATION
QUALITY OF LIFE

WHOQoL-BREF
Australian Version (May 2000)

Instructions

This assessment asks how you feel about your quality of life, health, & other areas of your life. Please answer all the questions. If unsure about which response to give to a question, please choose the one that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last two weeks

Example:

	Not at all	Slightly	Moderately	Very	Completely
Do you get the kind of support from others that you need?	1	2	3	④	5

You would circle the number 4 if in the last two weeks you got a great deal of support from others

	Not at all	Slightly	Moderately	Very	Completely
Do you get the kind of support from others that you need?	①	2	3	4	5

but if you did not get any of the support from others that you needed in the last two weeks you would circle 1.

Thank you for your help.

Now turn to the back of this page >

Please read each question and assess your feelings, for the last two weeks, and circle the number on the scale for each question that gives the best answer for you.

	Very poor	Poor	Neither Poor nor Good	Good	Very Good
1. How would you rate your quality of life?	1	2	3	4	5

	Very Dissatisfied	Fairly Dissatisfied	Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied
2. How satisfied are you with your health?	1	2	3	4	5

The following questions ask about how much you have experienced certain things in the last two weeks.

	Not at all	A Small amount	A Moderate amount	A great deal	An Extreme amount
3. To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5

4. How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
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5. How much do you enjoy life?	1	2	3	4	5
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6. To what extent do you feel your life to be meaningful?	1	2	3	4	5
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	Not at all	Slightly	Moderately	Very	Extremely
7. How well are you able to concentrate?	1	2	3	4	5

8. How safe do you feel in your daily life?	1	2	3	4	5
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9. How healthy is your physical environment?	1	2	3	4	5
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	Not at all	Slightly	Somewhat	To a great extent	Completely
10. Do you have enough energy for every day life?	1	2	3	4	5

11. Are you able to accept your bodily appearance?	1	2	3	4	5
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12. Have you enough money to meet your needs?	1	2	3	4	5
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13. How available to you is the information you need in your daily life?	1	2	3	4	5
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14. To what extent do you have the opportunity for leisure activities?	1	2	3	4	5
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	Not at all	Slightly	Moderately	Very	Extremely
15. How well are you able to get around physically?	1	2	3	4	5

Go to the next sheet >

The following questions ask you to say how good or satisfied you have felt about various aspects of your life over the last two weeks.

	Very Dissatisfied	Fairly Dissatisfied	Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied
16. How satisfied are you with your sleep?	1	2	3	4	5
17. How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18. How satisfied are you with your capacity for work?	1	2	3	4	5
19. How satisfied are you with yourself?	1	2	3	4	5
20. How satisfied are you with your personal relationships?	1	2	3	4	5
21. How satisfied are you with your sex life?	1	2	3	4	5
22. How satisfied are you with the support you get from your friends?	1	2	3	4	5
23. How satisfied are you with the conditions of your living place?	1	2	3	4	5
24. How satisfied are you with your access to health services?	1	2	3	4	5
25. How satisfied are you with your transport?	1	2	3	4	5

	Never	Infrequently	Sometimes	Frequently	Always
26. How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5

THE END