School of Physiotherapy & Exercise Science

Development and Validation of a Survey to Evaluate Patient Satisfaction with Clinical Orthopaedic Assessment

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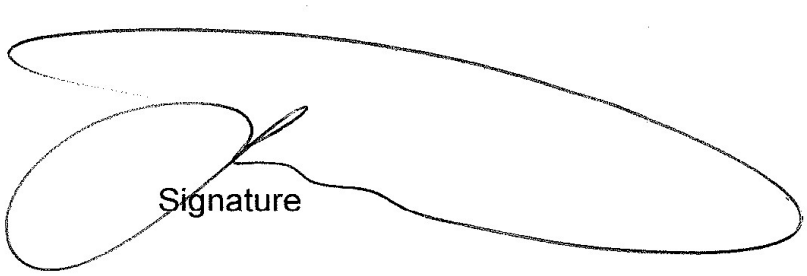
Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007). This study was approved by the WA Department of Health Human Research Ethics Committee (Approval No: 14/22) and the Curtin University Ethic committee (Approval No: HR 96/2014).



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My thanks to all.

Abstract

In recent years, new models of health service delivery in orthopaedic outpatient clinics, including physiotherapists working in orthopaedic triage roles, have become increasingly common. The development of these clinics has brought improvements in capacity and potentially improved access to orthopaedic services, yet evaluation of the patient experience remains limited. Central to the evaluation of the patient experiences is whether individuals assessed by a physiotherapist in an orthopaedic triage role are as satisfied as patients assessed by medical clinicians. Any evaluation of patient satisfaction itself is dependent on an understanding of factors influencing patient satisfaction in this clinical context. The objectives of this study were to identify the factors considered characteristic of patient satisfaction with orthopaedic outpatient clinic service; examine these factors against existing models and research on patient satisfaction with orthopaedic and orthopaedic triage services; and develop and evaluate a survey scale that could be used to assess patient satisfaction within the context of orthopaedic assessment. Initially, the conceptual foundations of patient satisfaction were examined from the literature. A series of scoping reviews were undertaken to examine current approaches to assessing patient satisfaction as well as specific assessments of patient satisfaction in both orthopaedic and orthopaedic triage settings. Having established this background, a cross-sectional, qualitative design including focus groups and interviews was utilised to identify factors considered salient to patient satisfaction within orthopaedic settings. The initial analysis indentified seven themes related to patient satisfaction with orthopedic clinic assessment. These themes were clinic waiting time, clinical contact time, trust, empathy, communication, expectation and relatedness. An expert group was then used to assess and guide the development of items representing these factors. Thematic definitions and 68 items were proposed to the expert group. Experts' ratings of the adequacy of the content domain sampling were subjected to statistical analysis to ascertain the level of agreement. The process undertaken by the expert group resulted in a 21 item survey scale with references to global assessments of satisfaction and willingness to recommend service as key correlates. The survey scale was then subjected to a cohort of patients across two clinical sites. Demographic profile included sex, age

and chronicity. Factorial validity and internal reliability evidence of the patient satisfaction scale was examined. Four group associations within the data were examined. Three interpersonal factors were assimilated as a result of factor analysis and re-defined as the therapeutic relationship, given their statistical overlap and conceptual similarities. A final five-factor model is proposed incorporating three interpersonal dimensions (communication, expectation and the therapeutic relationship) and two environmental factors (clinic wait time and clinical contact time). Support was found for willingness to recommend as a global assessment of patient satisfaction. Analysis of group data showed that patients rated both clinical contact time and communication higher than medical clinicians. Although face, content and factorial validity support for the factors has been proposed, further development and cross-validation will be required to support the psychometric properties of the survey scale. The results of this study will contribute to the understanding of what elements influence patient satisfaction in the setting of orthopaedic assessment and this understanding will inform the clinical practice of both orthopaedic clinicians and triaging physiotherapists seeking improved patient satisfaction.

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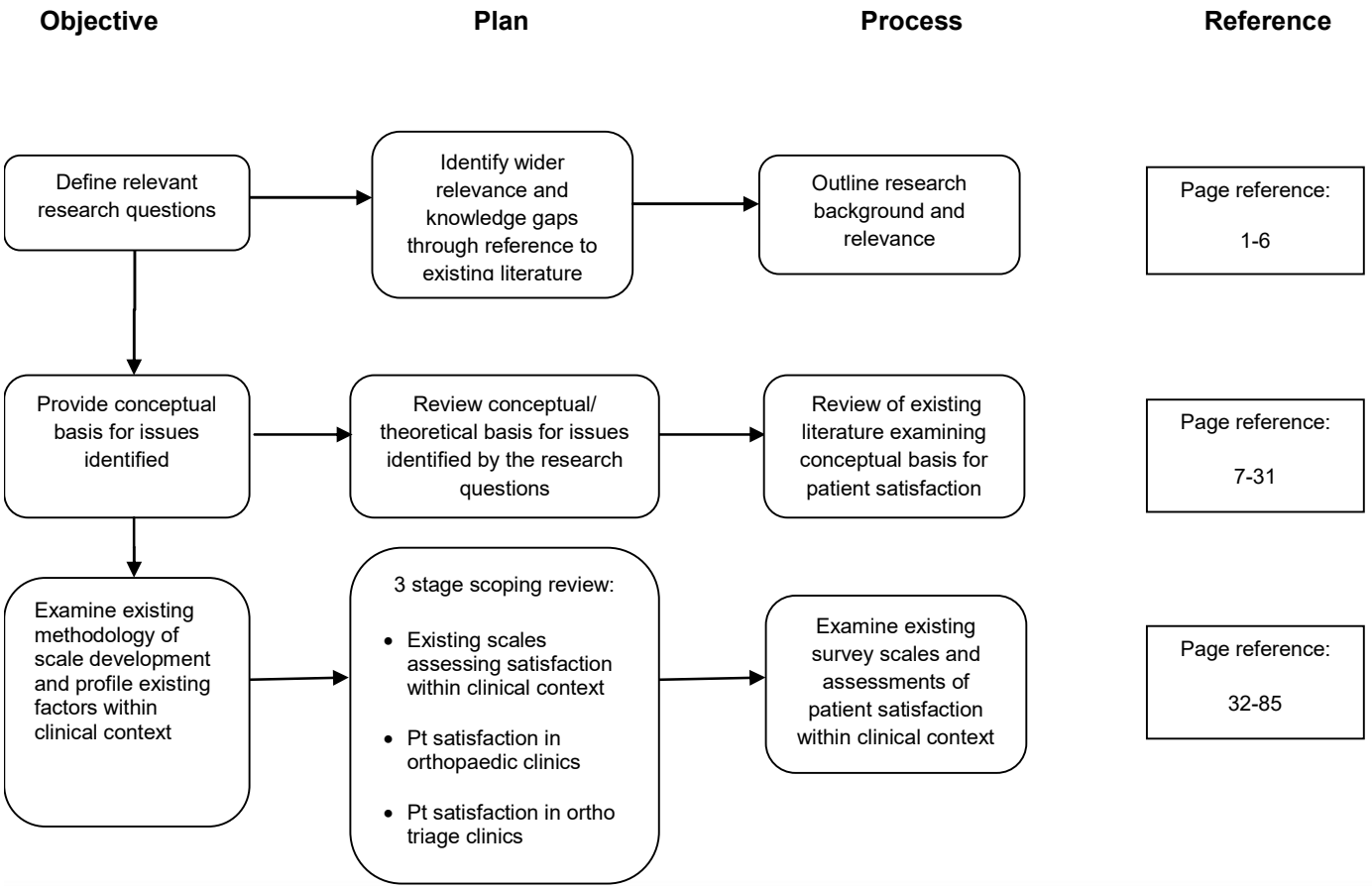

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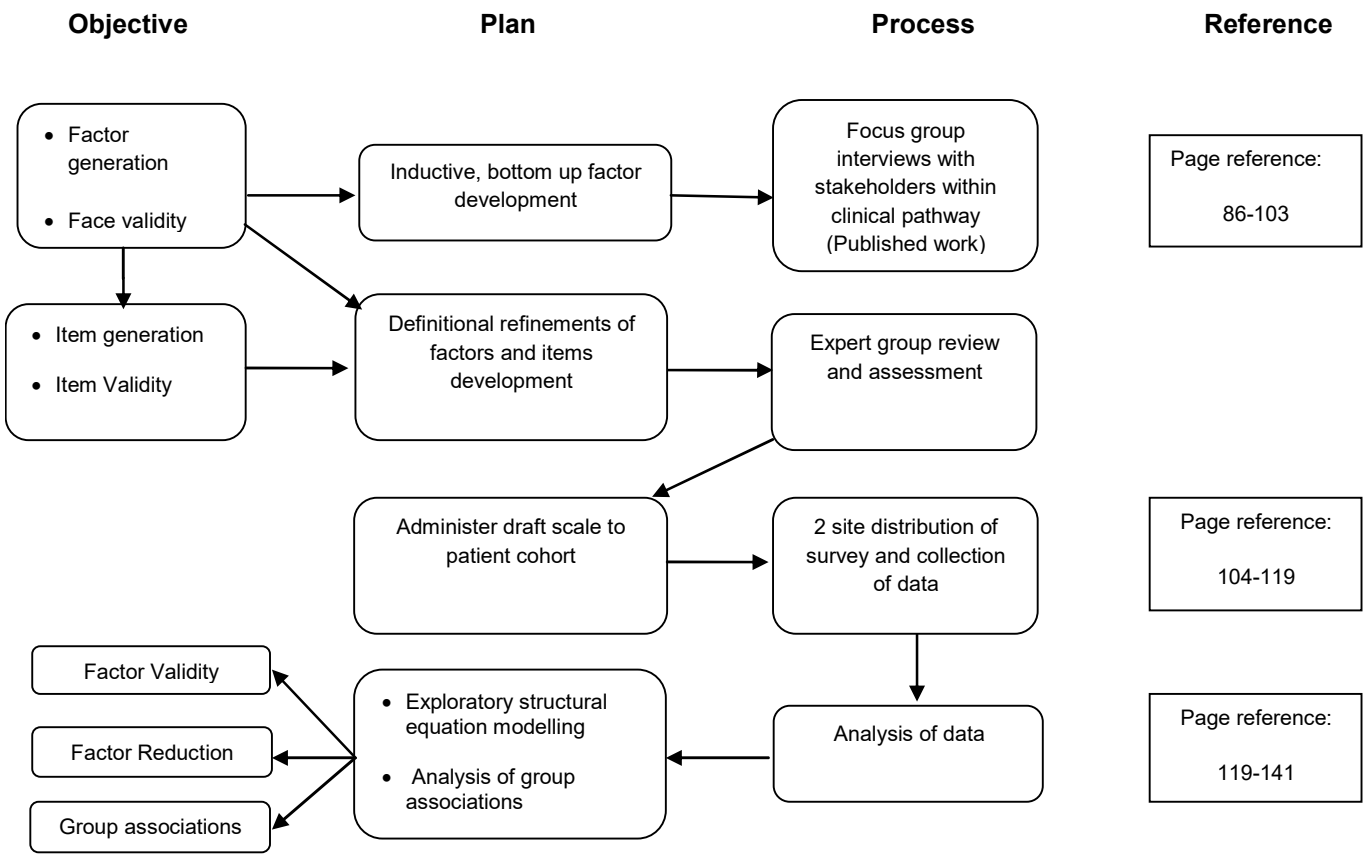

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Published work is contained within Chapter 3.

List of abbreviations

CAC	Consumer Advisory Council
ConsultSQ	Consultation Satisfaction Questionnaire
CFI	Comparative Fit Index
ESRQ	Emotional Stress Reaction Questionnaire
ED	Emergency Department
FHHS	Fremantle Hospital Health Service
GP	General Practitioner
MISS-29	Medical Interview Satisfaction Scale
MLE	Maximum Likelihood Estimator
MRPS	MedRisk Survey
MODEMS	Musculoskeletal Outcomes Data Evaluation
NHS	National Health Service
NSQHS	National Safety and Quality Health Service
NMHS	Northern Metropolitan Health Service
OPEQ	Outpatient Experience Questionnaire
PEQ	Patient Experience Questionnaire
PSS	Patient Satisfaction Scale
PSQ	Patient Specific Questionnaire
PTOPS	Physical Therapy Out Patient Satisfaction Survey
PTPSQ-1	Physical Therapy Patient Satisfaction Questionnaire
QPP	Quality from the Patient's Perspective
PEPAP-Q	Questionnaire of Patients' Experiences in Post-acute Outpatient Physical Therapy Settings
RMSEA	Root Mean Square Error of Approximation
$SAPS_1$	Self-Administered Patient Satisfaction
SDT	Self-Determination Theory
SAPS	Short Assessment of Patient Satisfaction
SCGH	Sir Charles Gardiner Hospital
SMHS	Southern Metropolitan Health Service)
TKFQ	Total Knee Function Questionnaire
THR	Total Hip Replacement

TKR	Total Knee Replacement
TLI	Tucker Lewis Index
VAS	Visual Analogues Scale
VSQ	Visit Specific Questionnaire
WOMAC	Western Ontario McMaster University Index scale

Chapter 1.0

Introduction

1.1 Background to current study

1.1.1 Premises underlying the development of orthopaedic triage

There is substantial and increasing pressure for orthopaedic services arising from an ageing population and a widening population to surgeon ratio (RACS, 2011; Saxon et al., 2014). There is also considerable burden from orthopaedic and musculoskeletal conditions associated with aging with projections that osteoarthritic conditions will be a significant and increasing contributor to disability (WHO, 2015). The increasing demand for orthopaedic outpatient clinic consultations has led to the implementation of physiotherapy-led triage clinics as an adjunct to clinics conducted by orthopaedic surgeons and registrars (Blackburn et al., 2009). The primary intent of orthopaedic triage is to improve the capacity of orthopaedic clinics to meet this increasing demand and provide timely service to patients (Kersten et al., 2007; Morris et al., 2015).

The use of orthopaedic triage offers a potential mechanism to matching clinical need to appropriate levels of clinical resources. Across the scope of orthopaedic referrals only a portion of those referrals for non-urgent cases will require surgical intervention. For example, in a trial of triage within an orthopaedic spinal clinic, only 8% of patients proceeded to surgery (Blackburn et al., 2009; Edmondston et al., 2011), Hussenbux et al. (2015), in a systematic review of intermediate care pathways such as orthopaedic triage, noted a 20-60% reduction in orthopaedic referrals. In clinical audit of orthopaedic triage, Ashmore et al. (2014) found that 59.3% of patients assessed by a physiotherapist did not require orthopaedic consultation. If

that portion of patients who do not require surgery can be managed by clinical pathways excluding orthopaedic consultants, then those patients requiring surgery are more likely to be seen in a timely manner (Bath et al., 2012).

1.1.2 Defining orthopaedic triage

The word triage is defined as “the process of determining the most important people or things from amongst a large number that require attention” (Oxford, 2017). The critical element implied within this definition is that within a patient group, the indications for intervention and the resources required, will vary. That is, not all patients may require the surgical skills of a consultant. Orthopaedic triage in an Australian context is the use of senior physiotherapists to improve the clinical capacity of an orthopaedic clinic by providing assessment and direct management of orthopaedic referrals from primary care (Morris et al., 2015). The use of physiotherapists in these types of roles has been directed by several key clinical objectives to improve patient management. These objectives are to provide timely appointments (Napier et al., 2013), direct patients to optimal treatment pathways (Bath et al., 2012; Weatherley & Hourigan, 1998) and to increase the number of patients presenting to consultants who actually may require surgery (Morris et al., 2015).

A critical element with the premise of orthopaedic triage is that physiotherapists within an orthopaedic triage role have sufficient clinical skills to adequately substitute what is traditionally a medical role. There is substantial evidence to support this premise (Aiken & McColl, 2008; Blackburn et al., 2009; Desmeules et al., 2012; Dziedzic et al., 2009; Pearse et al., 2006). Further, physiotherapists in an Australian context are accustomed to acting as primary contact health practitioners who practice independently in outpatient settings (Oldmeadow et al., 2007). Experienced musculoskeletal clinicians are also be able to recognise more serious conditions underlying the referring diagnosis such as red flags associated

with spinal conditions including vertebral fracture, cauda equina and infection (Ferguson et al., 2015). The recognition of serious conditions in turn may mitigate some of the clinical risks of waitlists for these clinics.

1.1.3 Orthopaedic triage at a health service level

Models of orthopaedic triage have developed at different points across clinical service pathways. Some models have developed at the primary care level pre-empting referral to a hospital based consultant (Dziedzic et al., 2009; Ferguson & Cook, 2011; Kerridge-Weeks & Langridge, 2016; Samsson & Larsson, 2014; Sephton et al., 2010). In an Australian context, most triage models have been hospital based either at tertiary or secondary level (Blackburn et al., 2009; Comans et al., 2014; Edmondston et al., 2011). Joseph et al. (2014), in systematic review of triage models, noted that triage can be delivered effectively by a number of models and ranges of clinicians. The primary objectives of these models of service have been to improve clinical efficiency and access to clinical services (Kersten et al., 2007). Systematic reviews of orthopaedic triage have provided initial evidence that this primary objective is being achieved (Hussenbux et al., 2015; McEvoy et al., 2017), although both studies concluded that the strength of this finding is limited by the lack of high quality studies.

Whilst the goals and objectives of orthopaedic triage are clearly directed to improve clinical efficiency, there is less evidence that the processes utilised to develop orthopaedic triage have been as clearly defined. Morris et al. (2015), in a systematic review of orthopaedic triage, noted considerable variation in how reforms were implemented, who participated in them and in what clinical context they were applied. The absence of consistent model for triage services was also noted in a previous systemic review undertaken by Stanhope et al. (2012).. Despite these variations of approach, orthopaedic triage is essentially based on the premise of role substitution to allow expansion of existing service capacity to assess more referrals.

1.1.4 Orthopaedic triage at the clinical level

There is initial evidence that orthopaedic triage has produced at least comparable clinical outcomes to existing models of orthopaedic practice. Previous studies have shown that both physiotherapy-led orthopaedic clinics and surgeon-led clinics produce similar clinical outcomes in relation to clinical diagnosis and management (Aiken & McColl, 2008; Daker-White et al., 1999; Desmeules et al., 2012; Edmondston et al., 2011; Hattam, 2004; Hussenbux et al., 2015; Razmjou et al., 2013; Samsson & Larsson, 2014; Weatherley & Hourigan, 1998). Bath and Pahwa (2012) evaluated the effect of physiotherapy triage on patients with spinal pain, and found evidence of short term improvement in self-reported outcomes. In a randomised a cohort of Swedish orthopaedic presentations across triage and standard care pathways Samsson and Larsson (2015) demonstrated no differences between the two patient groups at 6 and 12 months in terms of quality of life, disability and sick leave. There is also evidence that this approach is an effective strategy to manage orthopaedic waitlists (Edmondston et al., 2011; Hussenbux et al., 2015; Napier et al., 2013; Schoch & Adair, 2012). Whilst these results are promising, several systematic reviews have highlighted the need for more methodologically sound studies to further evaluate their effectiveness (Desmeules et al., 2012; Kersten et al., 2007; McPherson et al., 2006; Morris et al., 2015; Stanhope et al., 2012).

1.1.5 Rationale for thesis

Despite some initial evidence supporting the effectiveness of orthopaedic triage, much remains to be learned about this approach to clinical services. Recent systematic reviews have highlighted the need for improved standardisation of the outcome measures used to assess these services (Kersten et al., 2007; Morris et al., 2015; Stanhope et al., 2012). Whilst there has been some focus on the comparative clinical effectiveness of orthopaedic triage services, the patient perspective of these types of clinical reforms would also appear to be critical. The foundation of this thesis is

whether these studies reliably and validly capture the patient perspective of orthopaedic triage and in particular whether patient satisfaction is comparable between the two models of service delivery. The critical point to assess the impact of this model of role substitution would appear to be at the initial assessment of the orthopaedic referral.

1.1.6 Critical questions guiding research evaluating patient satisfaction with orthopaedic triage

As a guide for research design, a number of questions can be proposed:

- Why is patient satisfaction an important issue to consider?
- How can patient satisfaction be defined?
- What is the conceptual basis for patient satisfaction?
- What survey tools exist to assess patient satisfaction within an orthopaedic/musculoskeletal context?
- What examinations of patient satisfaction have been undertaken in the context orthopaedic practice?
- What examinations of patient satisfaction have been undertaken in the context orthopaedic triage practice?
- What factors are likely to best represent patient satisfaction within the context of orthopaedic/orthopaedic triage?
- What items best represent those factors within a survey?
- How can we evaluate those factors as characteristics of patient satisfaction within the context of orthopaedic/orthopaedic triage?

Chapter 2.0

Literature Review

2.1 Why patient satisfaction is an important issue to consider

2.1.1 Patient as a stakeholder

Patients within a public health facility hold a unique position as stakeholders. At a basic level, the notion that patients are stakeholders is consistent with consumer based service models (Atwal & Caldwell, 2005; Boyer et al., 2006; Roush & Sonstroem, 1999). Within public health, the patient can also be seen as both consumer and stakeholder given that such services are funded through government entities. The repositioning of the patient from diagnostic entity to that of a consumer and stakeholder raises the notion that patients should be both healed and satisfied. In a wider review of the characteristics of patient satisfaction, Hudak & Wright (2000) proposed that "having given the right treatment, it is reasonable to believe that clinicians should strive to satisfy their patients as well" (Hudak & Wright, 2000, page 3167).

The question of whether patients are satisfied is an increasingly recognised issue in public health services (Donabedian, 1988; Mpinga & Chastonay, 2011; Ware et al., 1983). In a review of the issues underpinning the emergence of patient satisfaction, Carr-Hill (1992) identified a political imperative for the growing interest in patient views of service delivery that is also consistent with the idea of patients as stakeholders. This is also consistent with contemporary attitudes of the relationship between a population and the public services they utilise (Podger et al., 2012). The provision of public health services requires significant funds drawn from the public purse (Podger, 2006) such that some rationalisation is required in regard to how public resources are allocated. Within the Australian context, public health services are essentially accountable to the public through the political system (Boxall, 2010). The increasing demands of patients for a

responsive and accountable health system has been observed in a European context (Coulter & Jenkinson, 2005). Therefore, issues of patient satisfaction are not only relevant to patients as both consumers and underwriters of health services but also to decision makers who may be held accountable through the political system.

The recognition of patients as stakeholders has led to patient satisfaction to be identified as key performance measures of health systems. In Australia, the evaluation of the patient experience forms a significant contribution to Standard 2 of the National Safety and Quality Health Service (NSQHS) standards relating to consumer engagement (ACSQHC, 2012). These NSQHS standards define the current criteria for accreditation in the Australian hospital system (ACSQHC, 2012). Therefore, issues relating to patient satisfaction are of primary interest to administrators and managers who are required to achieve this accreditation.

In some countries, satisfaction measures have also been linked to the level of financing of health services. In the United States satisfaction has been used a key performance indicator influencing remuneration and funding (Garman et al., 2004; Morris et al., 2014). In the United Kingdom, it has been proposed that that all healthcare contracts within the National Health Service (NHS) contain some reference to the patient experience of healthcare (Gray et al., 2010).

The critical issue is that if governments can be held accountable through the electoral process for such expenditure, patients are not only consumers but can also exert influence on how health policy is administered. The nature of the patient experience is likely then to be of interest to governments administering health services. The linking of the patient experience to level of funding of clinical services is evidence that issues such as patient satisfaction are positioned centrally as a key driver of clinical services.

2.1.2 Holistic service delivery

The development of patient satisfaction measures has also been driven from a recognition that clinical practice should consider the patient holistically rather than as just a diagnostic entity (Bensing, 2000). In an editorial review within the Journal of the American Medical Association, Kupfer & Bond (2012) noted that characteristics of patient-centered care included improving health literacy, coordination of care, physical comfort, emotional support, personalised care and shared decision making. Within this approach is the assumption that the psychosocial needs of a patient cannot be separated from physical need. Several authors have supported a patient-centered approach to clinical practice with calls for clinicians to be focused and responsive to patient needs (Jenkinson et al., 2002; Peersman et al., 2013). Patient-centered practice has thus become a contemporary issue in the provision of clinical services.

Central to the ethos of patient-centered care is the recognition of patient participation within the process of health care. The patient-centered model of care is centered on an approach to provide clinical services with the intent to provide care aligned with a patient's values, needs and preferences (Epstein et al., 2005). It is also seen as related to the idea of a therapeutic alliance, embracing a "biopsychosocial perspective" of patient management (Mead & Bower, 2000a , page 1088). Patient-centered care has been associated with increasing levels of patient satisfaction (Aragon et al., 2010; Kisa et al., 2011) and positive healthcare outcomes (Glickman et al., 2010; Meterko et al., 2010; Murray et al., 2015). The assessment of patient satisfaction can then be viewed as an assessment of the patient response to this patient-centered approach.

This wider perspective of the clinical services has also been driven from evidence that a positive therapeutic outcome is not always correlated with levels of patient satisfaction. Several authors have recognised this disconnect between outcome and patient satisfaction in orthopaedic services

(Graham et al., 2015; Noble et al., 2013). Bullens et al. (2001) demonstrated only a weak correlation between clinical outcome following total knee replacement and levels of patient satisfaction, whereas Narayan et al. (2009) demonstrated that levels of satisfaction where not positively associated correlation with recovery of knee movement following total knee replacement.

Several authors have found that objective measures of function assessing orthopaedic intervention had no predictive validity in distinguishing satisfied from dissatisfied patients (Hamilton et al., 2013; Judge et al., 2011). These findings suggest that clinical outcome is unlikely to be the only driver of patient satisfaction and conversely it may be possible that patients remain satisfied despite suboptimal clinical outcome. Satisfaction has then been proposed by several authors as an alternative dimension to clinical outcome to ensure the quality of service delivery (Beattie et al., 2002; Butler & Johnson, 2008; Hudak & Wright, 2000). Some authors have gone as far to suggest that patient satisfaction may be the only discerning outcome measure where clinical outcomes are inconsistent or uncertain (Casserley-Feeney et al., 2008).

The increasing recognition of the patient satisfaction as a measure of clinical services also recognises the potential difference in what patient may expect and what is delivered by clinicians. Like & Zyzanski (1987), in reviewing the psychosocial determinants of the clinical encounter, suggested that this tension between patient requests and service delivery is “normative and legitimate” implying that patient expectations of service should at least be addressed and understood (Like & Zyzanski, 1987, page 356). Levels of patient satisfaction may well be related to how well these tensions between clinicians and patients are negotiated and resolved.

2.1.3 Summary

The importance of patient satisfaction to health service is driven by two key contemporary themes of the patient as a stakeholder within health services and the patient-centered or holistic view of services directed to patients. May (2001), who undertook a qualitative exploration of factors influencing satisfaction in low back pain patients, perhaps best defined the issue, proposing that “it is difficult to conceive of an effective method of judging many aspects of care without the perspective of the users ” (May, 2001, page 4).

2.2 How can patient satisfaction be defined?

Initial work on the definition of patient satisfaction appears to be derived directly from consumer based definitions. Consumer literature defines satisfaction as “the buyer’s cognitive state of being adequately or inadequately rewarded for the sacrifices he [sic] has undergone” (Howard & Sheth, 1969, page 145). Implied within that definition is the notion of utility where the interaction to receive a service or good has both reward and cost and a net result for the individual. Economists and marketers, however, quickly realised that the process of satisfaction extended beyond simple utility to how the assessment of that exchange can be influenced by the psychology of the consumer (Czepiel & Rosenberg, 1977). The recognition of an affective evaluation by the customer established a link between psychosocial theories and consumer satisfaction.

Within the existing literature, a singular definition of consumer satisfaction remains elusive. There is evidence that satisfaction is derived at an individual level influenced by context and situational differences. Giese & Cote (2000) undertook an exploration of definitions of consumer satisfaction through a review of the literature and focus groups. The authors proposed that satisfaction was a “summary affective response of varying intensity” (Giese & Cote, 2000, page 2). Implicit within this definition is the notion that any

evaluation of the characteristics of satisfaction should assess the nature of that affect and be developed through a through an inductive, bottom up approach (Giese & Cote, 2000). In other words, any definition of satisfaction is likely to be derived from the characteristics of satisfaction that in turn reflect context and circumstances of the individual.

Within the published literature of patient satisfaction within a healthcare setting, a number of authors support the concept of satisfaction as an affective response. In establishing a conceptual basis for the development of a scale to assess patient attitudes toward clinicians, Hulka et al. (1970) defined satisfaction in terms of a patient attitude toward clinicians and care. Linder-Pelz (1982a) undertook an extensive review of the theoretical basis for patient satisfaction and proposed that satisfaction can be broadly defined as a "positive attitude to distinct dimensions of health care" (Linder-Pelz, 1982a, page 578). Satisfaction has also been noted to be influenced by values and attitudes of a particular individual (Oliver, 1993; Pascoe, 1983). Levels of satisfaction are drawn from experience, which in itself, is subject to the perceptual differences formed through psycho-social attributes such as attitudes, belief, needs and expectation (Hills & Kitchen, 2007b; Linder-Pelz, 1982a; Oliver & DeSarbo, 1988). Collectively, these findings reinforce the proposed link between psychosocial theories and patient satisfaction.

The recognition that satisfaction is drawn from a response to distinct dimensions within healthcare has led to patient satisfaction being defined through those dimensions. Ware et al. (1983), in their seminal work underpinning the development of satisfaction scales to assess patient satisfaction, derived dimensions influencing satisfaction through consultation with focus groups. The authors outlined a multidimensional construct that encompassed dimensions of access, resources availability, continuity of care, outcome, finance, humaneness, information gathering, information giving, environment, quality and competence. These factors or dimensions act as the primary drivers for satisfaction within a medical context. For Ware et al. (1983), patient satisfaction is derived directly through the affective response to these dimensions.

Although dimensions may be used to define patient satisfaction within the existing literature, a wide array of dimensions has been identified. Examination of dimensions identified within survey scales of patient satisfaction reveals a limited consensus in the domains identified in past work (see Section 2.5 for a full summary). This spectrum of dimensions characterising satisfaction could be associated with the varying dimensions of diagnostic types, service designs and cultural settings associated with these studies. For example, Ware et al. (1983) noted a financial dimension to satisfaction that is difficult to translate to an Australian context of government funded public health services. Therefore, any definition of patient satisfaction derived from these domains may remain limited to the context in which they were developed.

Other authors have integrated elements of psychosocial theory to establish a working definition of patient satisfaction. Hills & Kitchen (2007a) explored the theoretical foundation of patient satisfaction relating to physiotherapy services, and defined satisfaction as "a sense of contentedness, achievement or fulfilment that results from meeting patients' needs and expectation with respect to specific and general aspects of health care" (Hills & Kitchen, 2007a, page 245). Larsson & Wilde-Larsson (2010), in establishing a conceptual foundation for the Quality for Patient Perspective (QPP) scale, used an expectation based definition of satisfaction derived from the work of Crow et al. (2002) in which satisfaction is defined as an "attitudinal response related to the degree of expectation fulfilment" (Larsson & Wilde-Larsson, 2010, page 229). The authors build on this concept by proposing that this attitudinal response is directed by emotion. The implication of these proposals is that the individual psychosocial attributes of patients may drive variation in the level of the emotive response, and therefore influence the degree of satisfaction derived from that context.

2.2.1 Summary

A unifying definition of patient satisfaction is not yet possible given the varying approaches undertaken to derive a definition. An examination of

existing definitions, however, suggests a number of consensual elements. Firstly, satisfaction is an affective response. Secondly, this affective response is likely to be influenced by expectations, beliefs, needs, and attitudes of an individual. Thirdly, there are likely to be key domains or dimensions of healthcare that an individual will respond to in any given context. As such, any definition of patient satisfaction relating to the provision of health services is likely to be influenced by the situational context of patients.

2.3 The theoretical and conceptual basis for patient satisfaction

The need to examine the conceptual basis is fundamental to the understanding of patient satisfaction. Linder-Pelz (1982a) proposed that an explicit model of satisfaction in health care would both "define the concept and specify it's various determinants and consequences" (Linder-Pelz, 1982a page 577). The conceptual understanding of satisfaction would also appear to offer a framework to identify determinants of satisfaction and how the measure them. Satisfaction, however, does not appear to be captured by a singular conceptual model or at least remains poorly developed conceptually (Batbaatar et al., 2015). Therefore, a wider review is proposed encompassing a range of conceptual models and theories that have been associated with satisfaction.

2.3.1 Consumer Theory

Conceptual models of satisfaction appear to have initially arisen from business models where customer satisfaction is identified as a key indicator of customer engagement (Garman et al., 2004). Consumer theory defines customer satisfaction as a result of fulfilling a need or more specifically creating utility or usefulness (Lipsey, 1999). Importantly, that need is defined perceptually by the consumer (Oliver, 1993). The essential issue implied by this perspective is that it is the response of the consumer or individual that ultimately defines the worth or value of a product or service.

The notion of a patient as a consumer of health services appears to have some congruency with fundamental elements within consumer based theory. The influence of expectation, need fulfilment and the affective nature of satisfaction are recognised within consumer theory. Satisfaction is seen as a potential indicator to consumer behaviour especially in regard to repeating consumption (Conklin et al., 2004) or potentially communicating satisfaction to others who themselves may be drawn to that service or product. Even surveying patient attitudes to their experience appears to be at least partially analogous to the consumer focus of business (Roush & Sonstroem, 1999). In this context, the provision of clinical services is not unlike the provision of any other good or service.

There are fundamental differences in the way in which normal goods and services are transacted and consumed in comparison to health services. In their review of consumer models of patient behaviour, Hudak et al. (2003) proposed key conceptual differences between consumers and patients. Central to their proposal is the different goals of service providers and health providers. If the health of the patient is the primary goal, satisfaction with healthcare should lead to a reduction in consumer presentation. In contrast, normal business behaviour would aspire to increased usage of their services. Additionally, it cannot be assumed that a patient's only motivation is the alleviation of a particular presentation or symptom. Clinical presentations are complex and can deeply intertwine with psychological motivation and need (Bederman et al., 2012; Briggs et al., 2011; Ryan et al., 2008b). As a result, rationalist consumer theory cannot so easily be transcribed to a health services context and the factors that drive patient behaviours should be considered separately and uniquely.

2.3.2 Expectancy theory

Expectancy theory proposes that expectation is formed from a set of beliefs around an anticipated situation or experience (Zwick et al., 1995). Thompson & Suñol (1995) characterised expectation into four types, "ideal" that are aspirational, "predicted" which are realistic or anticipated, "normative" which

represent what should happen, and “unformed” when users are unable or unwilling to articulate expectation (Thompson & Suñol, 1995, page 130). Within the context of clinical services, expectation could be drawn from previous experience (Arthur & Clifford, 2004), from translated or third party experience (Lee et al., 2017), associated with professional roles (Cichon & Masterson, 1993) or from institutional or brand awareness (Hall et al., 2001). Drawn from research in social psychology and organisational behaviour (Oliver & DeSarbo, 1988), expectancy theory proposes that when experience fulfils expectation (or possibly exceeds expectation) individuals are more likely to be satisfied (Carr-Hill, 1992; Hsieh & Kagle, 1991; Jackson et al., 2001; Nielsen et al., 2005).

Disconfirmation theory is closely associated with expectation theory and also appears widely within conceptual models of consumer satisfaction. Disconfirmation theory proposes that pre-emptive perceptions are weighed against the experience of the good or service post-purchase (Oliver, 1980). Satisfaction is derived from the magnitude and direction of disconfirmation (Newsome & Wright, 1999). The reference to pre-existing perception appears to be related closely and even analogous to the concept of expectation. These perceptions in health services could be associated to expectations associated with issues such as the reputation of individuals, perceptions of professional roles or even wider perceptions of the health system.

As orthopaedic services including orthopaedic triage require referral and pre-assessment, it is likely that patients’ expectations will have an influence on their experience. Central to this experience is the notion that patients are likely to have an understanding of the role that a clinician will or should play within any service (Cichon & Masterson, 1993). Patients referred to a service as a result of a primary clinical assessment (General Practitioner, GP) are likely to carry expectation drawn from the process of referral. To some degree this level of expectation could be influenced by a GP implying that the care of the patient will be transferred to a higher level of clinical skills or resources. Further, if the GP has established an ongoing relationship with

the patient, the patient may place significant value or trust in the actions of the GP. In orthopaedic triage expectation would appear directly relevant given that most patients would have an expectation of being assessed by an orthopaedic clinician. Therefore, expectations may arise directly from the act of referral to services such as an orthopaedic clinic.

Several authors have examined the affective response derived from expectation. Linder-Pelz Linder-Pelz (1982a) examined influences of patient satisfaction within clinical settings through qualitative research and standardised surveys within clinical cohorts. Much of the earlier work of Linder-Pelz (Linder-Pelz, 1982a; 1982b) strived to establish a conceptual foundation for patient satisfaction. Linder-Pelz (1982a) appears to have drawn heavily from attitudinal theory (Ajzen & Fishbein, 1970) highlighting the distinction between attitude and perception. The author proposed that perception is determined by expectation and entitlement, whereas attitude is determined by the value a patient associates with an individual encounter (Linder-Pelz, 1982a). Linder-Pelz (1982a) emphasised the importance of personal beliefs within the clinical interaction accounting for variation in an affective response such as satisfaction. Essentially, patients place different values to expectancies through attitude. The relationship between satisfaction, expectancy and attitude is described within the authors' expectancy-value theory (Linder-Pelz, 1982b; Linder-Pelz & Struening, 1985). The work of Linder-Pelz (Linder-Pelz, 1982a; Linder-Pelz & Struening, 1985) is important in that it emphasises the dynamic element of the clinical interaction between patient and clinician influencing patient satisfaction essentially rejecting a simplistic relationship between expectation and experience.

Ware et al. (1983) also explored the notion that satisfaction is driven by the subjective response of the patient experience. Ware and his associates (Rubin et al., 1993; Ware & Hays, 1988; Ware et al., 1983) developed this perspective through a process of patient focus groups, expert panel review and establishment of a watermark process for survey development and validation. The work of Ware and his associates appears prominently within

the literature of patient satisfaction and with the survey tools that were developed as a result of this work (see Section 2.5). Although Ware et al. (1983) developed domains of patient satisfaction through the use of focus and expert groups, these domains were referenced in the context of expectancy theory. Like Linder-Pelz (1982a), the work of Ware and his associates (Ware, 1978; Ware & Hays, 1988; Ware et al., 1983) highlighted dynamic nature of the clinical interaction and emphasised the influence of clinician behaviour on levels of patient satisfaction.

Expectancy theory has also been referenced in research on patient satisfaction in clinical groups such as physiotherapy. These groups are of interest in that, apart from involvement in orthopaedic triage, the scope of clinical practice is similar to that provided at orthopaedic assessment (Aiken & McColl, 2008; Blackburn et al., 2009; Desmeules et al., 2013; Pearse et al., 2006). Kitchen and Hills (Hills & Kitchen, 2007a; 2007b) developed a conceptual model of patient satisfaction in physiotherapy and described several domains and factors through qualitative exploration through focus groups. The authors related both needs and expectation theory to the provision of physiotherapy services. Essentially referenced to disconfirmation theory, Hills & Kitchen (2007a) proposed that perceptions of a service are developed through the extent and direction of difference between expectation and experience. As such, the higher the level of expectation, the less likely that experience will exceed that expectation. Levels of satisfaction are then drawn from the net difference between expectation and satisfaction.

Although expectation theory appears to be directly relevant to questions of satisfaction, it seems unlikely that levels expectation alone will inform measurements of patient satisfaction. Knight et al. (2010), in a review of satisfaction within private physiotherapy patients, found that expectations among patients attending physiotherapy services were universally high and that the measurement of expectation added little value to any assessment of patient satisfaction. This finding is contrast to studies evaluating the influence of expectation in other clinical contexts such as orthopaedics (Bourne et al., 2010; Noble et al., 2006; Tashjian et al., 2007; Waljee et al.,

2013). Other studies have also demonstrated that the issue of expectation is not uniform across patient and clinical groups (Bowling et al., 2013; George & Robinson, 2010; Leung et al., 2009). Therefore, although expectation and expectation theory may be influential to patient satisfaction, the degree of that influence remains unclear.

There is some evidence that levels of expectations held by patients are subject to variation, and may evolve and change through the process of clinical interaction and levels of communication (Conner-Spady et al., 2011; Culliton et al., 2012; James, 2007). May (2001), through a process of focus groups and thematic analysis, proposed that "patient expectations may not always be clear expectations of complex health care systems or that these expectations may be fluid over time" (May, 2001 , page 5). This implies that the rationalisation of expectations may be subject to a much more dynamic process that is informed by influences such as communication and interpersonal interaction with the clinician.

An alternative perspective is one in which the influence of expectation on satisfaction may vary through the concept of a zone of tolerance. The zone of tolerance is proposed to exist within a disconfirmation model moving along a variable scale from dissatisfaction (negative disconfirmation) to delight (positive disconfirmation) (Johnston, 1995). Satisfaction is defined as neutral position response to service where clients are neither satisfied nor willing to be unsatisfied but find the service acceptable. Johnston (1995) explicitly relates what is acceptable to expectation and defines satisfaction as the situation where expectation equates to experience. In a review of the concept of patient satisfaction, Collins & O'Cathain (2003) expand on this definition within the context of healthcare by proposing a "continuum of satisfaction" (Collins & O'Cathain, 2003, page 2468). The implication is that expectation fulfilment is unlikely to exist in a linear relationship with patient satisfaction. Therefore, although expectation theory is likely to influence conceptual models of patient satisfaction, there should be recognition of the dynamic nature of expectation and that it is potentially subject to individual and contextual variations.

2.3.3 Needs Theory

Needs theory has been associated with conceptual models of patient satisfaction. Needs theory implies that behaviour will be directed to certain conditions in which well-being is fostered and that satisfaction is derived from need fulfilment (Hills & Kitchen, 2007a). Needs theory appears to have parallels to expectancy theory through its prediction of motivation and behaviour. Perhaps the best known of the needs theorists is Maslow (Maslow, 1970) who proposed a five level structure directing human need. Those needs were defined as physiological (e.g., basic life needs like food and water), safety (e.g., protection, security), love (e.g., affection, relationships), esteem (e.g., achievement, status) and self-actualisation (e.g., realising personal potential) (Maslow, 1970). For Maslow (1970), people are motivated towards self-actualisation through a process in which basic needs (e.g., physiological) are fulfilled before moving to more advanced needs that are primarily psychological or social in nature (e.g., love and self-esteem).

Several authors have used needs theory as part of their conceptual foundation for patient satisfaction. Some authors have considered needs to be analogous to expectation (Sixma et al., 1998). Others have attempted to synthesise the basic elements of Maslow's hierarchy of needs (Maslow, 1970) into the clinical objective of resolving physical symptoms. Johnson (1996) proposes that once physical needs are met, the need for self-actualisation may remain unless these underlying needs are recognised. Levels of satisfaction are dependent on whether these higher needs are addressed in the clinical experience. Batbaatar et al. (2015) concurs with Johnson (1996) by proposing that patient satisfaction is "the ultimate challenge to healthcare providers, and thus it is anticipated to be fulfilled only after all patient outcomes are met." (Batbaatar et al., 2015, page 247). Hills & Kitchen (2007a), within the development of their conceptual model of patient satisfaction, acknowledged needs theory as the primary motivation for patients seeking to address physical and psychological issues. Therefore the nature of patients needs is complex, and may not be completely represented by physical presentation of the patient.

There is some question as to whether clinicians (or patients) can accurately interpret or communicate hierarchies of need. For example, patients associating physical needs to an underlying condition may not recognise an underlying psychological need that may be entwined within a clinical presentation such as chronic pain. There is evidence that this differentiation between the psychological state and the physical state cannot be clearly defined (Bederman et al., 2012; Deci & Ryan, 2008; Toye et al., 2013). For example, within chronic pain presentations, individuals often avoid activity through a concern of safety, even though the activity is unlikely to threaten them and may even improve their condition (Schrooten, 2012). Adogwa et al. (2014), in a retrospective evaluation of patients undergoing spinal surgery, found that depression scales predicted patient satisfaction independently of the extent of improvement derived from lumbar surgery. The implication being that although needs are associated within a common conceptual framework of behaviour, variation in patient background (such as clinical condition) may alter the hierarchy of needs within that individual.

2.3.4 Self -Determination Theory

Self-Determination Theory (SDT) is a macro theory of motivation, emotion and personality that continues to evolve and develop over the past 40 years (Vansteenkiste et al., 2010). SDT is based primarily on the work of Deci and Ryan (Deci, 1985). Basic Physiological Needs Theory (BPNT) is one of the mini theories of SDT. BPNT defines a set of psychological needs considered as nutriment for well-being. BPNT is distinguished from Maslow's hierarchy of need in that it is essentially focused on psychological need rather than physiological need (Vansteenkiste et al., 2010). Further, SDT appears not to propose a hierarchy and therefore considers each innate need as equally important for well-being (Patrick, 2014). Within the context of BPNT, the satisfaction of the three universal psychological needs of autonomy, competence and relatedness is said to foster well-being, mental vitality, and growth thereby providing a basis for motivation (Vansteenkiste et al., 2010). In other words, these three psychological needs are considered essential

nutriments or conditions for positive development and growth (Bartholomew et al., 2011).

The aspect of BPNT that is pertinent to the study of patient satisfaction is the centrality of people's perceptions or interpretations of social-contextual factors (e.g., interactions with clinicians) for their psychological needs, that is, whether aspects of the environment either foster or forestall needs satisfaction (Bartholomew et al., 2011). When patients perceive that their needs have been fostered, we would expect them to report higher levels of satisfaction with the clinical experience than if their needs were minimally supported or even thwarted. BNPT directs that need satisfaction will be inherently associated with behaviours and outcomes that enhance patient autonomy, competence and relatedness (Bartholomew et al., 2011; Deci, 2000). The implication of this approach is that if a therapeutic approach can be aligned to these goals, then both patient satisfaction and therapeutic benefit are possible if these needs are addressed. SDT/BNPT then provides a framework by which patient and clinic behaviours align to improve satisfaction.

There is strong evidence for the efficacy of SDT within health services. Randomised trials have been conducted in smoking (Williams et al., 2011), exercise adherence (Fortier et al., 2007) and dental care (Halvari et al., 2012), which have demonstrated improved therapeutic outcomes when psychological needs are satisfied. Murray et al. (2015) applied to SDT-based communication skill training to physiotherapists managing chronic low back pain and demonstrated improved compliance with an intervention program. Ng et al. (2012) conducted a meta-analysis of SDT applied to health context and concluded that SDT was a viable framework to direct health behaviours of patients. Therefore SDT is an emerging and increasing recognised framework for examining patient behaviour within a health context.

2.3.5 Attribution theory

Attribution theory seeks to explain individual behaviours as a result of unmet expectations (Batbaatar et al., 2015). Attribution theory concerns how people "infer casual explanations for other people's actions" (Fiske, 2008, page 149). Batbaatar et al. (2015) suggested that attribution theory has a role in explaining dissonance between expectation and experience through an understanding of how individuals interpret circumstances differently and how these individual differences may lead to dissatisfaction.

Attribution theory is potentially relevant to the process of orthopaedic assessment through explaining the effect of differences in patient clinician belief systems. It is possible that different belief systems between a patient and a clinician may influence expectations, dissonance and the potential for dissatisfaction. As an example, if a chiropractic patient presents to a medical spinal clinic, there is a potential for dissonance between patient and clinician given the different diagnostic and therapeutic approaches between chiropractic and conservative medicine. Unless these differences can be rationalised, they could negatively influence communication or trust, potentially eroding levels of patient satisfaction.

This concept is also applicable to levels of patient satisfaction with substitution strategies such as orthopaedic triage. Satisfaction may be compromised if the patient believes that the substitute clinician may not have the skill set to provide a solution. For example, if an orthopaedic patient presents with an issue they believe will require surgery, there is the potential for dissatisfaction if they are assessed by a physiotherapist whose expertise does not include surgical skills. Patient satisfaction is then potentially dependant on whether these perceptions can be rationalised.

The potential issues of attribution theory are similar to those associated with those with expectation theory. Expectation and the response to expectation fulfilment is potentially a dynamic process influenced by the interpersonal interaction between clinician and patient. In this sense, the level of

dissonance may not be accurately predicted by expectation, but more so by the outcome of a process to how those expectations were addressed.

2.3.6 Equity theory

Equity theory essentially relates to concepts of opportunity cost in terms of the costs of receiving the service weighed against any benefits received (Swan et al., 1985). Such costs may include issues such as clinic waiting time, costs of attending the appointment and potentially lost income for patients who are self-employed or cannot access paid leave to attend from work. Batbaatar et al. (2015) relates equity theory to social comparison theory, as an individual is likely to compare the relative value of one service provider to another. The relative equity perceived as a result of a clinical service may also feed into behaviours such as intention to revisit (Swan et al., 1985). Equity theory proposes that levels of satisfaction are then derived from the net effect of costs against any benefits gained.

The concepts of equity theory, opportunity cost and potential substitution directly relate to the provision of orthopaedic triage services as the role of the consultant surgeon is substituted by physiotherapists. It is possible that attributes such as waitlist time, clinic waiting time, time of appointment and perceived risk may influence perceptions of equity and therefore patient attitudes. For example, if patients were offered a more flexible appointment time or an earlier assessment within orthopaedic triage, patients may rationalise any potential apprehensions that the physiotherapist may not have the skill set to help them with their problem. Therefore, equity theory may be relevant in any examination of patient experience of orthopaedic triage.

Although equity theory represents a rationalist view of clinical service, the degree to which patients hold this rationalisation is unclear and may vary from patient to patient. Older patients with fewer time pressures and responsibilities may have a wider tolerance of what is equitable, which may explain the general tendency for older patients to report higher levels of

satisfaction (Cohen, 1996; Hekkert et al., 2009 ; McKinnon, 2001). There is also evidence that some of these costs may be rationalised as a result of the clinical process. Anderson et al. (2007), in a cross sectional survey of patients attending a primary care physician in the US, found that time spent with the clinician was a stronger predictor of satisfaction than time spent in the waiting room. Therefore, the process implied by equity theory is again, a dynamic one, influenced by individual circumstance and a process of rationalisation through the clinical process.

2.3.7 Health Care Quality Theory

The model proposed by Donabedian (1988) is essentially concerned with the assessment of quality within clinical services, which Gill & White (2009) defined as the theory of Health Care Quality. This framework for quality is referenced widely within the patient satisfaction literature. Donabedian (1988) proposed three aspects of a framework for examining patient satisfaction through structure, process and outcome. Other authors have attempted to refine and expand these elements through access, administration, timeliness, support staff, environment and organisation of care (Donabedian, 1988; Goldstein et al., 2000; Seibert et al., 1999; Solomon et al., 1999). Nelson (1990) proposed alternative dimensions of satisfaction in health care through access, administrative technical management, clinical technical management, interpersonal management, and continuity of care. The framework proposed by Nelson (1990) also provides the basis for the work of Goldstein et al. (2000), who developed a survey tool to evaluate patient satisfaction with physical therapists. The premise underlying this model is that patient satisfaction directly correlates with the quality of the clinical service delivered.

Although Donabedian's (Donabedian, 1978; Donabedian, 1988) contribution to satisfaction is largely drawn from his framework for quality, he appears to draw obliquely from expectation theory. In defining two domains of the clinical interaction, Donabedian (1978) recognises that the relationship between clinician and patient is influenced by the manner by which the

clinician “conforms “to the legitimate expectations and need of the patients” (Donabedian, 1978, page 856). The author also alludes to the interpersonal process of the clinical interaction but without committing these elements to the framework for quality. “The conduct of the interpersonal process must also meet individual and social expectation and standards, whether these aid or hamper technical performance. Privacy, confidentiality, informed choice, concern, empathy, honesty, tact, sensitivity are virtues that the interpersonal relationship is expected to have” (Donabedian, 1988, page 1744). Therefore, recognised for his trinity of structure, process and outcome, Donabedian (1988) alludes to the influence of the interpersonal aspects of clinical practice without explicitly including them as identifiable factors within his model.

There is evidence to suggest that Donabedian continued to evolve his theory over the course of his work. Contemporary reflections on Donabedian’s work propose that the central structure of Health Care Quality Theory oversimplify Donabedian’s conceptualisation. Berwick & Fox (2016), in a review on Donabedian’s seminal 1966 paper (Donabedian, 1966), note that Donabedian later in life increased emphasised on the “ethical dimensions of individuals” as the key factor in the success of a health system. The authors propose that those fundamental elements suggested by Health Care Quality Theory existed only as “enabling mechanisms” (Berwick & Fox, 2016, page 237) re-establishing a human or interpersonal influences within the clinical process.

Although intuitive in a rationalist perspective, the approach of utilising the clinical pathway as a framework for quality has a primary weakness in that it is unclear whether or not it captures those factors that are important to patients. Donabedian (Donabedian, 1966; Donabedian, 1978; Donabedian, 1988) provides a framework for quality rather than patient satisfaction. It therefore remains open to some question whether these elements defined by Donabedian (Donabedian, 1988) accurately capture satisfaction from the patient perspective. Donabedian (Donabedian, 1988) recognises the influence of patient expectation and preference within the clinical process but

views these factors cautiously rather than as a means to enhance the clinical interaction. It is essentially a clinician centred view of the clinical interaction inferring a potential cost of patient involvement to the objectivity of the clinical process. “Yet, the patient and family must, themselves, also carry some of the responsibility for the success or failure of care. Accordingly, the practitioner may be judged blameless in some situations in which the care, as implemented by the patient, is found to be inferior” (Donabedian, 1988, page 1744). Hence, there is a limited sense of the shared responsibility inferred by patient-centred care principles (Mead & Bower, 2002).

2.3.8 Hybrid and alternate theories

Alternative approaches have attempted to examine patient responses to the clinical process from an interactive perspective including the emotive response of the patient. The influence of an emotive response to physical illness was recognised in early work by Fitzpatrick & Hopkins (1983). More recently, Larsson & Wilde-Larsson (2010) proposed that emotive characteristics of the patient are a primary influence on level of satisfaction. Drawing largely from the work of Lazarus (1991) the authors suggested that “emotions reflect our preceding cognitive appraisal process” and therefore patient satisfaction is largely an emotive phenomenon that is drawn from the experience of the clinical interaction in responding to these emotive needs (Larsson & Wilde-Larsson, 2010, page 230). The approach of Larsson & Wilde-Larsson (2010) is a refinement of attitudinal theories of patient satisfaction defined by Linder-Pelz (1982a) in that the nature of the affective response is driven by emotion, rather than attitude alone.

Grondahl et al. (2013) extended the work of Larsson & Wilde-Larsson (2010) with a more complex model of patient satisfaction in providing a conceptual basis for the evaluation of patient satisfaction. The authors examined the way in which satisfaction is shaped by “interacting person related conditions external objective and perceptions of the actual care external conditions” (Grondahl et al., 2013, page 37). Grondahl et al. (2013) provided a comprehensive analysis of several interacting elements that

included perceptions of quality of care, sense of coherence, personality, and emotional stress reactions. The findings supported the notion that satisfaction is largely driven by interpersonal factors. Patient satisfaction was associated within complex array of self-reported measures of psychological well-being, sense of coherence and physical well-being.

The fundamental problem to assessing the emotional response of an individual patient is the inherent complexity of that assessment. Moors et al. (2013), in a review of appraisal theories of emotion, noted that emotions "tend to instigate various cognitive, motivational, and somatic components simultaneously, in competition, in conflict, or in interaction. Many events are congruent for one concern and incongruent for another" (Moors et al., 2013, page 123). This complexity is reflected in the survey tool developed by Larsson & Wilde-Larsson (2010) to assess satisfaction through the proxy of quality from the patient's perspective (QPP) (Wilde et al., 1993). The resulting questionnaire produced was a comprehensive and complex document comprising 68 items assessing one general factor and 22 specific factors of satisfaction.

The work of Grondahl et al. (2013) appears to extend this complexity further. In a cross sectional design, the authors combined the QPP with three other survey instruments (Sense of coherence, Big 5 personality trait and the Emotional Stress Questionnaire) to evaluate predictors of patient satisfaction. Although the extensive data and patient profiling of Grondahl et al. (2013) accounted for 54% of patient satisfaction within the cohort examined, no account or data was given of the time burden of administering the four surveys. It is likely that the extensive methodology would have required significant time resources on behalf of patients and administrators of the surveys. Therefore, although recognised within conceptual models of satisfaction, theories of emotion are complex and difficult to assess at clinical level.

Several approaches to patient satisfaction have considered the broader influence of society and cultural influences to the patient experience. The

Discrepancy and Transgression theory of Fox & Storms (1981) draws heavily from anthropological and sociological work suggesting that both patients and providers will differ in their orientation to care according to cultural and sociological factors. The authors argue that factors such as social orientation to conservative medicine or cultural beliefs influence how patients associate cause to a particular illness and the kind of behaviours or norms associated with that particular illness. Fitzpatrick & Hopkins (1983), in an evaluation of neurological outpatient satisfaction, found that the survey results were not explained by current conceptual models and proposed a revision broadening the influence of patient expectation to a wider collection of societal mediators. Bleich et al. (2009) undertook a retrospective study of satisfaction data across 21 European countries and applied regression modelling to evaluate the extent to which variables commonly associated with satisfaction with the health-care system may explain variations in the concept of patient satisfaction. The authors found that the patient experience only accounted for 18% of observed variation in satisfaction levels and suggested that external factors are likely to have a significant influence.

The implication of these studies is that patient attitudes to a health services may also be influence by the wider perceptions of that system. For example, if societal and political factors such as the media implied a poorly run public health system, then the general public may develop lower expectations of that system (Bleich et al., 2009). Further, if clinicians were seen as elitist and earning seemingly unjustified levels of income patients, patients may develop an attitude that their actions are primarily motivated by financial return rather than patient well-being (Jiwa, 2013; Peck & Conner, 2011).

2.3.9 Summary

The conceptual basis of patient satisfaction is unlikely to be captured by a single theory of psychosocial behaviour. A critical appraisal undertaken by Gill & White (2009) of the conceptual foundation of patient satisfaction appears to support this view. “Patient satisfaction has been extensively

studied and considerable effort has gone into developing survey instruments to measure it. However, most reviews have been critical of its use, since there is rarely any theoretical or conceptual development of the patient satisfaction concept. The construct has little standardisation, low reliability and uncertain validity" (Gill & White, 2009 , page 8).

Although no consensual theory of patient satisfaction appears to exist, there are elements of existing theories that may explain patient behaviours. Expectation theory is widely acknowledged as an important element in the conceptual foundation of patient satisfaction, especially within the context of orthopaedics as secondary level service requiring prior assessment and referral. Needs theory appears to form a fundamental foundation as reference to the underlying motivation for patient behaviours. Attribution theory may explain how different belief systems influence patient attitudes to clinical services. Equity theory may be applicable to orthopaedic triage services as patients assess whether role substitution is an acceptable means of providing orthopaedic services. Self-Determination Theory would appear to offer a framework for an understanding of essential psychological needs within the clinical interaction. In essence then, once again, the conceptual basis for patient satisfaction may reflect the context and situation of individuals. Any proposal for a conceptual basis for patient satisfaction may have to be derived from the characteristics that define it.

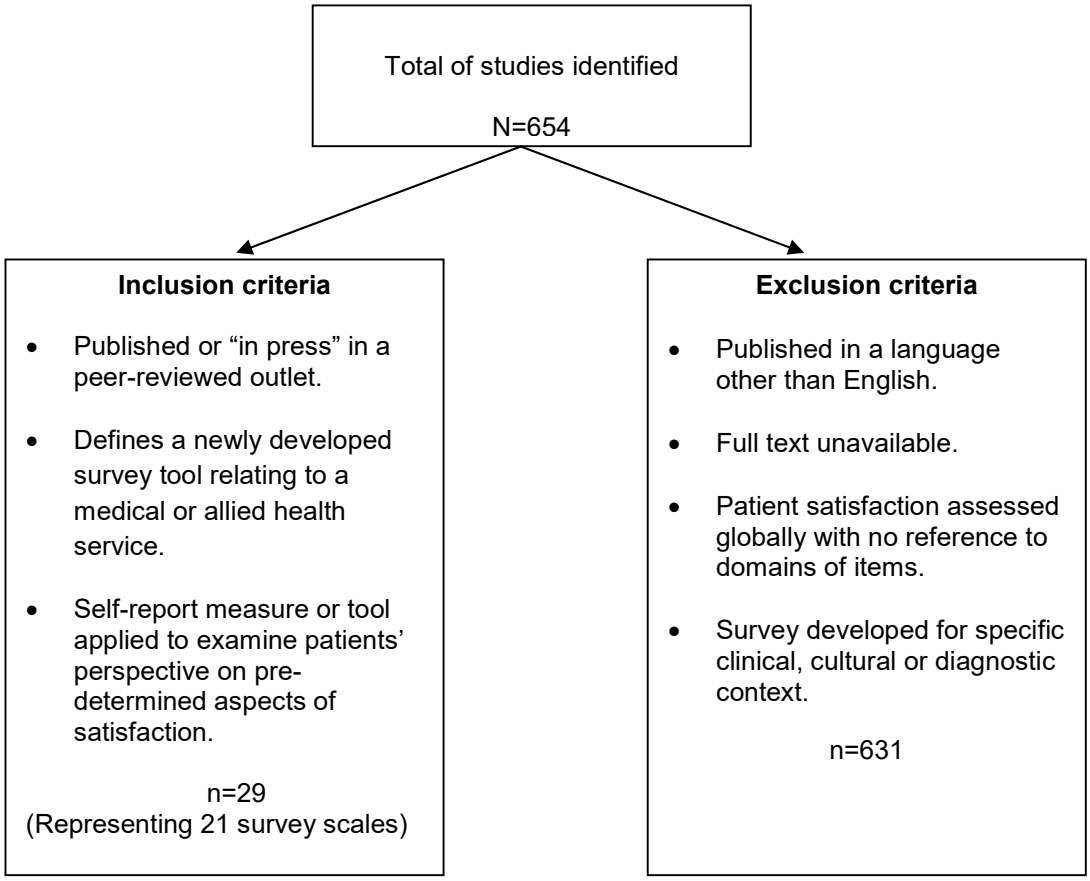
2.4 Review of approaches to measure patient satisfaction

2.4.1 Background to scoping review

To assess approaches taken to examine patient satisfaction, a scoping review of the measurement literature was undertaken using the methodological framework proposed by Arksey & O'Malley (2005). The primary question that underpinned the search was: What self-report tools exist to assess patient satisfaction with their experience of medical or allied

health services? The search involved electronic databases, reference lists, hand searching of key journals and grey literature. Databases included Web of Science, OVID databases (Ovid all journals, Journal@ OVID full text, Psycarticles full text, OVID medline, PsysINFO), CINAHL (Ebsco host), Proquest, Cochrane Scopus and Google Scholar. The keywords were (with Boolean operators) as follows: “patient satisfaction” AND “survey OR questionnaire” AND “Orthop* OR physical therapy* OR physiotherap*”. The keywords were applied to search the title and abstract of papers. The search examined literature written in English published after 1970 and up until 2016. A criterion for inclusion and exclusion was applied as detailed in Figure 1.

Figure 1: Inclusion/exclusion criteria for scoping review of patient satisfaction scales



In addition several public domain web sites were accessed. These sites were identified through the Google search to identify articles, web sites and papers of interest and relevance to the scope of the search. These included:

http://www.rand.org/

http://www.pickereurope.org/

http://www.safetyandquality.gov.au/

http://www.csqscales.com/sss.htm

2.4.2 Findings of scoping review

A summary of the findings is presented in Table 1.

Table 1: Findings of scoping review of patient satisfaction scales

Authors Year	*Aim*	*Development Process*	*Theoretical Reference*	*Sample Profile*	*Context Setting*	*Dimensions Identified*	*Survey tool Proposed*	*Comments on theory and item selections*
Wolf et al. (1978)	To develop a scale to measure patient satisfaction with primary care	Domains relating to satisfaction with interviews generated from focus groups, observation studies and literature review.	Development related to attitudinal theory (Ajzen & Fishbein, 1970) and expectation theory. (Zwick et al., 1995)	N=50 Average age: 36.6 62% female	US hospital outpatient service in a rural setting.	Cognitive dimension related to technical information and diagnosis. Affective dimension was related to trust, confidence and willingness to listen. Behavioural dimension included items such as Professional behaviour, examination, treatment and dispensation of advice.	**Medical Interview Satisfaction Scale** **(MISS-29)**	Very small sample size restricts the level of validation. Early theory based approach to developing domains, although the high inter-correlations between subscales suggestive of substantial overlap between domains.
Ware et al. (1983)	To develop a short self administered satisfaction survey to inform planning of health services.	Factor analysis. Unspecified focus group. Unspecified expert group.	None specified although referenced to preference and belief systems.	N=952 4 independent samples across 4 counties with varying socio-economic profiles Average age:45 Varying M:F ratio	US medical clinics.	• Interpersonal manner • Technical quality • Accessibility/ convenience • Finance • Efficacy/outcomes • Continuity • Physical environment • Availability	**Patient Specific Questionnaire** **(PSQ)**	Domains developed through a well-developed process of validation to the items specified.

Linder-Pelz & Struening (1985)	To test a three factor multi-dimensional model for patient satisfaction.	Dimensions developed directly through theoretical review.	Expectancy-value theory(Linder-Pelz, 1982a)	N=155 No clear patient profile is offered. Predominately middle age, black and Hispanic patients.	US medical clinics.	• Affective care • Communication • Technical care	**Patient Satisfaction Scale** **(PSS)**	Primary objective was to explore whether satisfaction is multidimensional and highlight the interpersonal nature of the clinical interaction. Subsequent survey demonstrated potential for response bias (Ware & Hays, 1988)
Deyo & Diehl (1986)	To assess satisfaction in low back pain patients.	Domains derived from previous work by (Greenfield et al., 1975)	None specified	N=163 Average age 43 100 female 82% Hispanic	US low back pain clinics.	9 items Dimensions implied: •Clinical contact time •Empathy •Communication •Intention to return •Global comparison •2nd opinion	**Deyo and Diehl satisfaction questionnaire**	Later was used as a basis for later survey evaluating musculoskeletal screening clinic (Sephton et al., 2010).
Baker (1990)	To assess patient satisfaction with GP consultation.	Patient and doctor focus group (methodology not specified). No reference to existing domains with literature.	None specified.	N=239 No cohort profile offered other than >16 years of age.	Primary care UK.	• Professional aspects of the consultation • Depth of patient relationship with doctor • Perceived length of consultation	**Consultation Satisfaction Questionnaire** **(ConsultSQ)**	Whilst developed from inductive approach the survey development lacks detail regarding conceptual underpinnings and reference to existing literature.

Hill et al. (1992)	To asses patient satisfaction with rheumatology patients	Dimensions extracted from dimensions of (Ware et al., 1983)PSQ	None specified.	N=70 Average age 56 74% female	Rheumatology Outpatients UK.	• Overall satisfaction • Information • Empathy • Technical competence • Attitude • Access and continuity	**Leeds Satisfaction Survey**	Directly adapted from the work of (Ware et al., 1983) to suit the context of rheumatology reflecting increased chronicity.
Ware & Hays (1988) Rubin et al. (1993)	To develop a measure of patient satisfaction relating to a specific medical encounter.	Item were generated from existing surveys MISS (Wolf et al., 1978) and PSS.(Linder-Pelz & Struening, 1985).	None specified	N=136 Average age 41.8 75% female	US outpatient medical clinics.	• Visit overall • Technical quality • Interpersonal manner • Waiting time.	**Visit Specific Questionnaire** **(VSQ)**	Measure focused on visit specific health services largely derived from the work of (Wolf et al., 1978) and (Linder-Pelz & Struening, 1985).
Rand Corp. **http://www.rand.org/**	Later refined as the VSQ-9. The VSQ-9 is an adaption of the VSQ by the American Medical Group Association.		Not specified	Not specified	US medical clinics	Dimensions defined by the VSQ-9: • Waiting time to appoint • Convenience of office • Phone access • Clinic waiting time • Time within clinic • Explanation • Technical skills • Personal manner Visit over all	**VSQ-9**	Used extensively as a basis for a number of later modified surveys. (Kennedy et al., 2010) (Desmeules et al., 2013) and (Razmjou et al., 2013). The VSQ-9 assesses each domain with a single item within the survey.

(Wilde et al., 1994b); Wilde et al. (1993) Larsson et al. (1998) Larsson & Larsson (2002)	To develop an understanding of the patient perspective of quality from a grounded theory approach.	Inductive, bottom up approach to development of items and domains. Further development through structural equation modelling.	Cognitive phenomenological (Lazarus, 1991) relating to expectation and preferences.	n=20 (focus group) n=250 (validation) 2 groups Students Average age 27 Patient s Average age 60 No other details given.	Swedish inpatients /outpatients across gynaecological, orthopaedic, medical and surgical presentations.	• Medical-Technical competence • Identity orientation • Socio-cultural atmosphere	**Quality from the Patient's Perspective** **(QPP)**	QPP appears to have a clear conceptual basis for patient satisfaction with well-developed validation process for items generated. Short form (Larsson & Larsson, 2002)
Solomon et al. (1999)	To test domains of satisfaction with musculoskeletal care	Expert group altered existing survey from (GHAACSS, Davies, 1991 #537) .	None specifically although referenced to (Donabedian, 1978)) Quality process of care and (Ware et al., 1983)	N=139 Average age 53 60% female	Acute musculoskeletal patients across 3 professional settings of internists, rheumatologists and orthopaedic surgeons.	• Office environment • Patient/provider interaction • Treatment outcome	**Adapted knee pain patient satisfaction questionnaire**	Largely derived from Group Health Association of America Consumer Satisfaction Survey (Davies & Ware) referenced to (Ware et al., 1983)
Roush & Sonstroem (1999) **Casserley-Feeney et al. (2008)**	To identify components of patient satisfaction with outpatient physical therapy and develop a reliable scale to assess them	Dimensions identified through existing literature and given alternative grouping.	None specified	N=173 Across 4 groups Average age 49.4 64% female	Physical Therapy outpatients US presenting orthopaedic and neurological conditions. Physiotherapy outpatient Ireland.	• Provider conduct • Access/convenience • Cost • Physical environ. • Expectation	**Physical Therapy Out Patient Satisfaction Survey** **(PTOPS)**	Expectation removed as a dimension within process of factor analysis.

Goldstein et al. (2000)	To develop a scale to assess patient satisfaction with physical therapy patients	Adaption from APTA compendium guide (Nelson, 1990)	Limited but referenced to value expectancy theory (Linder-Pelz, 1982a).	N=289 Average age 45.7 63.7% female	Musculoskeletal patients presenting to physical therapist Physical Therapy outpatients US with range of peripheral and spinal conditions.	• Access • Administrative technical management • Clinical technical management • Interpersonal management • Continuity of care	**Physical Therapy Patient Satisfaction Questionnaire** **(PTPSQ-1)**	Essentially referenced to an existing compendium based on the work of (Nelson, 1990)
Monnin & Perneger (2002)	To develop a survey scale to asses patient satisfaction with physical therapy	Review of existing surveys in French. Largely derived from 3 existing surveys: Patient Judgment System(Hays et al., 1991) Picker Questionnaire (Bruster et al., 1994) GHAACSS (Davies & Ware, 1991)	None specified.	N=528 Average age 58.6 48% female	Swiss outpatients and inpatients attending physical therapy with no clinical profile Given.	• Treatment • Admission • Logistics	**Physical therapy satisfaction scale** **Physical Therapy Patient Satisfaction Questionnaire**	Dimension identified although derived from factor analysis are very general. The survey tools were also characterised by a significantly high proportion of non response items suggesting the survey may not be suitable for general populations.

Beattie et al. (2002) **Beattie et al. (2005)** **Beattie et al. (2011)**	To assess variable associated with patient satisfaction with outpatient physical therapy.	Inductive approach through patient and therapist groups, although methodology unclear.	None specified.	n=191 (pilot) N=1868 Average age 46.9 36% female	Initially US patients with a compensable injury presenting to Physical Therapist across a range of musculoskeletal conditions.	• Pt –therapist interaction • Clinic environment • Convenience	**MedRisk** **(MRPS)**	Dimensions largely derived from the work of Goldstein et al. (2000) and (Roush & Sonstroem, 1999)
Pettersen et al. (2004)	To develop a scale for patient satisfaction and assess reliability .	Derived from existing literature particularly from meta-analysis of (Hall & Dornan, 1988)	None specified. .	N=19578 No cohort profile is offered	Discharged inpatient from surgical wards of internal medicine in Norwegian hospitals.	• Information future complaints • Nursing services • Communication • Information examination • Doctor services • Contact with next of kin • Hospital and equip. • Information medication • Organisation • General satisfaction.	**Patient Experience Questionnaire** **(PEQ)**	Although a wide spectrum of domains some domains limited to 2 items per factor. Context of post surgical discharges may limit application to other clinical contexts. Note; development was undertaken within an inpatient setting but later revised for outpatients. Response rate for the survey was 53% with no assessment of non responder group.

Garratt et al. (2005)	To develop and evaluate a scale to assess satisfaction with somatic outpatients	Survey developed from existing literature particularly the Patient Experiences Questionnaire (PEQ) (Pettersen et al., 2004) Expert group was used for revision of items of items.	None specified.	N=19266 Average age 55.5 59.4% female	Outpatients with somatic conditions attending 52 Norwegian hospitals.	• Clinic access • Communication • Organisation • Hospital standard • Information • Pre-visit communication	**Outpatient Experience Questionnaire** **(OPEQ)**	Largely derived from the work of Pettersen et al. (2004). Low response rate across the survey during validation will restrict depth of validation.
Hills & Kitchen (2007b) Hills & Kitchen (2007b)	To assess which aspects of the clinic al interaction influence levels of patient satisfaction	Inductive approach with use of focus and expert group. Post hoc reference to existing literature.	Expectancy (Zwick et al., 1995) and Need Theory (Maslow, 1970)	Not specified	Acute and chronic musculoskeletal outpatients.	• Expectation • Communication • Perception of therapist • Process/content of treatment • Outcome	**Hills and Kitchen**	Development of key factors and themes through a conceptual model. .
Picker Institute **http://www.pickereurope.org/** **Sizmur S (2010)**	Whish aspects of the outpatient experience most influence satisfaction	Developed from focus groups and stakeholders, existing survey tools and factor analysis.	None specified. Expectancy and Need theories	N=72447 A patient profile is referenced within the report but the web site for the reference is no longer accessible.	Hospital outpatient clinics within European settings.	• Organisation of department • Respect and dignity • Dealing with issue • Doctors • Cleanliness • Other professionals • Information on discharge • Information on treatment • Tests • Medication • Privacy	**Picker Outpatient Satisfaction Survey**	

Larsson & Wilde-Larsson (2010)	To develop a care-context adaption of the ESRQ	Derived from existing surveys. Seven items directly from QPP (Wilde et al., 1994b) Sense of Coherence Scale (Larsson & Larsson, 1999). Big Five personality trait instrument (Woods & Hampson, 2005).	Cognitive Phenomenological relating to expectation and preferences. Demonstrated a link between emotive response and satisfaction consistent with (Lazarus, 1991)	N=624 Average age 48.6 52.7% female	Swedish outpatients with somatic presentations. Hospital outpatient clinics within European settings. Acute and chronic musculoskeletal outpatients.	• Care giver medical technical competence • Identity orientation • Care organisation technical conditions • Socio-cultural atmosphere	**Emotional Stress Reaction Questionnaire** **(ESRQ)**	Research indicates the link between personality traits and patient satisfaction is low and non-significant.
Hawthorne et al. (2011)	To develop a short scale for assessing patient satisfaction with routine clinical practice	Dimensions derived from existing literature.	Some references but not directly related to instrument development. Largely aligned with(Donabedian, 1988)and the Quality process of care.	N=178 No clear patient profile is offered although majority of patients were within 46-60 age group	Validation of the survey tool was conducted specifically within an incontinence clinic although intended for a generic clinical service.	• Effectiveness • Information • Technical skill • Participation • Relationship • Access and facilities • Satisfaction general/other	**Short Assessment of Patient Satisfaction** **(SAPS)**	Whilst referenced to existing literature the survey is largely derived from Genito-Urinary Treatment Satisfaction Scale (GUTSS), Consultation Satisfaction Questionnaire (ConsultSQ), and Patient Satisfaction Index (PSI). The wider validity of SAPS to other patient group is unproven from this study.

ACSQHC (2014) http://www.safetyandquality.gov.au/	To identify a set of core question for the evaluation of the patient experience.	Extensively derived from Picker surveys. Items developed from review of existing literature and Delphi round table of contributing experts. Addition of published questions attributable to 30% of patient experience outcomes.	None specified	n/a	Development in context of day surgery patients but has been applied to outpatient settings. Direct application to NSHQS standards	• Effective Treatment • Involvement in decisions • Clear, comprehensive information • Attention to physical and environmental needs • Emotional support through empathy and respect • Involvement of carers/family • Continuity of care • Access	**National set of core, common patient experience questions**	Largely based on existing Picker Survey with expert group ensuring local context. Context of day surgery patient may be problematic for item translation to other clinical settings.
Medina-Mirapeix et al. (2015)		Developed from literature review, focus groups and expert groups. Extensively derived from Picker surveys (Sizmur S, 2010).	None specified	N=465 40.5% of sample within 30-45 age 28.7% female	Physiotherapy outpatient in Spain Development in context of day surgery patients but has been applied to outpatient settings.	• Emotional support • Providing education • Duration of attendance • Interruption in delivery of care • Waiting time between episodes of care • Sensitivity to patient changes	**Questionnaire of Patients' Experiences in Post-acute Outpatient Physical Therapy Settings** **(PEPAP-Q)**	Domains developed through ground up approach with well-developed validation of items.

2.4.2.1 Summary of findings

Review of scales developed to assess patient satisfaction support the notion that patient satisfaction is a multidimensional concept. Although there appears to be some conceptual overlap within the dimensions identified, there is a wide range of factors with varying degrees of emphasis on the clinic environment, technical aspects, interpersonal aspects, therapeutic outcome and contextual issues such as finance and access to care.

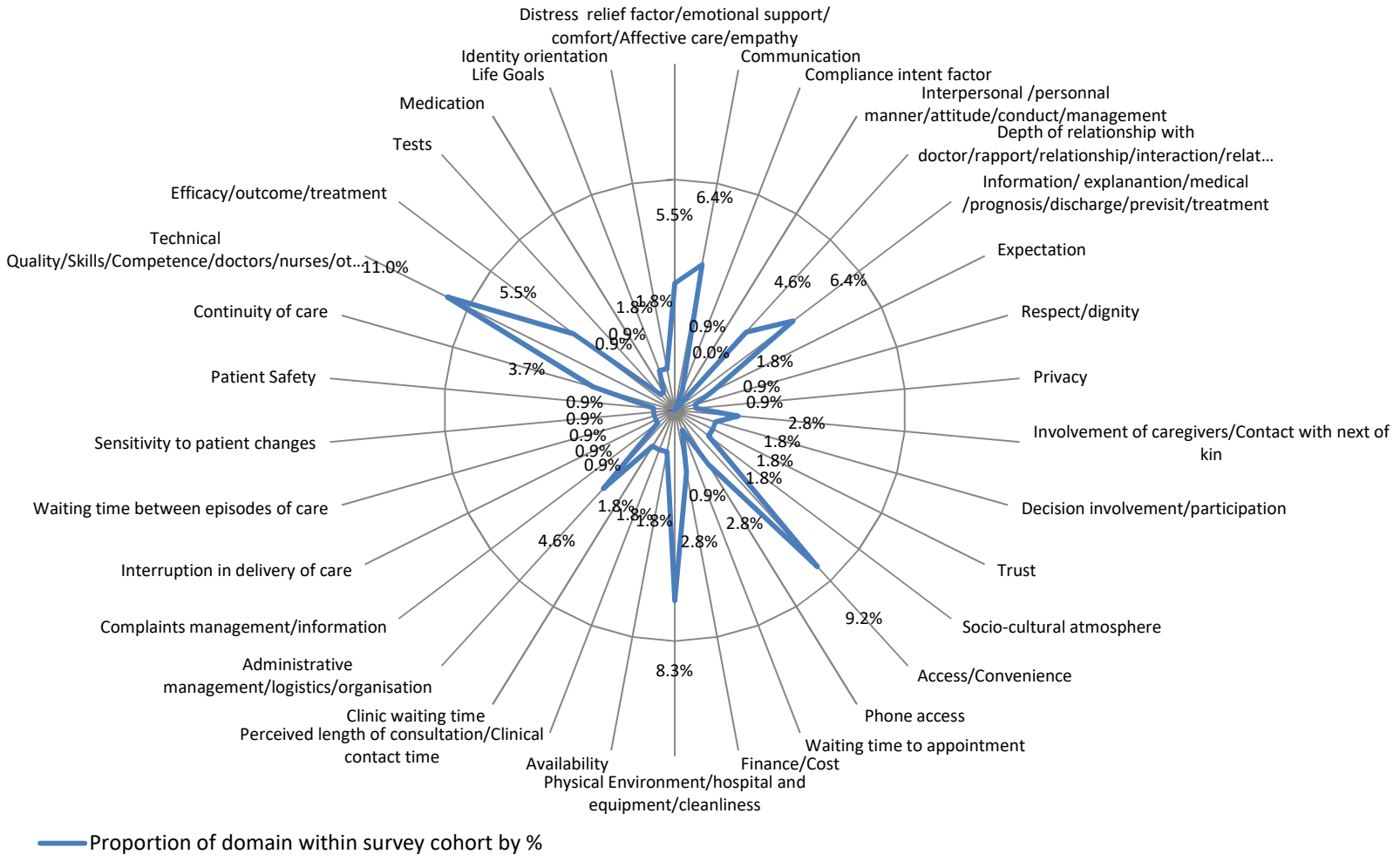
2.4.3 Correlates of satisfaction identified

The domains associated with patient satisfaction can be broadly catagorised into several identifiable groups:

- Environmental factors relating to the clinic operation and support, access and facilities.
- Technical aspects of professional competence and skill.
- Factors relating to the interpersonal process including communication, expectation and psychosocial aspects.
- Therapeutic factors relating to outcome, efficacy and the provision of tests and medication.
- Patient factors relating to inherent patient characteristics.

A review was undertaken to examine the range of domains and factors within the surveys identified. Domains with similar conceptual definitions were brought together within one category. An example would be factors such as rapport with doctor, relationship with clinician, and patient-provider interaction. This integration allows for an overview of the broader concepts or factors considered by these surveys. The frequency with which they occur across the sample of surveys is presented in Figure 2. The findings indicate a higher frequency of factors relating to technical aspects of the clinical visit, organisational factors, issues with the clinic environment, access and convenience, and a range of factors associated with the interpersonal interaction.

Figure 2: Summary of correlates of patient satisfaction



Whilst the review highlight the diversity of factors associated with patient satisfaction, there is also some evidence of congruence and commonality in the factors identified. References to communication and information are given in around 40% of studies; emotional support is inferred within 35% of papers; and clinic access in 30% of articles. The influence of the patient-clinician relationship is noted in 49% of the survey tools.

There is evidence of recognised domains association with patient satisfaction not identified within these survey scales. Trust, as defined by the work of Hall et al. (2002), does not appear to be identified within any of the surveys identified. The influence of patient expectation within the patient experience of the clinical encounter is only recognised in 2 of the surveys identified. Several survey tools identified clinical outcome as a factor influencing patient satisfaction (ACSQHC, 2014; Anderson et al., 2007; Hills & Kitchen, 2007c; Solomon et al., 1999; Ware et al., 1983). In later modified versions of the VSQ (Ware et al., 1983), such as the VSQ-9 (Rand-Organisation), clinical outcome was removed as a factor.

The majority of the survey tools (>80%) identified did not recognise clinical outcome as a domain of patient satisfaction. One study evaluated whether levels of satisfaction could be assessed by considering the subsequent action of patients post experience. Deyo & Diehl (1986) evaluated a cohort of 148 acute low back patients for levels of satisfaction across the course of clinical management. The authors correlated factors of patient satisfaction with several more reflective items inferring levels of levels of satisfaction with service such as intention to return to the service, comparative ratings to other clinical services and whether they had sought a second opinion following initial assessment. Deyo & Diehl (1986) found a correlation with these items and levels of satisfaction.

2.4.4 Theoretical and conceptual references in survey development

Examination of the profile of the studies identified suggests that there was limited evidence of reference to theoretical constructs of satisfaction. Less than 40% of the studies identified explicitly or implicitly referenced a conceptual foundation for patient satisfaction. The use of theoretical constructs within survey development is an

important element for construct validity of any survey tool. Linder-Pelz (1982a) argued that “before valid measures of a construct such as satisfaction can be developed and interpreted, it is necessary to explicitly define that construct” (Linder-Pelz, 1982a, page 577). Mackenzie et al. (2011), in a review of construct validation and measurement, noted that failure to adequately define the construct domain is a primary limitation in scale development. Gehlbach & Brinkworth (2011) proposed a process for improving the validity evidence of surveys whereby the operational definition has two goals; first, to precisely define the construct in relation to literature and secondly to identify how existing measures of the construct might be useful. Therefore, the exploration and establishment of the theoretical constructs of patient satisfaction would appear to be an important element in developing survey scales.

Very few of the tools identified referenced theoretical constructs related to patient satisfaction. Early work by Wolf et al. (1978) and Linder-Pelz & Struening (1985) drew implicitly from attitudinal theory (Ajzen & Fishbein, 1970) and expectation theory (Zwick et al., 1995). Hills & Kitchen (2007a) referenced both need (Maslow, 1970) and expectation theory (Zwick et al., 1995) in developing a conceptual model for patient satisfaction. Larsson & Wilde-Larsson (2010) extended the use of a cognitive phenomenological approach reflecting the emotive aspects of the clinical experience developed from the work of Lazarus (1991).

The absence of a conceptual or theoretical reference may influence the clarity of the factors identified. Items referencing the interpersonal process (Baker et al., 2003; Goldstein et al., 2000; Ware et al., 1983) or relationship (Hawthorne et al., 2011) do little to explain what factors are important to this process or inform what questions should be designed to explore these domain. For example, although acknowledging the influence of interpersonal elements within the clinical visit, the VSQ-9 asks the patient to assess the “personal manner” of the clinician without conceptual or practical precision. It is then unclear whether individual patients assess the personal manner of a clinician in a consistent way. Referencing to theoretical constructs such as need theory, expectancy theory or Self-Determination Theory may potentially identify specific aspects of the “personal manner” (VSQ-9) such as relatedness and address specific items that may directly influence satisfaction.

Even if developed form a conceptual reference, there is a significant challenge in defining boundaries and clear definitional constructs relating to some interpersonal factors. As an example, the QPP (Wilde et al., 1993) examines psychosocial issues relating the patient perspective of the clinical interaction. The QPP appears to be a unique survey tool incorporating perceptions of competence, identity orientation and socio-cultural atmosphere. The QPP has a theoretical foundation within Cognitive Phenomenological theory relating to expectation and preferences (Larsson & Larsson, 2002). Examples from the shortened version QPP are as follows:

- I received useful information on how the examinations and treatments would take place.
- I received useful information on the results of examinations
- The doctor seemed to understand how I experienced my situation.
- The doctor was respectful towards me.
- The doctor showed commitment: “cared about me”
- I had good opportunity to participate in the decisions that applied to my care.
- I had the possibility to converse with the doctor about my care in private and in the way I desired.
- I experienced a friendly atmosphere at the primary healthcare centre.
  (Wilde-Larsson & Larsson, 2009 page 604)

Examination of the QPP questions and the language at suggest the potential overlap to factors identified within other surveys involving issues such as communication (Garratt et al., 2005; Hills & Kitchen, 2007b; Ware et al., 1983), expectation (Hills & Kitchen, 2007b), rapport (Baker et al., 2003; Hawthorne et al., 2011; Wolf et al., 1978) and empathy (Hill et al., 1992). Wolf et al. (1978) identified three domains of cognitive, affective and behavioural factors influencing patient satisfaction. Wolf et al. (1978) associated the cognitive domain with explanation and information, the affective domain with willingness to listen and the behavioural domain with dispensation of advice. All three aspects would appear to reflect the influence of communication within each of the domains. This may explain why Wolf et al. (1978) found significant overlap between the identified domains. The potential for conceptual overlap within factors may well the discriminative ability of the survey scales. Many survey tools retain a broad context referencing domains such as “personal manner” (VSQ-9), (Rand-Organisation), “depth

of patient relationship with doctor" (ConsultSQ) (Baker, 1990), "rapport" (MISS-29) (Wolf et al., 1978) and "socio-cultural atmosphere" (QPP) (Larsson & Wilde-Larsson, 2010). Only a few studies identify more distinct concepts of the interpersonal interaction such as empathy and caring (ACSQHC, 2014; Hill et al., 1992; Wilde et al., 1994b).Therefore, whilst conceptual reference provides an important foundation, the need for definitional clarity of factors is also recognised.

2.4.5 Methodological approaches to survey development

There appears to be wide variance in the approach to the development and operationalisation of patient satisfaction surveys. A number of studies used a grounded theory approach using focus groups to define and develop domains of patient satisfaction (Baker, 1990; Beattie et al., 2002; Garratt et al., 2005; Hills & Kitchen, 2007c; Medina-Mirapeix et al., 2015; Wilde et al., 1994b). The items generated by this process are characterised by a focus on the interpersonal aspects of the clinical interaction.

The use of grounded theory is a widely recognised approach to qualitative research. Grounded theory approach to qualitative research was initially proposed by Glaser & Strauss (1967) and is guided by the experiences of people and the discovery of pattern and themes within those experiences (Engward, 2013). A key premise of grounded theory is that those experiences are drawn from real-world situations (Oktay, 2012). Grounded theory is also not guided by any premise and characterised by openness in regard to what findings and patterns may emerge (Engward, 2013). Grounded theory is potentially an important framework to guide examination of a poorly understood construct such as patient satisfaction where a conceptual basis is elusive. The foundation of this approach is a bottom up, inductive development of themes and factors.

Only 40% of the surveys identified used a ground up approach within the development of the survey scale. Some surveys utilised expert and professional groups to analyse and refine survey structures without reference to other participants such as patients groups (ACSQHC, 2014; Goldstein et al., 2000; Hawthorne et al., 2011; Linder-Pelz & Struening, 1985; Pettersen et al., 2004; Roush & Sonstroem, 1999; Solomon et al.,

1999). Although these surveys have strong conceptual foundations, the process of expert or panel review, without reference to a patient group, will be limited to face validity and presumes a clear understanding of experts and professionals of what patients see as relevant to deriving satisfaction from the clinical experience. The use of defined frameworks for quality such as that proposed by Donabedian (1988) are essentially driven by a professional perspective of which factors will drive or influence patient satisfaction within a clinical service. The influence frameworks proposed by Donabedian (1988) may be reflected in the dominance of professional technical issues, access and clinic environment factors suggested by Figure 1. The primary risk of this approach is that the domains or items identified do not necessarily represent the patient perspective of factors influencing satisfaction.

Although it is not the primary intent of this scoping review to specifically evaluate the psychometric properties of the survey scale developed, it is possible that process of scale development may have influenced the factors retained. The PTOPS survey tool was originally developed by Roush & Sonstroem (1999) to assess patient satisfaction with physical therapy service and was used as the basis for the survey tool developed byCasserley-Feeney et al. (2008). Roush & Sonstroem (1999) discounted the influence of expectation which runs counter to many conceptual frameworks of patient satisfaction (Linder-Pelz, 1982a) and particularly with research examining patient satisfaction with orthopaedics services (Zywiel et al., 2013). The authors contended that “physical therapy patients appear to have few, if any, clearly defined expectations in contrast to medical patients” (Roush & Sonstroem, 1999, page 168). The use of a single expert to review question and item development may have influenced this outcome. Therefore, without a robust methodology within the survey development, factor inclusion or exclusion may be subject to methodological biases.

A number of the survey tools assess factors or dimensions by a singular item. These include the VSQ-9 (Rand-Organisation), Solomon et al. (1999), PTPSQ-1 (Goldstein et al., 2000) and SAPS (Hawthorne et al., 2011). The use of single items within a scale may limit both the evaluation of variance within each domain but more importantly appear to greatly restrict the capacity to capture all aspects of that domain (i.e., content validity). Comrey (1988) suggested a minimum of three items per domain to maintain psychometric properties.

The nature of the QPP (Wilde et al., 1994b) raises an important issue in the development of any survey, that as well as having established psychometric properties, the tool must be practical for its target group. The resulting questionnaire produced was a comprehensive and complex document comprising 68 items assessing one general factor and 22 specific factors. The comprehensiveness of the survey tool is a strength yet also a potential weakness in that evoking such a comprehensive range of factors and length of survey may affect both response rate and the quality of the survey responses (Berdie, 1986). Later attempts to shorten the QPP produced equivocal correlations between the results of the 2 surveys (Larsson & Larsson, 2002). The authors concluded that "administration of the shortened QPP could still require follow up with sections of the longer version" (Larsson & Larsson, 2002 Page 686). Therefore, although the conceptual foundations and psychometric properties of any survey scale are important, the resultant tool should remain practical and accessible.

2.4.6 Conclusions

A scoping review of existing survey tools suggests that patient satisfaction has been associated with domains within 5 broad categories of:

- Environmental factors
- Technical and professional factors
- Interpersonal factors
- Therapeutic factors
- Patient factors relating to inherent patient characteristics.

A review of existing survey tools reveals three primary approaches to establishing the construct and content validity of a survey tool. These are:

- Establishing a conceptual foundation.
- The use of ground up inductive approach to factor and item development.
- Review of literature, domains, items and surveys.

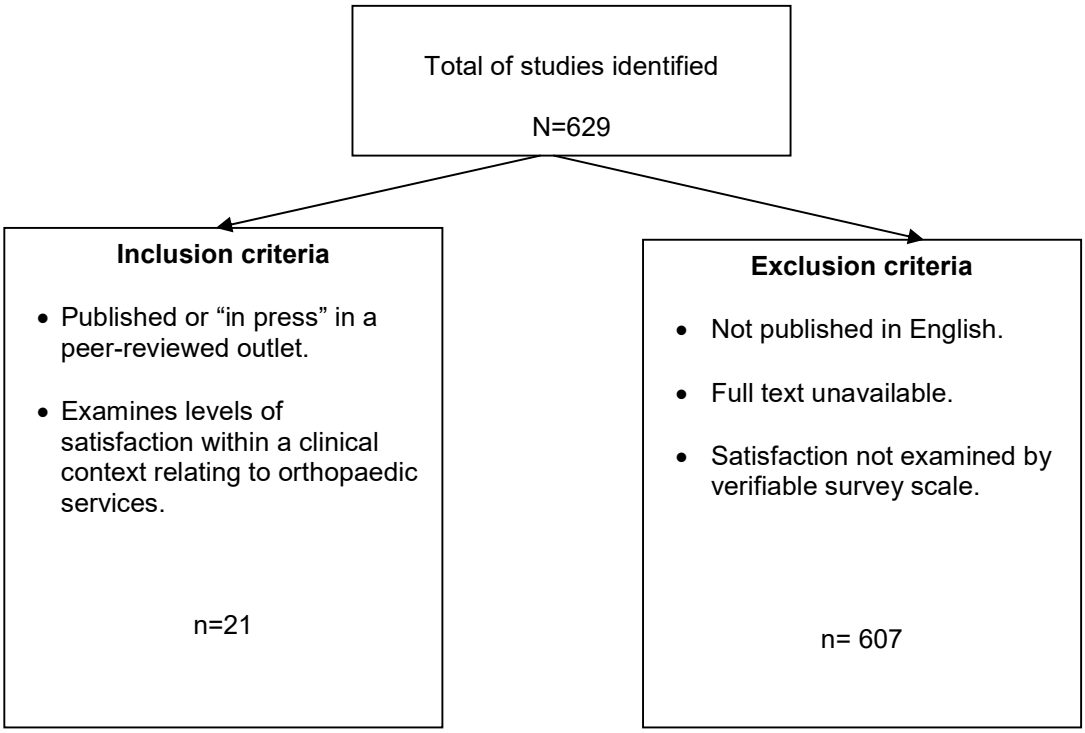
Only Wolf et al. (1978) and Wilde et al. (1994b) appear to encompass all three aspects of survey development.

2.5 Previous research evaluating patient satisfaction within an orthopaedic context

2.5.1 Background to scoping review

To assess how patient satisfaction has been assessed within orthopaedic patients, a scoping review of the existing literature was undertaken using the methodological framework proposed by Arksey & O'Malley (2005). The primary question that underpinned the search was: What is known about patient satisfaction with orthopaedic services? The search involved electronic databases, reference lists, hand searching of key journals and grey literature. Databases included Web of Science, OVID databases (Ovid all journals, Journal@ OVID full text, Psycarticles full text, OVID medline, PsysINFO), CINAHL (Ebsco host), Proquest, Cochrane Scopus and Google Scholar. The keywords were (with Boolean operators): “patient satisfaction” AND “orthopaed*” AND “outpatient*”. The keywords were applied to title and abstract searches. The search examined literature written in English published after 1970 and up to 2016. A criterion for inclusion and exclusion was applied as detailed in Figure 3.

Figure 3: Inclusion/exclusion criteria for scoping review of patient satisfaction within an orthopaedic context



2.5.2 Findings of scoping review

A summary of the finding of the scoping review is given in Table 2.

Table 2: Scoping review of assessment of patient satisfaction within an orthopaedic context

Author/Year	Aim	Design	Theoretical Reference	Sample	Response Rate	Context	Country	Correlates of Satisfaction	Outcome/Finding	Comments
Dawson et al. (1996)	To investigate patient reported outcomes and satisfaction and investigate which factors influence satisfaction with foot and ankle surgery.	Prospective study over a 9 month period.	None reported	n=671 Average age 52.8 63.6% female	78%	NHS Foot and ankle surgery	England	Global measure	On a 4 point scale 54% of patients were satisfied with the outcome of foot and ankle surgery. Findings appear to relate foot specific factors. Satisfaction was correlated with scores of the Manchester-Oxford foot questionnaire. Satisfaction was positively associated with : • Aesthetic appearance • Wearable shoe range • Level of pain relief • Ability to interact socially	Rates of satisfaction appear to be somewhat low and may reflect chronicity of the patient cohort. Global assessment of satisfaction is unlikely to capture the full breadth of the construct .

Levesque et al. (2000)	To determine if patient satisfaction can be improved by changing patient expectation and decreasing clinic contact time	A prospective comparative analysis in 4 phases. Phase 1 established average clinic contact time. Phase 2 established a baseline level of patient satisfaction. Phase 3 pre-emptively addressed service expectation and clinic contact time. Phase 4 increased clinic efficiency.	None explicit but implicitly to expectation theory	n=622 3 phase trial Average age 51.8 51% female	88%	Orthopaedic outpatient clinic	Canada	Extracted from Ware & Hays (1988) VSQ "How do you rate your time within the clinic?"	Patient satisfaction was improved by changing patient expectation of the clinic experience whilst decreasing total time in the clinic.	Levels patient satisfaction were assessed at each phase using only one item derived from the VSQ Ware & Hays (1988). It is unclear whether this single item adequately captures the scope of potential influences to patient satisfaction.
Noble et al. (2006)	To determine which factors contribute to patient satisfaction with Total Knee Replacement (TKR)	Prospective study over a 12 month period.	None reported	n=253 Average age 68.1 59% female	Not reported	Total Knee Arthroplasty	US	Development of the Total Knee Function Questionnaire (TKFQ) Domains: • Overall satisfaction • Frequency and severity of symptoms • Functional outcome • Extent of expectation were fulfilled	Using a 5 point scale75% of patients were either satisfied or very satisfied whilst 14% expressed dissatisfaction.	Expectation was found to be the primary driver of patient satisfaction rather than level of resultant function.

Ozawa & Shimizu (2007)	To asses and evaluate patient satisfaction with Total Hip Replacement (THR).	Prospective study from 3 to 48 months.	None reported	n= 84 Average age 59.5 No other patient profile offered.	None reported	Total Hip Arthroplasty	Japan	Item identified with patient satisfaction were: • Global • Explanation • Operation • Pain reduction • Hospitalisation • Mobility • Strength • Movement on floor • Gait • Self care activity • Role accomplishment • Hobby	The study found that patient satisfaction was related not only to clinical measures but also other psychosocial items affecting quality of life.	Study cohort was confined to female patients only. Satisfaction was assessed across a range of factors however the construct validity of these factors was not assessed and limited to face validity.

Tashjian et al. (2007)	To assess variables influencing patient satisfaction with rotator cuff repair.	Prospective study over 24 months.	None reported	n=112 Average age 55 45% female	None reported	Rotator cuff repair both open and close procedures	US	Single global measure Visual Analogues Scale (Escolar-Reina et al.). VAS was 10 cm line from “not satisfied at all” to “very satisfied” measured to nearest centimetre	95% of patients were satisfied with the outcome of the surgery. Satisfaction positively associated with higher levels of preoperative expectation and preoperative disability.	Satisfaction measure was converted to binary scale and compared to Musculoskeletal Outcomes Data Evaluation (MODEMS) survey by the American Association of Orthopaedic Surgeons. Satisfaction was correlated with : • Level of pain • Level of function General health status • Level of expectation met Profile of non responder group given. Global assessment of satisfaction is unlikely to capture the full breadth of the construct.

Harris et al. (2009)	To explore possible predictors of patient satisfaction with outcome following trauma.	Cross sectional retrospective survey	None reported	n=353 Average age 47.8 27.9% female	52.5%	Orthopaedic trauma presenting to Emergency Department (ED) units	Australia	Global measure satisfaction	Poor levels of satisfaction were associated with: • Unemployment • Involvement in a motor vehicle accident • Unsettled compensation	The findings of the study are limited by the high non responder proportion within the survey group. Global assessment of satisfaction is unlikely to capture the full breadth of the construct.
Bourne et al. (2010)	To determine whether contemporary Total Knee Replacement (TKR) prosthesis are associated with improved rates of patient satisfaction.	Cross sectional study	None reported	n= 1703 Average age 69 60% female	83%	Total Knee Arthroplasty	Canada	• Global • Reduction of pain • Functional return • Would repeat surgery • Expectation	The study suggested that contemporary TKR prosthesis were not associated with improving levels of patient satisfaction Satisfaction was inversely associated with unmet expectations. Satisfaction was positively associated with levels of pain relief and functional return.	The study confined the construct of patient satisfaction to pain relief and functional return.

Kwon et al. (2010)	To determine whether commonly used outcome scales correlate with patient satisfaction.	Retrospective case review	None reported	n= 438 Average age 68.5 96.7% female	70.4%	Total Knee Arthroplasty	Korea	Global measure associated with the following subjective responses of patients: • Enthusiastic • Satisfied • Non-committal • Disappointment	Satisfaction was correlated with changes in pain and function levels associated with Western Ontario McMaster University Index scale (WOMAC)(Bellamy et al., 1990), assessing osteoarthritic joint.	The assessment of satisfaction was limited to a single global measure. Patient cohort largely female.
Anakwe et al. (2011)	To investigate the prevalence and predictors of dissatisfaction in THR.	Prospective cohort design over 12 months.	None reported	n=682 Average age 68.3 61.3% female	94% implied	NHS Total Hip Arthroplasty	UK	The study applied an unpublished multidimensional questionnaire that considered 3 aspects related to satisfaction: • Hospital environment • Expectation • Service recommendation	Development of a major complication did not predict dissatisfaction. Expectation the only non clinical outcome measure identified. Finding suggested that satisfaction was positively associated with: • Functional scores • Relief of pain. • Restoration of function. • Whether pt. expectation was met.	Study supports the association between outcome measures and expectation.

Judge et al. (2011)	To investigate the correlation between oxford hip and knee scores and patient satisfaction	Prospective cohort design over 6 months.	None reported	n=1523 (THR) Average age 70 63.7% female n=1784 (TKR) Average age 71 61% female	None reported	NHS Total Hip and Knee Arthroplasty	England	VAS scale 0-100 on global measure.	Oxford hip and knee scores did not distinguish satisfied from dissatisfied patients.	Satisfaction was categorised to a binary variable.
Mahomed et al. (2011)	To assess the validity and reliability of a scale to assess patient satisfaction with hip and knee arthroplasty	Prospective study 12 week preoperatively extending to 12 months post operatively	None reported	n=843 (THR) N=857 (TKR) Aggregated prolife data given. Average age 65.2 65.6% female	None reported	Total Hip and Knee Arthroplasty	Canada	Development of Self Administered Patient Satisfaction Scale ($SAPS_1$) for TKR /THR. • Overall satisfaction with surgery • Pain relief • Ability to perform home or yard work • Ability to perform recreational activities	The $SAPS_1$ survey was shown to be reliable and valid to this specific cohort of patients.	Satisfaction correlated positively with satisfactory clinical outcome measures specified. Each domain was assessed with a single item only

Heaney & Hahessy (2011)	To assess levels of patient satisfaction within a preoperative orthopaedic clinic	Prospective cohort from a sample of convenience. The study specifies that patient were surveyed not earlier than 4 days post op but does not give the range of time over which the sample was taken.	None reported although referenced to existing domains within literature.	n=91 No cohort profile is given.	88%	Orthopaedic Pre-op clinic	Ireland	Used modified Leeds Satisfaction Survey (Hill et al., 1992): • Overall satisfaction • Information • Empathy • Technical competence • Attitude • Access and continuity Note modifications from the Leeds survey not reported.	On 5 point scale the mean satisfaction score was 4.13 (SD: 0.46). Mean for individual items ranged from 4.34 to 3.92.	No responses indicated any evidence of dissatisfaction with the service. Although the study relates to an orthopaedic service, the nature of a pre-operative assessment service may reflect only one part of the patient journey within that service.
Brokelman et al. (2012)	To validate a visual analogue scale for patient satisfaction for THR.	Prospective study. The study gives an average follow-up of 30 months but does not specify the range of the study period.	None reported	n=147 Average age 67.5 64% female	None reported	Total Hip Arthroplasty	Dutch	Global measure	Visual analogue scale satisfaction applied and correlated to pain VAS, Oxford hip score, WOMAC and SF-36. VAS satisfaction was positively correlated with pain VAS.	Authors acknowledged that satisfaction is influenced by a wide variety of factors, yet considered pain to be the strongest determinant. As such they adopted a narrowed view of the construct of patient satisfaction. Global assessment of satisfaction is unlikely to capture the full breadth of the construct.

Schnurr et al. (2013)	To identify factors that influence pre-operative dissatisfaction.	Retrospective cohort	None reported	n=1121 Average age 68 66% female	89%	Total Knee Arthroplasty	Germany	Global measure	Satisfaction was positively associated with the degree of preoperative arthritis implying that changes in pain and function are primary drivers of patient satisfaction.	Limited by the retrospective design and single site for data collection. Global assessment of satisfaction is unlikely to capture the full breadth of the construct. Satisfaction only assessed globally.
Matsuda et al. (2013)	To examine the level of patient satisfaction with TKR and its association with function. Also, to examine differences in physician and patient derived outcome scores.	Retrospective cohort	None reported	n=375 Average age 71 83% female	69%	Total Knee Arthroplasty	Japan	Satisfaction was positively associated directly with clinical outcome measures	Patient satisfaction was associated with the return of function associated with the degree of varus alignment, age and range of motion. There was a low correlation between physician and patient outcome scores with clinician overestimating outcome measures compared to patients.	The construct of patient satisfaction was limited to the level of pain and knee function. The negative correlation between age and levels of satisfaction contrasts with other studies.

Clement & Burnett (2013)	To assess the relationship between generic physical health and levels of satisfaction with TKR.	Prospective cohort over 1 year period.	None specified	n=2330 Average age 70 57% female	97%	Total Knee Arthroplasty	UK	Global measure	Satisfaction was positively associated with return of function but was more strongly associated with general physical well being rather that clinical outcome measures. Patients with poor post operative generic health reported higher rates of dissatisfaction.	Global assessment of satisfaction is unlikely to capture the full breadth of the construct. Findings suggest that patient inherent factors may play a role in levels of patient satisfaction.

Hamilton et al. (2013)	To investigate which factors influence patient satisfaction in surgical services and to explore the relationship between aspects of clinical outcome and patient reported outcomes.	Prospective cohort over a 12 month period.	None reported	n=4956 Average age 70 57% female	95%	Total Hip and Knee Arthroplasty	UK	• Overall satisfaction • Pain relief • Ability to perform regular activity • Ability to perform sport or heavy activity • Expectations • Hospital experience Plus • Repeat procedure? • Recommend procedure?	97% of the variance in satisfaction was explained by: • Meeting pre-operative expectation • Satisfactory pain relief • Hospital experience • Pre-operative physical status • Post-operative physical status	Results of this study align with the results of Judge et a l (2011) demonstrating outcome measures such as the Oxford hip and knee score show a weak correlation with patient satisfaction. Although satisfaction was assessed through an 8 factor model the survey tool used was not validated and limited to face validity. The study did show a strong positive correlation between patient satisfaction and willingness to return to surgery.
Ramaesh et al. (2014)	To examine the relationship between personality, joint function, general physical health and mental health in THR and TKR.	Prospective study over a 12 month period.	None reported	n=184 (THR) Average age 67.1 55% female n=205 (TKR) Average age 70.5 58% female	92%	Total Hip and Knee Arthroplasty	UK	Global measure Expectation fulfilled	The study found that personality traits influence preoperative scores but there was little evidence of this influence post operatively especially if patient expectation was met.	The study recognised that other traits such as self efficacy and catastrophising may also influence levels of satisfaction.

Schmale et al. (2014)	To assess whether patient satisfaction and function as assessed by the patient and clinician correlate with return to sport.	Retrospective study	None reported	n=29 Average age 14 79% female	None reported	ACL recon.	US	Global measure	Satisfaction was positively associated with return to sport yet there was no relationship demonstrated between clinical measures of function and activity levels was demonstrated.	Sample size of the study was underpowered. Global assessment of satisfaction is unlikely to capture the full breadth of the construct.
Hageman et al. (2015)	To examine the correlation between pre-visit expectation, met expectation and satisfaction. Which categories of expectation correlate with satisfaction.	Observational cross section study	None reported	n= 86 Average age 44 50% female	None reported	Orthopaedic upper limb patients	US	The Medical Interview Satisfaction Scale (MISS -29) (Wolf et al., 1978) using the following domains/factors: • Distress relief • Communication • Comfort • Rapport • Compliance intent	There was no association between pre-visit expectation and satisfaction. Met expectation correlated positively with levels of satisfaction.	Expectation was driven primarily by information and explanation. Modifications to the MISS-29 survey were not validated.
Kumar et al. (2015)	To develop and validate a scale to assess expectation in TKR patients and to assess correlations with outcome measures.	Scale validation	None reported	n= 523 Average age 62.1 53% female	None reported	Total Knee Arthroplasty	India	The study supported the reliability of the proposed scale.		Factorial validity of the scale was not tested.

2.5.3 Correlates of satisfaction identified

Most of the studies identified (71%, 15 studies) within the context of an orthopaedic service conceptually associated patient satisfaction as a function of clinical outcome. Of this cohort, 60% (9 studies) demonstrated a clear association between patient satisfaction and clinical outcome. Mahomed et al. (2011) developed and validated the Self-Administered Patients Satisfaction ($SAPS_1$) survey using an expert panel in the context of hip and knee arthroplasty. The resultant survey was primarily concerned with outcome measures such as "overall satisfaction with surgery, pain relief, ability to perform home or yard work and ability to perform recreational activities" (Mahomed et al., 2011, page 2) excluding any influence of the process of care on patient satisfaction. Matsuda et al. (2013) evaluated patients who had undertaken knee arthroplasty and found that satisfaction was associated directly with clinical outcome measures such as alignment of the prosthesis. An examination of a cohort of hip arthroplasty patients found that Visual Analogue Scales (Escolar-Reina et al. 2010) for pain were directly correlated with scores for satisfaction (Brokelman et al., 2012). Similarly, Schnurr et al. (2013) within a cohort of pre and post-surgical knee and hip arthroplasty patients found that satisfaction was derived from the net change in symptoms related the degree of preoperative arthritic change to levels of post-operative satisfaction. Bourne et al. (2010) undertook a cross sectional study of a large cohort of knee arthroplasty patients and found a negative association between preoperative pain and post-operative complication to levels of satisfaction. These approaches to evaluating patient satisfaction support the premise that changes in a patient's clinical condition will directly correlate to levels of satisfaction. Overall, these findings support a view that patient satisfaction is largely influenced by clinical outcome measures such as pain rating, range of motion and functional capacity.

A number of studies (40%), however, did not demonstrate an association between patient satisfaction and clinical outcome. Judge et al. (2011), in a longitudinal study evaluating patient satisfaction in elective knee arthroplasty patients, demonstrated that patient reported changes in outcome measures such as the widely used Oxford Knee Scale are not predictive of post-operative levels of satisfaction. Narayan et al. (2009), in retrospective study of knee arthroplasty patients in India, found no significant

correlation between the recovery of key functional activities such as squatting and patient satisfaction. Bullens et al. (2001) evaluated patient with knee arthroplasty using VAS satisfaction scales and found a weak association between subjective and objective assessments of outcome following knee arthroplasty. In contrast to the findings of Bourne et al. (2010), Anakwe et al. (2011) demonstrated that the development of a major complication during hip arthroplasty did not predict dissatisfaction. Therefore, it is unclear whether changes in clinical and functional measures directly correlate with levels of patient satisfaction.

The common approach (52%) to assessing satisfaction as a global entity may obscure detail regarding the determinant and outcomes of this construct. This unidimensional evaluation of patient satisfaction was often correlated against a range of clinical outcome measures such as pain levels, range of motion and validated functional outcome measures. The association of satisfaction to existing clinical measures demonstrated by a number of studies suggest support for the premise that patient satisfaction and outcome are closely related. Nevertheless, the notion that satisfaction can be assessed globally or as a unidimensional construct contrasts with the multidimensional nature of satisfaction recognised within other studies and existing survey scales of patient satisfaction (see Section 2.5).

There is evidence that psychosocial factors may influence patient satisfaction within orthopaedic services. Harris et al. (2009) evaluated predictors of patient and surgeon satisfaction after orthopaedic trauma using a cross sectional survey study. Although the results are specific to trauma patients, the findings suggest a wider spectrum of influences on patient perception of clinical outcomes. The authors found significant influence of non-clinical elements predicting satisfaction such as blaming others, being female and using a lawyer. Although these finding relate specifically to orthopaedic trauma, they support the notion that elements other than clinical outcome can potentially influence levels of patient satisfaction within an orthopaedic service.

A number of studies identified patient expectation and the degree to which these expectations are fulfilled as key drivers of patient satisfaction. Hageman et al. (2015) found that expectation was positively associated with levels of explanation and

information, implying that the process of giving information and insight may better align patient expectation with the clinical process. Hamilton et al. (2013), in a large cohort of 4709 lower limb arthroplasty patients, found that expectation had a significant influence on patient satisfaction. Bourne et al. (2010) demonstrated that expectation accounted for the greatest proportion of risk to satisfaction. Kumar et al. (2015) demonstrated that satisfaction is directly associated with expectation fulfilment. Tashjian et al. (2007) evaluated a cohort of patient undertaking rotator cuff repair and demonstrated that the level of met expectation correlated highly with patient satisfaction. Noble et al. (2006), in a longitudinal study of patient satisfaction within patients undertaking knee arthroplasty, acknowledged that the alignment of expectation between patient and clinician is a critical element in addressing discrepancies between in how patients and clinicians define a successful outcome. Collectively, these findings indicate that expectation is a recognised domain within the orthopaedic literature relating to patient satisfaction.

There are very few studies that have examined levels of patient satisfaction relating specifically to clinical orthopaedic assessment prior to any therapeutic intervention. (Heaney & Hahessy, 2011) examined patient satisfaction with a pre-operative assessment clinic using the Leeds Satisfaction Questionnaire (Hill et al., 1992). The survey was originally developed to assess satisfaction in rheumatology patients and is largely derived from the work of Ware & Hays (1988). The survey encompasses 7 domains of overall satisfaction, information, empathy, technical competence, attitude, access and continuity (Hill et al., 1992). Heaney & Hahessy (2011) offer a unique insight into the patient experience in the context of clinical assessment, finding that issues such as communication, patient vulnerability, clinic and waiting time influence levels of patient satisfaction at this stage of the patient experience.

2.5.4 Theoretical and conceptual references in survey development

A common feature amongst the studies identified is the absence or specific mention of a guiding conceptual framework for the study of patient satisfaction As a result, few studies within the field of orthopaedics consider the interpersonal process of the clinical interaction in the examination of patient satisfaction. Elliott-Burke & Pothast

(1997) in their 4 year study of patients attending and orthopaedic outpatient clinic in the US identified elements relating to information, communication and the interpersonal process but the validity evidence of the findings are constrained by the limited details of how or why these factors were identified. A number of studies imply this process through information exchange and communication (Hageman et al., 2015) or in reference to psychosocial aspects such as socialisation (Dawson et al., 2012; Ozawa & Shimizu, 2007) but without a specific conceptual or theoretical reference for patient satisfaction. Therefore, within the cohort of studies assessing satisfaction with clinical orthopaedic services, there are references to the interpersonal process of the clinical interaction but these references lack depth of information with little or no reference to conceptual models of patient satisfaction.

2.5.5 Methodological approaches to survey development

A number of studies identified developed survey scales specifically for the context of orthopaedic outpatient clinics, however, the methodology within this development limits the construct and factor validity of these scales. The factors identified by Mahomed et al. (2011) within the $SAPS_1$ survey are largely constrained to outcome measures (the level of pain, the ability to perform yard work and the ability to perform recreation activity). These factors were derived by an expert panel of rheumatologists, an orthopaedic surgeon, and a behavioural scientist. The validation of these factors was essentially limited to face validity with no patient input into the development process. As such, these domains are likely to reflect the primary concerns of the professional group and therefore may not capture the breadth of patient satisfaction. Heaney & Hahessy (2011) modified the existing Leeds Satisfaction Survey (Hill et al., 1992) using a process of expert panel review. The authors provide few details of the processes involved in the review and it remains unclear whether the panel of three orthopaedic nurses had sufficient expertise or experience to represent all aspects of an orthopaedic service. Elliott-Burke & Pothast (1997) developed a 15 item survey to assess patient satisfaction within orthopaedic outpatients but did not seek the feedback of end-users (i.e. patients) to clarify the relevance of these domains for their experiences. Hamilton et al. (2013) proposed a 7 item scale to assess satisfaction but did also not assess this scale within an independent sample nor provide detail on how each item was derived.

Therefore, there is little evidence of survey instruments underpinned by a rigorous process of validation within the context of orthopaedic outpatient clinics.

The extensive use of global scales to evaluate patient satisfaction removes the capacity of the research to discriminate elements or factors underlying satisfaction. The operationalisation of satisfaction as a unidimensional construct is inconsistent with the majority of work that has sought to clarify the theoretical nature of satisfaction. The multidimensional nature of satisfaction is also supported through the development of established survey scales used to evaluate patient satisfaction (See Section 2.5).

2.5.6 Conclusions

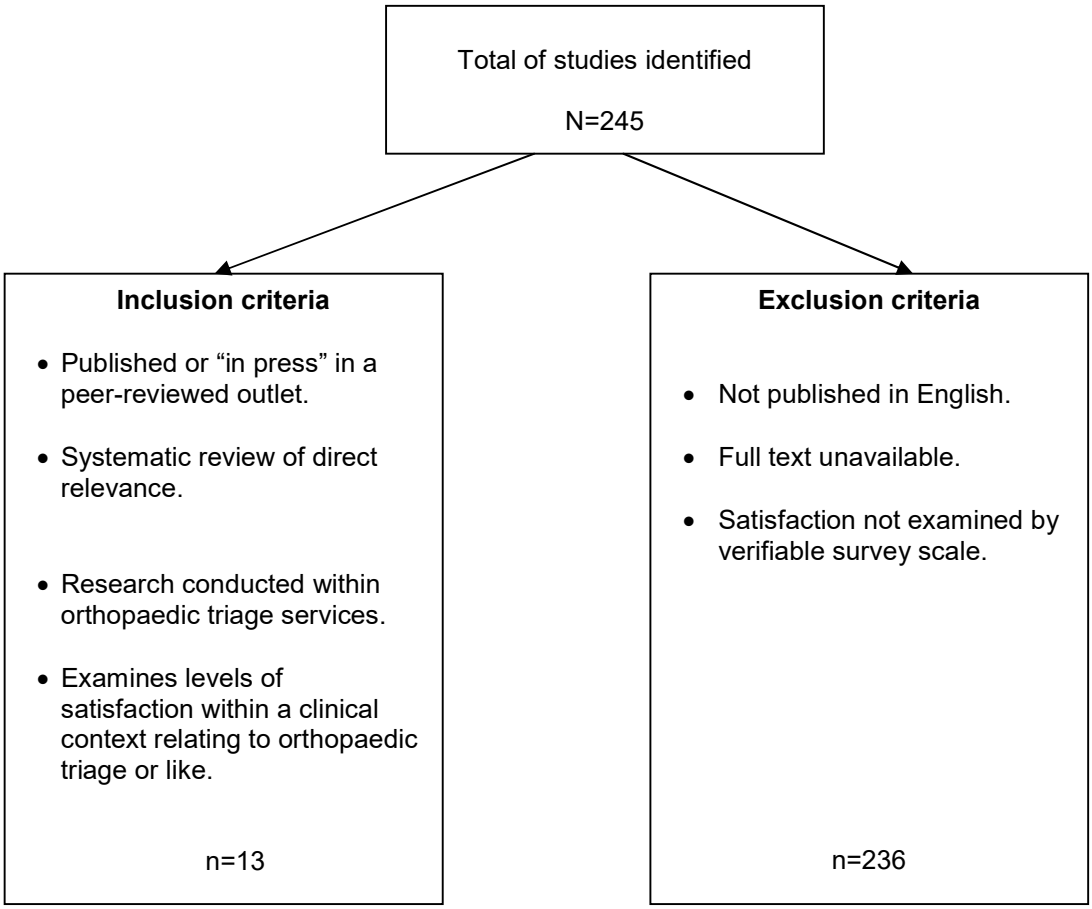
In summary, a review of the current literature of patient satisfaction in orthopaedics suggests that this concept is less developed conceptually than other related clinical areas such as general practice (Baker, 1990; Hawthorne et al., 2011; Larsson & Wilde-Larsson, 2010; Sizmur S, 2010; Ware & Hays, 1988) or physical therapy services (Hills & Kitchen, 2007b; Medina-Mirapeix et al., 2015; Samsson & Larsson, 2014; Solomon et al., 1999). To date, there has been limited evaluation of the patient-clinician interaction that is represented within many survey tools designed to examine patient satisfaction. The assessment of patient satisfaction within orthopaedic services has been largely associated with changes in clinical and functional measures. There is, however, some anecdotal evidence that consultants or surgeons recognise interpersonal aspects influencing levels of satisfaction within patients (Vaidya, 2015). There is little evidence of a conceptual model of patient satisfaction or any survey tools developed from a ground up inductive approach relating specifically to orthopaedic services.

2.6 Previous research evaluating patient satisfaction with an orthopaedic triage context

2.6.1 Background to scoping review

To assess evidence of patient satisfaction within orthopaedic triage, a scoping review of the existing literature was undertaken within the methodological framework proposed by Arksey & O'Malley (2005). The primary question identified underlying the search was: What is known about patient satisfaction with orthopaedic triage services? The search involved electronic databases, reference lists, hand searching of key journals and grey literature. Databases included Web of Science, OVID databases (Ovid all journals, Journal@ OVID full text, Psycarticles full text, OVID medline, PsysINFO), CINAHL (Ebsco host), Proquest, Cochrane Scopus and Google Scholar. The keywords were (with Boolean operators); “patient satisfaction” AND “outpatient*”, “advanced practice OR orthopaedic triage OR extended scope physiotherap*”. The keywords were applied to title and abstract searches. The search examined literature written in English published after 1970 and up to 2016. A criterion for inclusion and exclusion was applied as outlined in Figure 4.

Figure 4: Inclusion/exclusion criteria for scoping review of patient satisfaction within an orthopaedic triage context



2.6.2 Findings of scoping review

A summary of the findings of the scoping review is given in Table 3.

Table 3: Scoping review of assessment of patient satisfaction within orthopaedic triage services

Authors	Aim	Design	Theoretical Reference	Sample	Response rate	Context	Setting	Correlates of satisfaction	Outcome/Findings	Comments
Daker-White et al. (1999)	To evaluate the effectiveness and cost effectiveness of physiotherapists in orthopaedic triage.	Randomised control clinical trial.	None reported	n=654 Average age 48.6 51.7% female 47% spinal	73.6%	Orthopaedic outpatients.	England	• Communication • Perceived attitude to patient • Technical quality • Clinical facility • Global satisfaction	Patient satisfaction was higher with physiotherapy triage consultation compared to registrars.	Instrument derived from Boston Patient Expectation and Satisfaction Questionnaire and Leeds Patient Satisfaction Scale (Hill et al., 1992). Satisfaction however was a secondary outcome measure of the trial and the report lack methodology detail reading the instruments used and how results were analysed.

Pearse et al. (2006)	To undertake an audit of extended scope activity in orthopaedics using the following parameters: • Independent assessment and management • No on referral to consultant • Patient satisfaction of 89%	Retrospective survey.	None reported	n=150 Average age 43.5 50% female 42% spinal	63%	Orthopaedic outpatients.	England	Implied by report of data: • Overall assess. of visit • Management • Technical capacity of therapist • Treatment and advice • Explanation	Expectation was identified as a source of dissatisfaction. This was primarily driven by expectation of seeing a consultant.	Patient satisfaction did not achieve the benchmark set by the authors (89%). Methodology of the assessment of satisfaction not explicit within body of the report. Potential for non responder bias within results.
Oldmeadow et al. (2007)	To investigate the impact and acceptability of physiotherapist in orthopaedic triage roles.	Prospective observational trial.	None reported.	n=52 Average age 53.3 59% female 55% knee	Implied 63%	Orthopaedic outpatients.	Aust.	Global satisfaction	30 of 38 responses (N=52) reported satisfied to very satisfied with advanced practice physiotherapists (Grondahl et al., 2013) undertaking orthopaedic triage roles.	Satisfaction assessed by a singular global scale. Largest cohort knee pain.

Reeve & May (2009)	To establish the dimensions of quality that were important to patients referred to a spinal screening service.	Qualitative study using face to face semi-structured interviews.	None reported.	n=13 Average age 47 75% female	n/a	Orthopaedic spinal patients.	UK	• Provision of information, • Professional skills • Interpersonal skills • Outcome • Patient care pathway	Qualitative study of influences to patient satisfaction in orthopaedic spinal triage service.	Study was single site only and limited to 12 patients amongst a cohort of 34 that were approached to participate.
Sephton et al. (2010)	To evaluate the effectiveness of a primary care musculoskeletal service conducted by physiotherapists	Prospective observational cohort.	None reported.	n=217 Average age 55.5 57% female 52% spine	76%	Musc. Patients referred from GP	UK	VAS scale Deyo & Diehl (1986) Survey	The original survey developed by Deyo & Diehl (1986) was uni-dimensional. 94% of respondents reports being satisfied whilst 72% reported complete satisfaction.	The original survey scale used was developed within a low back pain cohort and was applied to a new cohort without independent validation. The uni-dimensional nature of the survey scale retains a very restricted capacity to inform what aspects of patient satisfaction are important or influential.

Kennedy et al. (2010)	To measure satisfaction with follow up care in an APP service for post operative THR and TKR.	Cross sectional retrospective.	None reported.	n=129 Average age was given in a range. Across 2 groups 73-79% of patient cohort fell within 55-74 No detail was given to sex ratio. No clinical profile of the patient cohort was given.	90%	Orthopaedic hip and knee replacement clinic.	Canada	**Domains specified:** • Service provider items • Facility items • Process items **Items specified:** • Response to queries • Advice to exercise • Clinic time • Answers to question • Explanation/Advice • Technical skills • Personal manner • Overall satisfaction Items excluded by new survey but retained in VSQ-9 : • Length of waiting time for appointment • Location convenience Items included within new survey but not within VSQ-9: • Response to queries • Advice with exercise	No significant difference in satisfaction scores between APP and Ortho clinicians. .	More than half the cohort studied was over 65 years of age which may have bias the levels of satisfaction. The study was confined to post operative THR and TKR. Modified VSQ-9 validated by post hoc process.

Edmondston et al. (2011)	To evaluate clinical outcome, cost effectiveness and patient acceptance of an orthopaedic triage role.	Prospective study with a retrospective cohort analysis.	None reported.	n=239 Average age 57 49% female 85% non spine	40%	Orthopaedic outpatients.	Aust.	**Implied from text:** • Intention to return • Global measure • Information • Management options • Explanation of diagnosis • Assessment and examination	Patient reported high levels of satisfaction with orthopaedic triage role.	Conclusions regarding levels of patient satisfaction are limited by lack of methodology in developing the satisfaction survey. Response rate of survey was suboptimal at 43% with no profile of non responder group.
Bath & Janzen (2011)	To evaluate participant and referrer satisfaction with a spinal triage service delivered by physiotherapists.	Prospective design.	None reported.	n=115 51.4% > 50 yrs 52% female	94%	Orthopaedic spinal patients	Canada	Single global measure of satisfaction with open ended comments.	Quantitative analysis demonstrated high levels of satisfaction with triage service (90.5%).	Retrospective analysis of survey identified the following factors: • Understanding the problem diagnosis • Communication and empathy • Customer service • Efficiency of care Use of multidimensional scale may have provided more detail and variability in satisfaction assessments.

Desmeules et al. (2012)	To update the evaluation of APP roles in the management of patient with musculoskeletal conditions	Systematic analysis	n/a	n/a	n/a	Orthopaedic patients	n/a	16 studies identified assessing satisfaction within a set criteria for inclusion	APP roles are associated with equal or better levels of satisfaction in comparison to standard orthopaedic pathways.	Although the finding support high levels of patient satisfaction with APP roles, the authors found methodological rigor within the studies identified to be inconsistent. Four of the seven studies did not use a validated survey scale. Only 2 of the studies identified were conducted within an orthopaedic outpatient clinic.
Napier et al. (2013)	To investigate the effectiveness of a physiotherapy triage service for orthopaedic referrals.	Prospective observational Design.	None reported	n=45 Average age 47 57.7% female 68% shoulder 32% knee	100%	Orthopaedic outpatients	Canada	**Text implies:** • Level of advice • Thoroughness of exam • Overall satisfaction	100% of sample reported satisfied to very satisfy with orthopaedic triage service.	Satisfaction survey was administered at the conclusion of the consultation by the assessing physiotherapist. This may have provided for some bias in the survey. There is no assessment of the construct validity of the survey administered.

Desmeules et al. (2013)	Assess role of APP against an orthopaedic surgeon in assessing hip and knee patients using: • Diagnostic agreement • Treatment concordance • Resource use • Patient satisfaction	Cross sectional survey.	None reported	n=120 Average age 54.1 54% female 9.1% hip 90>9% knee	93%	Orthopaedic hip and knee clinic	Canada	Used the modified version of the VSQ-9 Proposed by Kennedy et al. (2010). • Response to queries • Advice to exercise • Clinic time • Answers to question • Explanation/Advice • Technical skills • Personal manner • Overall satisfaction Items excluded by new survey but retained in VSQ-9 : • Length of waiting time for appointment • Location convenience Items included within new survey but not within VSQ-9: • Response to queries • Advice with exercise	Patient satisfaction was higher for APP than surgeon. APP used slightly more resources including clinical time. High correlation between APP and surgeon on diagnosis and management.	Survey tool derived from Kennedy et al. (2010) without independent validation. Increased use of time by APP may have allowed for increased communication and satisfaction rating. Study provides stronger support for larger knee cohort.

Razmjou et al. (2013)	To examine to role of APP using: • Diagnostic agreement • Treatment concordance • Wait times • Patient satisfaction	Prospective design.	None reported	n=247 Average age 57 37% female	79%	Orthopaedic shoulder patients	Canada	Used a modified version of the VSQ-9 items although excluded: • Phone access • Length of clinic waiting time Retained 7 items of the revised VSQ-9	Good to excellent correlation between APP and surgeon on diagnosis and management. Clinical wait time were improved with APP clinic Satisfaction reported higher in APP clinics compared with orthopaedic clinicians.	Survey tool derived from Kennedy et al. (2010)without independent validation No demographic profile is offered of the cohort of patients. Previous studies have demonstrated that increased clinical contact time taken by APP may account for increased patient satisfaction.
Samsson & Larsson (2015)	To evaluate orthopaedic screening by physiotherapists compared to standard practice in primary care.	Randomised control trial.	None reported	n=203 Triage group: Average age 51 44% Female Ortho Average age 53 44% female No clinical profile of the cohort is offered.	79%	Orthopaedic triage patients	Sweden	• Medical-Technical competence • Identity orientation • Socio-Cultural Atmosphere	Study finding suggest that experienced physiotherapists can effectively screen orthopaedic referrals. Satisfaction was comparable to or higher than patient reviewed by orthopaedic clinicians.	Study used short form QPP Larsson & Larsson (2002)and intention to return to indicate levels satisfaction. The study noted that 25% of eligible patients declined to participate. No evaluation of this non participant group was offered. Variance between the 2 groups is difficult to assess in the absence of a clinical profile of the 2 groups.

2.6.3 Correlates of satisfaction identified

Within the cohort of studies identified some domains are repeatedly represented in assessing levels of patient satisfaction. Concepts of communication, information and explanation are contained in over 80% of studies. References to the perceptions of the technical qualities or competence of the physiotherapist are also represented in 8 studies (61.5%).

Several studies undertook a qualitative approach to evaluating potential items and themes within the patient experience of orthopaedic triage. Bath & Janzen (2011) examined the patient experience of spinal triage clinics using patient focus groups to identify key factors underlying patient satisfaction. The authors identified issues such as communication, empathy and service efficiency, however, this data was collected on an ad hoc basis within a patient group attending a clinic. Reeve & May (2009) undertook a similar qualitative approach to examine patient satisfaction within an orthopaedic spinal triage service and found 5 key themes, namely provision of information, professional skills, interpersonal skills, outcome, and the patient care pathway.

The shortened version of the VSQ (Ware & Hays, 1988), the VSQ-9, figures prominently in studies evaluating patient satisfaction with orthopaedic triage services. The VSQ-9 encompasses 9 themes each referenced within a single question. These items are convenience of location, phone access, clinic waiting time, time within clinic, explanation, technical skills, personal manner and visit overall. The VSQ-9 is used as the basis for the survey tool evaluating patient satisfaction within the three Canadian studies of Kennedy et al. (2010), Desmeules et al. (2013) and Razmjou et al. (2013). These studies have formed an important component of recent assessments of the patient experience within orthopaedic triage. In all three studies the VSQ-9 was modified by the authors to reflect the specific context of the study. Kennedy et al. (2010) evaluated hip and knee arthroplasty patients, and excluded items relating to waiting time for appointment and location convenience whilst including items relating to responsiveness to patient queries and advice about exercise of returning to activity. Desmeules et al. (2012) used the modified version of the VSQ-9 developed by

Kennedy et al. (2010) and further modified the retained items to suit a cohort of general hip and knee patients. Razmjou et al. (2013) evaluated shoulder patients, and excluded 2 items of the modified VSQ-9 relating to phone access and length of clinic waiting time. Therefore, although the VSQ-9 provides a core subset of domains used to assess satisfaction within orthopaedic triage, subsequent manifestations of the VSQ-9 were modified to suit the varying clinical contexts without additional validity evidence for such amendments within an independent sample. Therefore, the validity of test scores obtained with these the modified scales within the context of orthopaedic triage remain uncertain.

2.6.4 Theoretical and conceptual references in survey development

The conceptual basis for patient satisfaction within orthopaedic triage has been largely extrapolated from existing models of patient satisfaction. Several of the studies identified utilised the VSQ-9 to evaluate patient satisfaction. The conceptual basis of the VSQ and the VSQ-9 referenced expectation theory through earlier references to patient beliefs and preferences (Ware & Hays, 1988; Ware et al., 1983). Ware & Hays (1988) also reference the expectancy-value model of Linder-Pelz & Struening (1985). These theories form an important foundation in the conceptualisation of patient satisfaction, however, more contemporary examinations of what elements influence patient satisfaction have widened the scope of factors to be considered. In particular, factors such as trust (Hall et al., 2002), communication (Bertakis & Azari, 2010; Hush et al., 2011) and concepts relating to therapeutic alliance (Martin et al., 2000) appear to emphasise the importance of interpersonal interaction in greater detail. Therefore, the conceptual scope of studies utilising the VSQ-9 are likely to be limited and not reflect more contemporary models of patient satisfaction.

Samsson & Larsson (2014) used the QPP (Wilde et al., 1994a) to evaluate levels of patient satisfaction in a randomly assigned cohort of the orthopaedic triage patients. The QPP was originally referenced to cognitive phenomenological theory (Wilde et al., 1993). Drawing largely from the work of Lazarus (1991), the authors suggested that “emotions reflect our preceding cognitive appraisal process” and therefore patient satisfaction is largely an emotive phenomenon that is drawn from the experience of the clinical interaction in responding to these emotive needs (Larsson & Wilde-Larsson,

2010 page 1744). The domains developed by (Wilde et al., 1994c) clearly focus on the interpersonal aspects of the clinical interaction.

2.6.5 Methodological approaches in survey development

There is evidence that the development of survey scales to assess patient satisfaction in orthopaedic triage has been limited. Some evaluations of patient satisfaction with orthopaedic triage have been limited to global assessments of satisfaction (Oldmeadow et al., 2007). Although these studies demonstrated high levels of satisfaction, they offer limited insight into the specific attributes patients held as important to being satisfied. Other studies have applied surveys of satisfaction with little development or evidence of the validity of test scores obtained with those tools (Edmondston et al., 2011; Napier et al., 2013; Pearse et al., 2006).

Within the studies examined, where survey development was undertaken, methodological rigour varies widely. In a systematic review, Desmeules et al. (2012) evaluated the assessment of patient satisfaction against a set of evaluation criteria to assess methodology. The authors evaluated 7 studies that involved APP roles across a range of settings across emergency, orthopaedic clinics, a rheumatology clinic, a paediatric and a musculoskeletal clinic. Desmeules et al. (2012) found four of the studies did not use a survey scale with validity evidence in past research, only one study informed patients of the anonymity of their responses, only one study accounted for non-response and only three studies had a response rate of at least 80%. Therefore, although Desmeules et al. (2012) supported the proposal that patient satisfaction with orthopaedic triage role was high, the variation in methodology and scale validation may not give a clear insight into what factors influenced that result.

A number of the survey scales evaluated factors with single item thus limiting the extent to which the scale captures the necessary detail within each domain. The survey scales based on the VSQ-9 (Desmeules et al., 2013; Kennedy et al., 2010; Razmjou et al., 2013) all used single questions to gain data across a single factor relating to patient satisfaction. Pearse et al. (2006) used a similar approach in evaluating patient satisfaction amongst a cohort of orthopaedic patients. Although limiting from a conceptual standpoint, the use of single item scales is likely to improve the

convenience of the survey aiding compliance and assisting rate of survey return. The issue is that it is unlikely to inform more complex issues such as the personal manner of the clinician or patient perception of technical skills. (Comrey, 1988) suggested a minimum of three items per domain to maintain the psychometric properties of survey scale.

If a reliable assessment of the patient experience to orthopaedic triage is to be undertaken then it would appear to be fundamental to undertake this assessment with patients undergoing a process of normal clinical practice. Desmeules et al. (2013) demonstrated high levels of satisfaction within patients seen by orthopaedic triage physiotherapists, however, patients within the trial were not managed by normal clinical practices. The primary intent of the trial was to assess diagnostic agreement and the initial evaluation was repeated with the order not systematically randomised. It is unclear then whether this process reflects satisfaction within normal independent practice of an orthopaedic triage.

There were no examples of a specifically developed survey scale to assess patient satisfaction within orthopaedic triage. Of the 10 studies identified specifically evaluating levels of patient satisfaction, 5 (70%) sought to modify existing survey scales to the context of orthopaedic triage. Daker-White et al. (1999) developed a survey scale to evaluate patient satisfaction in musculoskeletal patients attending an orthopaedic triage clinic by synthesising elements of the Leeds Satisfaction scale and a scale assessing expectation. Razmjou et al. (2013) modified a previous adaption of the VSQ-9 by Kennedy et al. (2010) to assess satisfaction with orthopaedic shoulder patients attending an advanced practice clinic. Desmeules et al. (2013) also used an existing modification of the VSQ-9 by Kennedy et al. (2010) but applied the survey to a non-surgical clinical cohort of hip and knee patients attending for the initial assessment but without further validation.

Some authors have supported the process of borrowing scales with “minor revisions” (Gehlbach & Brinkworth, 2011). It is unclear how far revision can be undertaken before that process undermines the psychometric properties of the original survey tool; in such cases, it is particularly important that researchers provide validity evidence of test scores obtained with established scales subjected to major modifications. Many of

these studies sought to use expert panels of review to assess the validity of the modification yet this approach is likely to be limited to face and content validity evidence. Unless these revised surveys are assessed and validated within an independent sample, then the psychometric properties of the modified survey may be questioned.

Only one paper within the cohort of studies identified by the review undertook an independent process to validate a survey tool specifically developed for evaluating patient satisfaction with advanced practice physiotherapy. Kennedy et al. (2010) undertook an evaluation of satisfaction of patients attending an orthopaedic triage clinic assessing and patients following surgery for either hip or knee arthroplasty. Kennedy et al. (2010) modified the VSQ-9 to allow inclusion of factors or domains that the authors considered relevant to an orthopaedic clinic. The authors assessed the modification through exploratory principal-components analysis. Reliability of the VSQ-9 was examined using Cronbach's alpha (Mohsen & Reg, 2011) as a measure of internal consistency. A series of correlation measures were applied across the data to examine the strength of item relationships. The process undertaken by (Kennedy et al., 2010) represents the only attempt to independently validate a survey tool modified specifically for the assessment of patient satisfaction within the context of advanced physiotherapy practice in an orthopaedic clinic. Nevertheless, there are a number of issues with the study methodology that may restrict the validity of the finding that patients are satisfied with physiotherapists triaging orthopaedic patients. The study of Kennedy et al. (2010) was confined to post-surgical assessment of hip and knee arthroplasty and therefore cannot be easily transcribed to the primary assessment of patients within an orthopaedic triage clinic. The assessment of new referrals and the post-surgical assessment of patients by a triaging physiotherapist represent fundamentally different roles. Further, any examination of patient satisfaction with orthopaedic triage alone would be difficult to assess given the number of processes and interactions occurring prior to that assessment.

The modifications of the VSQ-9 produced by Kennedy et al. (2010) also may have inherently biased the revised survey toward the physiotherapist group. These variations included response to patient enquiry, advice and information regarding exercise. Evidence suggest that consultants have higher demands on their time in

orthopaedic clinics compared to triaging physiotherapists (Samsson & Larsson, 2014) suggesting they may be less flexible in terms of adapting to patient enquiry. Examination of the professional roles would suggest that physiotherapists are usually more likely to be trained in exercise prescription than orthopaedic surgeons. Therefore, the findings of Kennedy et al. (2010) and the survey scale proposed may have limited validity outside the context of post-surgical assessment of hip and knee arthroplasty.

2.6.6 Conclusion

The evaluation of patient satisfaction with orthopaedic triage has largely been derived using existing survey scales that have been modified with varying approaches to establishing the validity of these modifications. There are no examples of a survey scales assessing patient satisfaction within the context of clinical assessment or orthopaedic triage.

2.7 Summary/Synopsis of literature review

Orthopaedic triage is a well supported clinical strategic response to increasing demand for orthopaedic clinical services. Orthopaedic triage has achieved significant reduction in waitlist times for orthopaedic consultation whilst maintaining comparable clinical outcomes to medically attended clinics. The patient response to this strategy has been assessed using tools modified from existing surveys with varying levels of validity evidence of test scores. Findings of high levels of patient satisfaction within orthopaedic triage clinics therefore remain open to question. There is no evidence of a survey tool developed specifically to assess patient satisfaction with orthopaedic assessment.

Chapter 3.0

Part A: Concept development

3.1 Methodology

3.1.1 Background and significance

The establishment of a conceptual reference for patient satisfaction within an orthopaedic context is a necessary foundation upon which to operationalise key characteristics of this concept in future work. Identification of these factors can be undertaken through the use of focus groups.

3.1.2 Design

The study used a cross-sectional, qualitative design including focus groups and 1-1 interviews. The methodology within the focus groups was guided by recommendations offered by Patton (2015).

3.1.3 Participants

Participants were recruited from staff and patients at Fremantle Hospital Health Service (FHHS). Participants were recruited using criterion-based purposive sampling to source individuals who share a common experience and could provide unique perspectives of the concept (i.e., patient satisfaction) and experience (i.e., orthopaedic clinic services) (Freeman et al., 2014). Guided by the concept of data saturation, participants were recruited on a rolling basis until no new and relevant information was reported (O'Reilly & Parker, 2013). Thus, there was no predetermined figure regarding the number of different types of participant groups or relative proportions of these individuals. The key here was to ensure that there was adequate depth and breadth of information with regard to the research question (O'Reilly & Parker, 2013). Focus groups offer access to shared understandings and perspectives, as well as group interactions that can promote unique insights that may not be gathered in 1-1

interviews. In contrast, 1-1 interviews offer an in-depth insight into personalised stories and perspectives of patient satisfaction within the context of clinical orthopaedic assessment that people may not feel comfortable sharing in group settings (Powell & Single, 1996). The decision to conduct a 1-1 interview or focus group was guided by pragmatics of the research context, as not all participants were available to make a group time (i.e., patients, registrars, consultants). Clinicians (orthopaedic surgeons, orthopaedic registrars, clinic nurses, and physiotherapists), support staff (receptionists), patients, volunteers and a Consumer Advisory Council (CAC) were represented in the study. The CAC group represents consumer advocacy with the hospital. The input from the CAC represented the sum total of attendance to a CAC meeting within the hospital. The CAC represents a unique view of the patient as a consumer of health services, reviewing complaints and pursing compliance with policy and standards set around patients. The patient group was drawn from consecutive individuals presenting with non-acute conditions attending the FHHS orthopaedic outpatient clinic for follow-up assessment on 2 clinic days.

All patients completed an initial assessment and provided informed consent to participation (Appendix 5). All participants were approached in person by the lead researcher and were aged over 18 years. Patients whose communication skills did not allow comprehension of the consent form or the ability to complete a written survey were excluded. In total, 18 individual interviews were undertaken with 10 patients, 4 consultants, 4 registrars and 1 reception staff. Additionally, 4 focus groups were undertaken, one each for physiotherapists, nurses, volunteers and CAC. Table 2 profiles characteristics of the focus group participants, whereas Table 3 outlines diagnostic profiles of the patient group within the focus group.

3.1.4 Data collection

Participant interviews and focus group discussions were conducted over an eight week period. Focus group sessions ranged from 20-45 minutes, whereas 1-1 interviews ranged from 15-25 minutes. Both interviews and focus groups were conducted by the lead researcher and guided, but not constrained, by semi-structured interview questions (see Table 4). All interviews and focus group discussions were audio recorded.

All interviews and group sessions were carried out by the lead investigator. The use of the lead investigator is proposed as a key strength of the methodology in allowing the use of contextually relevant terminology, and minimised the need to define key terms or jargon thereby sustaining positive flow in the discussion. As a clinician, the lead investigator could utilise background knowledge of the context and research question developing rapport with participants. The lead investigator is known professionally to the clinical and professional contributors within the focus groups.

Any potential bias arising from the role of the lead investigator in leading the discussion is minimised by several strategies. First, the lead researcher used the same semi structured format of questions for each session (see Table 4). Second, the lead investigator and the supervising investigator engaged in critical review meetings of the interviews at regular intervals during data collection, particularly earlier on in this piece, discussing assumptions and biases and how they may have influenced questioning and probing of participants both in terms of direction and content (Liamputtong, 2005).

Table 4: Semi-structured interview guide

We are interested in understanding patient satisfaction within the context of orthopaedic triage settings. Can you offer any thoughts generally on patient satisfaction?
What factors do you believe contribute to patient satisfaction with clinical assessment?
What aspects of the relationship between the clinician and the patient are important?
Can you recall an experience as a patient at first assessment with a new clinician? What aspects of that experience would you like to improve or change?
What advice would you give to administrators of the health system to improve patient satisfaction in orthopedic clinics?

3.1.5 Data analysis

Audio recordings of interviews were transcribed verbatim by a professional transcription service. Minor spelling and grammatical errors were edited by the lead investigator on receipt of the transcript. All participants were given the opportunity to review and revise their transcript prior to data analysis.

Data was analysed thematically using an inductive approach whereby the data itself served as the primary source of information regarding emergent codes and themes. The process of thematic analysis was informed by Braun & Clarke (2006) who suggested a series of phases including familiarisation, coding, searching, and reviewing, prior to naming and defining. The transcriptions were initially reviewed independently by the two lead investigators with comments and analysis of themes recorded as comments in the transcript, permitting familiarisation with the data and preliminary codes. The two lead investigators held a series of meetings to review the emergent themes, ensuring agreement. A third investigator was utilised where the initial process did not produce consensus. A summary was then compiled with definitions of the identified themes, matched against quotes from the transcript and additional notes of thematic interpretation.

3.2 Results

3.2.1 Participant profile

From a sample of 41 eligible participants, 36 individuals were included in the study. A profile of participants and the proportional input of each group into the transcription are shown in Table 5. All consultants, registrars, patients and front desk staff were interviewed on a 1-1 basis as it was not feasible to bring these participants together at a single point of time. Physiotherapists, nurses, volunteers, and CAC were interviewed within group settings (N =4), where group numbers ranged from three to five participants. A profile of the patient cohort within the focus group is shown in Table 6.

Table 5: Participant characteristics of focus group

	Consultant	Physio	Nurse	Volunteer	CAC	Registrar	Patient	Reception
Number	4	4	5	3	5	4	10	1
Interview Method	1:1	Group	Group	Group	Group	1:1	1:1	1:1
Male %	100	25	0	0	40	75	40	0
Female %	0	75	100	0	60	25	60	100
Age range (yrs)	39-54	28-62	34-58	64-78	34-65	28-34	22-62	32
% of Total	16	6	7	8	6	15	35	5

Table 6: Clinical characteristics of the patient cohort within focus group

	Age	Sex	Diagnosis
Patient 1	42	m	Osteoarthritic knee
Patient 2	62	f	Shoulder impingement
Patient 3	52	f	Shoulder instability
Patient 4	24	m	Ankle inversion sprain
Patient 5	22	f	Patellofemoral disorder
Patient 6	28	m	Osteoarthritic knee
Patient 7	50	f	Shoulder Rotator cuff
Patient 8	34	m	Shoulder impingement
Patient 9	82	f	Osteoarthritic knee
Patient 10	42	f	Foot Pain
Average	43.8		
Male	40%		
Female	60%		

3.2.2 Themes defined by focus group

3.2.2.1 Clinic waiting time

One of the most commonly discussed themes centred on the time taken from arrival in the clinic to consultation with the clinician. Participants discussed this theme in a

variety of ways. It was evident that clinicians and clinical support staff were aware of, and acknowledged, the importance of clinical waiting time for patient satisfaction.

"It's actually waiting time: that is our biggest failure." [female nurse]

"I think the key things are how long they've waited to come in the first time, how long they've been in the waiting room, because I think it's very hard to have a satisfied patient who's sat there for four hours before they've seen you, they're never satisfied." [male consultant]

A consultant identified the flow on effect of extended clinic waiting times.

"People who wait for three hours in clinic will almost invariably come in and have more issues. They'll have more problems and I find more complications than those who get seen swiftly and get moved sort of efficiently and timely." [(male consultant]

There was evidence of patient awareness of clinic efficiency as a factor influencing waiting times.

"The two clinic clerks had the shutters down, it was 8:30 in the morning and they're yabbering away and there's a string of people lining out the doorway. Already, people were going on about how they were stressed about waiting" [male patient].

3.2.2.2 Clinical contact time

Patients often raised the issue of having sufficient time with the clinician, and the impression of being managed or rushed through the appointment. In these instances, patient satisfaction with the clinical experience was low.

"If you're feeling like you're rushed in and out, I don't think you develop the trust as much. I don't think you feel like they're maybe going to do the best work for you." [female patient]

"I think from my point of view, I've got to have enough time because it's very hard to make someone satisfied if you're on call and you've received thirty phone calls and your phone keeps ringing. People need to be engaged, you have to have interest in what they've got to say." [male registrar]

Clinicians acknowledged time pressures within clinics and the difficulties with patients when expectations of the consultation were not fulfilled.

"So time pressures, I think, is the biggest issue, because you don't have time to listen to everyone's problems; and if you listen to what they have to say, then quite often you can sort things out rather than them stewing on it for two weeks and come back and it's becoming a mountain. " [female registrar]

Patient awareness of time spent within clinic was also acknowledged by front desk reception staff.

"I think the main problem is the amount of people who are waiting to come in for an appointment, but in saying that, by the time they come, they are generally happy to be here. I think the way to improve is more clinic time with the doctors" [female receptionist]

3.2.2.3 Empathy

The focus group and interviews supported the notion of empathy as an influential factor for patient satisfaction. Within this context, empathy was described as adopting the perspective of another person in order to understand their beliefs and feelings, and expressing this understanding positively through interpersonal interactions (e.g. communication). Empathy appeared to reinforce interpersonal aspects of the clinical interaction and was closely associated with caring behaviours. Patients in particular, described the importance of empathy within their experience of clinical assessment.

"There was an issue being lifted off the emergency bed onto the ward bed and it really, really hurt. The nurse said with all orthopaedics it's nice if you have a small pain and it's hurting. It was as if it didn't matter." [female patient]

"I thought the nurses were terrific and very empathetic." [female patient]

The importance of empathy was also reinforced by the health care providers.

"Often I hear of people that don't examine their patients and just look at scans and decide to treat them in a particular way and that doesn't make patients feel good. You need to take time to have some empathy, compassion, those sorts of things." [male registrar]

"It's as little as something as just being quite personable to someone, like saying hello, sit down, and just turning on that element....Okay, and then there would be people that are actually are caring and it's just small things like that you appreciate." [Female physiotherapist]

3.2.2.4 Communication

It was clearly evident amongst the participants that communication is an important consideration for patient satisfaction. Within this context, communication encompassed a delivery style that enhanced the exchange of information between the practitioner and client, and maximised clients' comprehension of the content of the information. The narrative data offered evidence that good communication implies sufficient interaction and input from both parties. Patients also inferred that communication was fundamental to feelings of connectedness and inclusion.

"I suppose you come out with a more positive attitude. If you have a surgery done, and he spends x amount of time and says in layman's terms that you actually understand, then you walk away and think, "Oh yeah well yeah." You're already in a positive frame of mind." [male patient]

“Clear communication, so they know what to expect, when they’re coming, what’s happening afterwards. I don’t think we can really to go to every clinician and say, you know, be more friendly. Everyone’s got their own style. It’s about clear communication.” [female patient]

Clinicians also discussed communication as underpinning good clinical practice and patient satisfaction.

“I see a lot of patients privately for second opinions where I see a lot of them where they’ve been given perfectly good advice. They’ve actually had a perfectly good assessment in terms of advice and treatment options. They’re very unsatisfied with service they’ve had because they haven’t felt they’ve been communicated with or listened to properly.” [male consultant]

The importance of communication was recognised by the CAC.

“One of the concerns is communication, but it generally seems to be, if I’m reading the reports we’ve got correctly, more the doctors than the nurses. I’m merely backing up what Mary’s saying that on a nurse level, the interpersonal skills are good. On a doctor level, goodness knows why … Well, you can only imagine why; pressure, and sometimes their attitudes I guess. [Female committee member]”

Volunteer group acknowledged the role of communication in including patient within the clinical process.

“No. If you're sitting there for half an hour or more, and then nobody comes out and says to you, "I'm sorry Mrs. C, you're going to have to be a bit longer." Why can't they do that? Why do they have to sit there and sit behind their little counter, or sit behind the door, and not come out and say? I know they're busy. Everybody is. But surely they could pop their head out the door and say, I'm sorry, I'm going to be a bit longer. Would that hurt ?” [female volunteer]

3.2.2.5 Expectation

The role of expectation influencing levels of patient satisfaction was clearly identified by the participants. The issue of expectation was identified largely by clinicians, where the central issue appeared to be patient dissonance where clinicians were unable to meet expectation.

"That's the kind of patient that comes in expecting an unrealistic expectation that you can't achieve, you can't do anything about it, and they are not gonna be happy whatever you say. There's times when that happens and there's nothing you can do about it." [male registrar]

A registrar recalled an experience as a patient.

"I didn't feel like he had perhaps evaluated the problem to the extent that maybe as a medical student, which I was then, I would expect him to. He recommended an operation on the first occasion despite the fact that I ended up not needing an operation at all." [male registrar]

Clinicians identified that expectations often arise from information provided by the referring doctor. Potentially, this expectation is developed by the actions of referrers seeking to validate their own actions of transferring care.

"The GP who refers them may give them an unrealistic expectation via we'll send you to the orthopod who will fix your problem, which is rarely the case." [male consultant]

3.2.2.6 Trust

Patient satisfaction was said to be underpinned by the degree of trust in the healthcare provider. Trust was defined as an optimistic acceptance that presentation to a clinical service will potentially produce a benefit for the patient. One consultant identified the ritualistic nature of the signing of the consent as inferring trust:

"….and in reality the consent form is really a form that says I trust you. The important part is chatting away and telling what the form is really, basically I recognise that you know what you're doing and you will try your best for me and in my circumstances you would be doing the same." [male consultant]

Patients identified trust as a central theme reflecting vulnerability in regard to a lack of knowledge or alternatives to solve their issue. Some patients referred to trust assumed by association to institution or role.

"If I met them before the operation and I don't recall doing so, I think perhaps someone may have come up and say "We're part of the team" but I'm just in the wash of painkiller so you just trust. I mean I'm been brought up to trust office and trust the decisions and advice." [female patient]

3.2.2.7 Relatedness

The extent to which a patient feels connected to, respected or understood by the clinician was discussed as an important factor for patient satisfaction. Patients, in particular, referred to being respected and validated as an individual with inference to an interpersonal connection or bond. Respect and validation were discussed in a variety of ways by patients.

"It's an act of respect, if someone introduces themselves to you, it's actually that they actually respect you enough to let you know who they are." [female patient]

"I'm laying there on the bed and people are in a circle there and they're all talking about me, but no one's talking to me". That's the impression that people get, so you turn off. It's the major thing with communication, to be able to create that link in the first place." [female patient]

"I was going to say, more like a face to face thing. I could look at their face and think, well I knew that he was actually taking me seriously. It's just like any anyone actually you can tell if you have been validated." [male patient]

”And you've got that connection because you put your trust in him when you had the operation. But then you get this other guy who you've never seen before to assess the leg. It’s like you're in the process with the public system” [male patient]

3.3 Discussion

Several of the themes reported by participants in this study are consistent with recent literature, including the importance of clinic waiting time (McMullen & Netland, 2013; Prentice et al., 2014), clinical time (Kong et al., 2007), communication (Beattie et al., 2002; Hudak & Wright, 2000; Hush et al., 2011; May, 2001; Potter et al., 2003), empathy (Hojat et al., 2010; Pollak et al., 2011), expectation (Hills & Kitchen, 2007b; Noble et al., 2006) and trust (Alrubaiee & Alkaa'Ida, 2011; Chang et al., 2013). These similarities suggest that there are aspects of the clinical experience that appear consistent across contexts and patient groups. Such issues would therefore be important to inform organisational and clinical processes that aim to foster high levels of patient satisfaction. By proportion, however, it is interpersonal issues that dominated key stakeholders’ perspectives of patient satisfaction. This finding is consistent with previous research regarding patient satisfaction (Samsson & Larsson, 2015). The factors identified can be classified into two broad groups, one relating to the clinical environment and the others relating the interpersonal factors. A summary of theme representation across the focus groups is given in Table 7.

Table 7: Summary of theme representation across focus groups

	Consultant	Physio	Nurse	Volunteer	CAC	Registrar	Patient	Reception
Clinical wait time								
Clinic contact time								
Empathy								
Communication								
Expectation								
Trust								
Relatedness								

Legend:

	A few references with acknowledgement of theme within narrative.
	Multiple references and acknowledgement of theme within narrative.
	Strong representation of theme with frequent repetition within group narrative.
	Single reference or no reference within narrative

3.3.1 Clinic environmental factors

Clinical contact time was identified in the present study as an important theme in patient satisfaction. Patient contact time is, however, subjective and potentially influenced by differences in perception, experience and interpretation (Klitzman, 2007). Despite the impression that medical consultation time has reduced over time, there is evidence that this perception may not be the case (Druss & Mechanic, 2003).

Clinical waiting time has been identified by other authors examining factors influential to patient satisfaction. Ware & Hays (1988) refined the earlier work of Ware et al (1983) to develop the Visit Specific Questionnaire (VSQ) which included clinic wait time as a factor or domain. The VSQ has been a widely referenced survey tool and the shortened version (VSQ-9) has been used a basis for modified tools in examining patient satisfaction in orthopaedic triage clinics (Desmeules et al., 2013; Kennedy et al., 2010). Although clinic waiting time was identified in as influential, other studies have suggested that its effect can be moderated through the quality of the subsequent clinical experience (Anderson et al., 2007).

3.3.2 Interpersonal factors

The majority of themes reported by participants in this study concerned interpersonal factors. In particular, empathy was identified as having a significant impact on patient satisfaction. Pollak et al. (2011) reported that behaviours of clinician empathy were associated with autonomy support and higher levels of satisfaction. Hojat et al. (2010) confirmed a significant association between empathic behaviours by physicians and patient satisfaction. Rakel et al. (2011) evaluated the effect of empathy behaviour on the common cold found changes in objective measures of immune response. Derksen et al. (2013), in a systematic review of the effectiveness of empathy in general clinical practice, concluded that despite only a small number of well-designed assessments of the role of empathy, empathy behaviours of physicians are important influence to clinical outcomes.

Communication appears to underpin the concept of the patient-centred management (Bertakis & Azari, 2010) and is fundamental in developing the clinical alliance or bond

(Ackerman & Hilsenroth, 2003; Cooper et al., 2008). Effective communication between a clinician and patient has been associated with improved patient outcomes (McGilton et al., 2009; Mead & Bower, 2002) and has been correlated to high levels of patient satisfaction within primary care (Safran et al., 1998).

Although the exchange of information is critical to the process of clinical assessment, patient responses to the level and type of exchange may vary. Cooper et al. (2008) found that some patients did not want to be consulted in regard to their management options, but would rather rely on the clinician to determine the preferred management plan. For participants in the current study, good communication occurred when clinicians explained sometimes complex issues in a way that they could understand. Collectively, these findings suggest that individual patients may have different preferences with regard to the amount of information received and type of communication from their clinician.

There is evidence that negotiation is one of the primary aims guiding communication. Dean et al. (2005), in qualitative study examining adherence of low back pain patient to therapeutic exercise, found evidence of a bargaining process within the clinical interaction. The authors found evidence that if this process was not resolved satisfactorily there is the potential for dissonance between patients and therapists (Dean et al., 2005). Øien et al. (2011) in a descriptive study examining communication patterns between patients and physiotherapists found suggested that patients commonly negotiated within the clinical interaction process. Patients presenting to an orthopaedic clinic under the expectation of surgery for a condition may well require time to process the proposition of an alternative diagnosis or management plan.

Expectation is derived from a patient's existing beliefs and attitudes regarding the experience and outcome of the clinical consultation. The findings of the current study are consistent with past work that has identified the importance of expectation to patient satisfaction (Hills & Kitchen, 2007a; Noble et al., 2006). Since these beliefs and attitudes are created and sustained by a cognitive process (Thompson & Suñol, 1995), the process by which patients rationalise expectation and experience can potentially influence satisfaction with the consultation. Although the relationship between expectation and satisfaction has been established, it remains unclear whether the

association is purely linear. For example, higher expectations of service do not automatically translate to a negative impact on satisfaction (Knight et al., 2010). The nature of expectation as an ongoing cognitive process may explain differences in association with satisfaction. It is possible that as the experience of the patient widens and interpersonal aspects between clinician and patient develop (through trust, relatedness, and communication), dissonance through expectation and experience may be less likely. Thus, it is important that clinicians attempt to understand and address patients' expectations regarding the clinical assessment (Noble et al., 2006).

In the present study, trust has been identified as a primary driver of patient satisfaction with clinical services (Alrubaiee & Alkaa'Ida, 2011; Chang et al., 2013). Trust may also influence some patient behaviours benefiting the therapeutic process such as willingness to seek care (Trachtenberg et al., 2005), reveal sensitive information (Hall et al., 2002) and adhere to treatment regimes (Trachtenberg et al., 2005). Trust is also conferred by association to an institution or role/profession (Hall et al., 2002) and potentially varies with sociodemographic variables (Alrubaiee & Alkaa'Ida, 2011; Plomp & Ballast, 2010). Rhodes et al. (2015) observed trust could be translated to professional roles when continuity of care with an individual was not possible. Hall et al. (2001) infers a shifting balance between trust through association and expectation, and trust derived through experience.

Relatedness is hypothesised to represent a basic psychological need that must be satisfied for people to experience positive development and outcomes (Ryan & Deci, 2000). In the context of health services, satisfaction of one's need to feel related to others will enhance the patient experience, satisfaction and motivation (Ng et al., 2012). Ryan et al. (2008b) associates the need for relatedness directly to the lack of expertise within patients to interpret complex and technical issues of health, citing that a sense of being respected and cared for are essential to the formation of "trust and connection (Ryan et al., 2008b page 3). Murray et al. (2015) found that physiotherapists trained in communication skills that can satisfy the need for relatedness were more able to support the needs of patients with chronic low back pain. Relatedness also appears to share parallels with the concept of the therapeutic alliance or bond (Del Re et al., 2012). Central to this alliance is the formation of an affective bond between therapist and patient (Del Re et al., 2012). A positive

therapeutic alliance has been associated with improved satisfaction and clinical outcomes (Hall et al., 2010).

3.3.4 Conclusion

The results of this phase of the study emphasise the importance of interpersonal factors influencing patient satisfaction with orthopaedic outpatient clinic services. These factors are important for health administrators to inform service improvement and for clinicians to consider when reflecting on patient management. By understanding how these themes influence the therapeutic process clinicians may able to align both perception and patient behaviour to clinical advantage. Further work is required to integrate the themes identified in this study into a standardised questionnaire to evaluate patient satisfaction with orthopaedic outpatient clinic services. The use of a ground up phenomenological approach (Petty et al., 2012) to examine the patient experience of orthopaedic services offers key insights that could be used to shape and teach practitioner behaviours. Consideration of these perspectives may also avoid or alter paternalistic approaches to clinical practice (Thomson et al., 2014).

Chapter 4.0

Part B: Survey development

4.1 Methodology

4.1.1 Background

The issues generated by the focus group and interview process identified themes or factors considered salient for patient satisfaction within orthopaedic assessment. To facilitate assessment and evaluation of these factors, clear definitions of these concepts are required. Concept definitions provide an important foundation upon which to develop items or statements that can operationalise those factors within a self-report format. These items regarding patient satisfaction can then be submitted to a cohort of patients attending an orthopaedic clinic to assess reliability and validity evidence.

To assess those factors identified, a global reference point for patient satisfaction will be required. Two questions are proposed as a global reference point for patient satisfaction. The first is a question capturing overall or global satisfaction with the clinical assessment. The use of a global measures of satisfaction within questions of dimensionality is supported by Hudak & Wright (2000) in their framework for survey design. The authors described the direct and simple nature of a global rating of satisfaction without giving detail to what factors were influenced that rating.

The second question related to the likelihood that the patient would recommend the service to others. Within the business literature, satisfaction has been associated with willingness to recommend (Anderson & Mittal, 2000). In terms of clinical services, a proposed assumption is that patients, as consumers of health services, will behave in a similar manner to consumers of other services and engage in positive recommendation if satisfaction with that service is positive. Ferguson et al. (2007) evaluated the correlation between satisfaction with care and word of mouth behaviour within a cohort of surgical hernia repairs in Canada, and found that ratings of patient satisfaction aligned to changes in levels positive word of mouth behaviours ($f = 21.5$, $p < .001$)

(Ferguson et al., 2007 , page 71). Jorina (2013) evaluated the relationship between satisfaction and willingness to recommend within hospital settings in the US. The author concluded that overall satisfaction with care was significantly and positively associated with willingness to recommend (*r* =.81) (Jorina, 2013 , page 149). Similar associations between the process of care, patient satisfaction and willingness to recommend have been demonstrated by a number of other studies (Jenkinson et al., 2002; Tung & Chang, 2009). Therefore, willingness to recommend a service is proposed as a key correlate of global satisfaction.

In considering the influence of these factors on a patient cohort, the characteristics or profile of that cohort should also be considered. There is evidence to suggest that some clinical characteristics of patients may influence or be associated with patient satisfaction. Hush et al. (2011) examined characteristics of sub groups of patients in a systematic review of satisfaction with musculoskeletal physiotherapy. The authors found that patients with chronic conditions tended to report lower levels of satisfaction than those with acute conditions. Similar findings have been reported by studies evaluating satisfaction in chronic pain patients as a separate clinical entity (George & Hirsh, 2005; Hills & Kitchen, 2007c). McCracken et al. (1997) developed a specific survey instrument to evaluate levels of satisfaction in this clinical group. The authors found associated depression, number of physician visits and disability as factors impacting on patient satisfaction. In a review of patient satisfaction in primary care, Hopton et al. (1993) proposed that both illness type and the level of patient distress would need to be accounted for in evaluations of patient satisfaction. Patients with chronic pain and chronic musculoskeletal disorders have been shown to demonstrate different patterns of expectation and clinical service needs (Briggs et al., 2011; Cooper et al., 2009; O' Brien et al., 2010; Oosterhof et al., 2014). These findings suggest that clinical issues such as symptom duration may influence patient satisfaction. Therefore, any patient satisfaction data collected by a survey instruments should be referenced against the chronicity of the condition.

Within the current literature, there is no clear consensus with regard to the threshold of illness duration defining a chronic orthopaedic condition. Hills & Kitchen (2007c), in a qualitative study examining influences on satisfaction, defined a group of chronic musculoskeletal patients by 6 months duration of the symptoms. Hazard et al. (2012),

in evaluating the influence of goal attainment in a chronic spinal pain cohort, defined chronicity as a duration of symptoms for 3 months or greater. O' Brien et al. (2010), in a study evaluating patient perspectives of treatment outcome in a chronic pain cohort, evaluated a spine pain group with an average duration of greater than 5 years. For the purposes of this study, therefore, chronicity will be defined as at least 6 months duration of symptoms, given broader similarities in the patient cohort to be considered.

Research has indicated that gender may influence patient satisfaction, however, the influence of gender appears to be inconsistent. In a meta-analysis of the demographics of patient cohorts used in patient satisfaction studies, Hall & Dornan (1990) found that female patients generally reported lower levels of satisfaction. In contrast, Hills & Kitchen (2007c) found that satisfaction amongst female patients were higher when associated with organisational and communication domains. Male patient satisfaction was associated with therapist traits and treatment outcome. It is therefore possible that the influence of gender within a surveyed group may depend on the domain or items examined.

Patient age appears to have clearer associations with satisfaction. Research has demonstrated a tendency for older patients to report more positive levels of satisfaction (Cohen, 1996; Hekkert et al., 2009; McKinnon, 2001). Some authors have reported this age-related trend to be modified by patient health status (Jaipaul & Rosenthal, 2003), although this relationship was weak (Cohen, 1996). Abtahi et al. (2015), in a study of over 12,000 outpatient encounters, demonstrated a strong correlation between age and patient satisfaction in a cohort of patients attending outpatient orthopaedic services. Therefore, there is strong support for the inclusion of age profiling within any survey of patient satisfaction.

4.1.2 Design

Consistent with recommendations for test construction (Davis, 1992), academic experts (e.g., psychology, physiotherapy) or clinicians (e.g., physiotherapist, surgical consultant) provided their perceptions of the degree to which the items were representative of the target construct domain. First, the student and his supervisor generated conceptual definitions of the themes identified through interviews conducted

in Part A. These provisional definitions were then referenced to the existing literature and enhanced where required to ensure consistency. Second, the researchers then generated a number of statements to capture the necessary and essential attributes of each dimension of patient satisfaction. Several statements were generated for each dimension to ensure adequate breadth and depth of conceptual coverage. In all 68 items were generated through this process. Each item was reviewed for clarity and relevance against the proposed thematic definition. Third, experts were asked to rate the quality of the conceptual definitions (e.g. comprehensibility) and each item statement for clarity against the proposed thematic definition. The clarity of the definitions and item statements was assessed within a trinomial response of yes, no or unsure. The relevance of particular statements to the intended domain of patient satisfaction was rated across a 5 point response scale where 0 was very poor and 4 was very good. These ratings were then tabled against a framework to capture the responses of the contributing expert. Full details of statements and themes presented to each expert are given (Appendix 7). The validation phase of the study used a cross-sectional survey design to evaluate the patient experience of orthopaedic assessment with either a medical clinician or a physiotherapist within an orthopaedic clinic across 2 clinical l facilities.

4.1.3 Participants

The expert group comprised 8 participants from academic and clinical backgrounds. The academic experts consisted of 4 research psychologists with expertise in qualitative analysis and scale development, and 2 academic physiotherapists with experience in clinical research. The clinical experts were a clinical nurse practitioner and an orthopaedic surgeon. All participants within the expert group had at least 10 years of experience within their area of professional practice and salient postgraduate qualifications. None of the participants within the expert group participated in the focus groups sessions reported in Chapter 3.0. All participating experts offered informed consent (Appendix 5).

4.1.3.1 Recruitment of patients

The scale validation phase sought a total of 250 participants aged 18 – 65 years. Patients were recruited from referrals to the orthopaedic outpatient clinics at Fremantle Hospital Health Service (FHHS) and Sir Charles Gardiner Hospital (SCGH) in Perth Western Australia. The recruitment of patients was undertaken within the normal operation of the orthopaedic clinics. Patients were sent a letter of appointment noting either registrar clinic or triage clinic. This appointment letter is part of the normal process of clinic appointment at orthopaedic clinic across both SCGH and FHGHS. At presentation to the clinic, each patient was asked for consent for participation by an assistant who was unaffiliated with the study. The study requirements and rationale were explained to potential participants, and those individuals who agreed to be included in the study were given written information about the study and asked to provide written consent (Appendix 7). Patients who were not suitable physiotherapy triage included those with reference to a compensable injury, acute or high velocity trauma, malignancy, fracture, previous surgery related to the referred condition or previous review of the some condition within the past 6 months. Patients whose communication skills do not allow comprehension of the consent form or impede the ability to complete a written survey (i.e., cognitive disability) were also excluded. The consent form included information about the study and the requirements of the survey. Where possible, patients participating within the study were appointed consecutively to the clinic. Clinicians were blinded as to whether patients were study participants. The survey was posted to the patient immediately following the initial consultation and included a pre-paid return envelope. Participation in the study did not hinder or change the course of clinical management of the patient.

4.1.4 Data collection and security

Storage of the data complied with the Practice Code for the Use of Personal Health Information (2009) in accordance with WA Health Research Governance Policy and Procedures (2012; OD 0411/12) and the West Australian University Sector Disposal Authority (SD 2011011).

4.1.5 Data analysis

An examination of the degree to which an indicator is representative of the target construct is an important part of scale development (Haynes et al., 1995). As such, experts' ratings of the adequacy of the content domain sampling were subjected to statistical analysis to ascertain the level of agreement using r_{wg} (James et al., 1984). Items were considered for retention when $r_{wg} > .80$ and the average rating score was > 3.0 This statistical criterion was complemented by qualitative feedback from the experts in terms of substantive (e.g., relevance to intended dimension) and grammatical (e.g., comprehension) aspects of the statements that could be strengthened (Delgado-Rico et al., 2012). The aim was to retain at least three items for each factor based on the aforementioned statistical criteria and substantive content so as to ensure an adequate breadth of content domain yet maintain a brief measure for future research.

The retained items were tested for their factorial structure in a sample of patients. All items were rated on a 7-point scale (1 = strongly disagree, 2 = disagree, 3 = disagree slightly, 4 =- neutral, 5 = slightly agree, 6 = agree, 7 = strongly agree), with the exception of the clinic waiting time item ("Please indicate how long you believe you waited for the clinician": 1 = 3 hours or greater, 2 = 2 hours, 3 = 1 hour, 4 = 30 mins, 5 = 15 minutes, 6 = 15 mins). Factorial validity and internal reliability evidence (ω; (McDonald, 1970) of the patient satisfaction scale was examined using confirmatory factor analysis with a robust maximum likelihood estimator (Kiran et al.). Missing data were handled with full-information maximum likelihood (Enders & Bandalos, 2001) The a priori model of interest was a lower-order, six-factor structure that is consistent with the qualitative findings of Waters et al. (2016). Specifically the model included a latent factor each for the concepts of time with clinician, empathy, communication, expectation, trust, and relatedness. Alternative configurations were considered on an ad hoc basis where appropriate (e.g., poor model-data fit, model convergence issues). Model-data fit was assessed using established indices, namely the χ^2 goodness-of-fit index, comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA). According to typical interpretation guidelines for model-data fit (Browne & Cudeck, 1993; Marsh et al., 2005; Tabachnick, 2007) , values of CFI/TLI ≥ .90 and RMSEA ≤ .06 (with the upper bound of the 90% RMSEA

confidence interval ≤ .10) provide evidence of adequate or acceptable overall fit. As an initial first look into convergent validity evidence, scores on patient satisfaction were correlated with global satisfaction ("How would you rate your overall level of satisfaction with the orthopaedic service"; 1 = strongly dissatisfied to 7 = highly satisfied). Service recommendation ("How likely would you be to recommend the orthopaedic service to a friend or family"; 1 = highly unlikely to 7 = highly likely) was also considered within a structural equation modelling framework. These analyses were performed in M*plus* 7.4 (Muthén & Muthén, 2012).

Four group associations within the data were examined. For continuous variable such as age and duration of condition, regression analysis was undertaken against each of the five factors retained. The strength and direction was the association was assessed by a correlation coefficient. For discrete data such as gender, site of data collection and clinic type (medical or triage), differences were assessed using ANOVA (one tailed) and Welch's T test for unequal variance (Delacre et al., 2017) with a significance threshold of $p = < .05$. All analyses were performed using SPSS.

4.2 Results

4.2.1 Results of expert review

4.2.1.1 Thematic Definitions

A summary of the expert panel ratings is presented in Table 8. Overall, the experts' perceptions of the thematic definitions were supportive of the clarity of these statements.

Table 8: Clarity ratings of thematic definitions by the expert panel

	Yes	No	Unsure
Trust	7		1
Empathy	8		
Relatedness	7		1
Sufficient Time (Clinical contact time)	8		
Communication	8		
Clinic Waiting Time	7		1
Expectation	7		1

Comments offered by the experts suggested potential overlap between the interpersonal themes of communication, empathy, trust and relatedness. For example, "Need to be careful of conceptual overlap with empathy here." Another reviewer noted, "My recommendation is to make your 'empathy' category a 'doing' section (i.e., showing concern/understanding), whereas your relatedness items could reflect 'feelings' (i.e., feeling understood/connected)." Comments in relation to communication were "potential overlap with empathy relatedness or overlap with empathy". Although the majority of reviewers supported the clarity of the proposed definitions, some revisions were made to definitions of empathy and trust. These changes are presented in Table 9.

Table 9: Summary of definition modification as a result of expert group feedback

Dimension	Proposed definition	Revised definition
Clinical wait time	The time taken from arrival in the clinic to consultation with the clinician.	The time taken from arrival in clinic to consultation with the clinician.
Sufficient time (Clinical contact time)	Refers to a patient's evaluation of whether the duration of their time with the clinician was sufficient to adequately satisfy their expectations of the consultation.	Refers to a patient's evaluation of whether the time of consultation was sufficient to adequately satisfy their expectations of the consultation.
Communication	Content of information and delivery style that enhances the exchange of information and comprehension between the clinician and client.	A process of interpersonal interaction enhancing the exchange of information between a clinician and a patient.
Empathy	Adopting the perspective of another person in order to understand their beliefs and feelings, and expressing this understanding positively through interpersonal interactions (e.g., communication).	Adopting the perspective of another person in order to understand their beliefs and feelings, and expressing this understanding in positively through the practitioner-client interaction (e.g., communication). The expression of empathy between patient and clinician may occur from either party.
Relatedness	The extent, to which a patient feels connected to, respected or understood by the clinician.	The extent, to which a patient feels connected to, respected or understood by the clinician.
Trust	An optimistic acceptance of a vulnerable situation in which the patient (Trustor) believes that the clinician/institution (Trustee), based on a set of beliefs and expectations, will act in ways to enable the best possible outcome for their problem or condition (derived from Hall et al 2001).	A set of beliefs and expectations held by a patient (Trustor) that the actions of another (Trustee) will be beneficial to one's self-interest, especially in situations in which the Trustee must be counted on to assess risk and provide unique benefits (modified from Kramer and Carneyale, 2001). Trust can be assumed to an individual's associations and roles.
Expectation	A patient's existing beliefs and attitudes regarding expectations of the experience and outcome of the clinical consultation.	A patient's existing beliefs and attitudes anticipating the outcome and experience of the consultation.

4.2.1.2 Adequacy of the content domain

Of the original 68 items, the experts indicated that 25 of these statements were highly relevant for the content domain of the intended target (r_{wg} > .80; $M_{ratings}$ > 3). Consideration of the statistical criteria and substantive content resulted in the retention of 21 items. Details of the decision-making processes are provided in the following sections.

4.2.1.3 Environmental items

Following assessment by the expert panel the following results were obtained for environmental factors and are detailed in Table 10. Statements retained for environmental related factors are contained in Table 11. A further statement of "I was kept waiting too long to see the clinician" was added to increase the number of items to three which is proposed as an acceptable number of items for each factor (Comrey, 1988).

Table 10: Number of environmental items assessed and retained

Theme/Factor	No. statements assessed	No. statements retained
Clinic waiting time	5	2
Clinical contact time	10	3

Table 11: Environmental items retained

Dimension	Questions retained
Clinical wait time	Please indicate how long you believe you waited for the clinician. I felt comfortable with the time I had to wait.
Sufficient time (Clinical contact time)	I felt like the clinician dedicated enough time to me during the consultation. I had enough time with the clinician to ask all the questions I had about my condition. The clinician did not seem like he or she was rushed during my consultation.

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4.2.1.4 Interpersonal items

For interpersonal factors the following results were obtained (see Table 12). The experts offered several minor suggestions to enhance the grammatical and conceptual precision of the statements that met these statistical criteria. For example, the statement “I felt at ease with the clinician during my assessment” was amended to “The clinician took the time to make me feel at ease” to align the substantive nature of this item with the behavioural focus of the definition of empathy.

Two experts described potential overlap between the items of interpersonal factors and empathy, and offered suggestions to maximise distinctiveness. Two statements were altered on the basis of comments from the expert panel. The statement “I was pleasantly surprised by my experience in the consultation” was changed to “my experience in the clinic was better than I expected”. Both original and modified statements reference to the attitudinal aspect of expectation (Linder-Pelz & Struening, 1985), yet it was accepted that not all aspects of clinical assessment would “pleasantly” surprise all patients. The statement “I need more to be done to solve my problem” was changed to “I expected that more could have been done to assess my problem” to

reflect the context of assessment within the clinic. A summary of the outcome of the expert panel's assessment of interpersonal items is presented in Tables 12 and 13.

Table 12: Number of interpersonal items assessed and retained

Theme/Factor	No. statements assessed	No. statements retained
Empathy	15	3
Communication	12	3
Expectation	8	3
Trust	10	3
Relatedness	8	3

Table 13: Interpersonal items retained

Dimension	Questions retained
Empathy	I felt that the clinician was genuinely interested in how my problem was affecting my life. This clinician took the time to make me feel at ease. This clinician demonstrated a willingness to understand my concerns.
Communication	It was easy to talk to the clinician who assessed me. The clinician sought my input during the consultation process. The clinician took the time to explain things in terms I could understand.
Expectation	My experience in the clinic was better than expected. I expected more could have been done to assess my problem. My expectations were taken into consideration in the consultation process.
Trust	I trusted that the clinician has the expertise to identify the best solution for my circumstances. I felt as though I could trust the clinician who assessed me to do what is best for my condition. I trusted that this clinician will be able to identify alternative solutions if my circumstances change.
Relatedness	I got the sense that the clinician cared about me rather than seeing me as just another patient. When I arrived the clinician introduced themselves by telling me their name. I got the sense that the clinician I saw respected me as a person.

4.3 Construction of the survey

The process of the expert group and the post analysis review identified 21 items to operationalise the 7 factors previously identified as characterising patient satisfaction within the context of an outpatient orthopaedic clinic. A summary of the retained items is presented in Table 14.

Table 14: Summary of items retained

Draft Item No.	Survey Item No.	Theme/Domain n=7 Statement	Communication	Trust	Relatedness	Suff. Clin. Time	Empathy	Wait time	Expectation
1	1	Please indicate how long you believe you waited for the clinician						1	
2	2	I was comfortable with the time I had to wait.						2	
5	3	I was kept waiting too long to see the clinician.						5	
3	4	I felt like the clinician dedicated enough time to me during the consultation.				3			
4	5	I had enough time with the clinician to ask all the questions I had about my condition.				4			
7	6	The clinician did not seem like s/he was rushed during my consultation.				7			
27	7	The clinician sought my input during the consultation process.	27						
29	8	The clinician explained medical terms in a language that easy for me to understand.	29						
30	9	It was easy to talk to the clinician who assessed me.	30						
12	10	The clinician took the time to make me feel at ease.					12		
20	11	The clinician demonstrated a willingness to understand my concerns.					20		
24	12	I felt like the clinician was genuinely interested in how my problem was affecting my life.					24		
15	13	When I arrived, the clinician introduced themselves by name.			15				
17	14	I got the sense that the clinician I saw respected me as a person.			17				
18	15	I got the sense that the clinician cared about me rather than seeing me as just another patient.			18				
11	16	I felt as though I could trust the clinician who assessed me to do what is best for my condition.		11					
13	17	I trusted that the clinician has the expertise to identify the best solution for my circumstances.		13					
25	18	I trusted that this clinician will be able to identify alternative solutions if my circumstances change.		25					
32	19	My experience in the clinic was better than I expected.							32
33	20	I expected that more could have been done to assess my problem.							33
34	21	My expectations were taken into consideration in the consultation process.							34
		n=21	3	3	3	3	3	3	3
			Communication	Trust	Relatedness	Suff. Clin. Time	Empathy	Wait time	Expectation

A draft survey was constructed with a preamble and badging consistent with the requirements of the Southern Metropolitan Health Service (SMHS) and Northern Metropolitan Health Service (NMHS) governance and ethics bodies. The survey was constructed in 5 sections each with a preamble to direct the participant in regard to the context of the responses. Demographic question were added regarding age, gender, area that was examined, duration of symptoms and whether the presentation was part of a compensation claim. Two global questions were added to the survey asking the patient to rank overall satisfaction with the service and willingness to recommend the service.

The draft survey was then piloted on 6 patients within an orthopaedic outpatient clinic for clarity. No wording changes were recommended from these individuals. The final draft was printed and coded with each consent form to allow identification of the site of origin and individual participants without directly identifying details of that individual. A copy of the complete survey package sent to patients is contained in Appendix 8.

4.4 Results of validation sample

4.4.1 Participant profile

The total number of surveys issued to patients across both sites was 323 (FHHS = 173, SCGH = 150), with 101 surveys completed and returned (i.e., return rate of 31.27%). The response rate was lower at the SCGH site was 10% (n = 15) compared to FHHS 49.7% (n = 86). The average age of participants was 48.9 years, with a total 33.7% (n = 34) of patients aged under 45 years. Of the surveys returned, 28.7% were male (n = 29) and 71.3% were female (n = 72). Chronic conditions (> 6 months duration) accounted for 66.3% (n = 67) of the profile. Within the group surveyed, 38.6% (n = 39) were accessed from an orthopaedic triage setting and 61.4% (n = 62) from an orthopaedic registrar clinic. A clinical profile of the survey group is given in Table 15.

Table 15: Clinical profile of participants within validation sample

Clinical region	n	%
Spine	3	3.0%
Shoulder	34	33.7%
Upper limb	7	6.9%
Hip/Pelvis	10	9.9%
Knee	29	28.7%
Lower limb	18	17.8%

4.4.2 Psychometric Properties

4.4.2.1 Item level analyses.

Missing responses at the item level represented 1.93% of all available data. Participants with greater than 15% of missing data on the 21 patient satisfaction items were excluded from the main analyses (n = 3). Thus, the analyses were performed on 98 participants. Item level descriptive statistics for the 21 survey items are displayed in Table 16. The skewness and kurtosis values support an approximate normal distribution for each item.

Table 16: Descriptive statistics for item responses

		N	Min	Max	Mean	St Dev	Skewness		Kurtosis	
	Item	**Stat.**	**Stat.**	**Stat.**	**Stat.**	**Stat.**	**Stat.**	**Std.Error**	**Sta.**	**Std.Error**
1	I felt like the clinician dedicated enough time to me during the consultation.	97	1.00	7.00	5.93810	1.42752	-1.600	0.245	1.933	0.485
2	I had enough time with the clinician to ask all the questions I had about my condition.	98	1.00	7.00	5.83670	1.58403	-1.568	0.244	1.567	0.483
3	The clinician did not seem like s/he was rushed during my consultation.	98	1.00	7.00	5.07140	1.96490	-0.768	0.244	-0.751	0.483
4	The clinician sought my input during the consultation process.	96	1.00	7.00	5.71880	1.58747	-1.410	0.246	1.328	0.488
5	The clinician explained medical terms in a language that easy for me to understand.	96	1.00	7.00	5.85420	1.47241	-1.581	0.246	2.151	0.488
6	It was easy to talk to the clinician who assessed me.	96	1.00	7.00	5.92710	1.62380	-1.793	0.246	2.165	0.488
7	The clinician took the time to make me feel at ease.	98	1.00	7.00	5.31630	2.01334	-1.087	0.244	-0.198	0.483
8	The clinician demonstrated a willingness to understand my concerns	97	1.00	7.00	5.23710	2.01956	-1.044	0.245	-0.217	0.485
9	I felt like the clinician was genuinely interested in how my problem was affecting my life.	98	1.00	7.00	5.12240	2.09696	-0.912	0.244	-0.563	0.483
10	When I arrived, the clinician introduced themselves by name.	98	1.00	7.00	5.76530	1.94142	-1.559	0.244	1.018	0.483
11	I got the sense that the clinician I saw respected me as a person.	98	1.00	7.00	5.45920	1.99571	-1.325	0.244	0.356	0.483
12	I got the sense that the clinician cared about me rather than seeing me as just another patient.	97	1.00	7.00	5.18560	1.95432	0.933	0.245	-0.405	0.485
13	I felt as though I could trust the clinician who assessed me to do what is best for my condition.	98	1.00	7.00	5.35710	2.06218	-1.135	0.244	-0.166	0.483
14	I trusted that the clinician has the expertise to identify the best solution for my circumstances.	98	1.00	7.00	5.50000	1.90631	-1.404	0.244	0.740	0.483
15	I trusted that this clinician will be able to identify alternative solutions if my circumstances change.	98	1.00	7.00	5.21430	2.02179	-1.071	0.244	-0.186	0.483
16	My experience in the clinic was better than I expected.	97	1.00	7.00	4.90720	1.92073	-0.712	0.245	-0.658	0.485
17	I expected that more could have been done to assess my problem.	97	1.00	7.00	4.87630	1.88888	-0.595	0.245	-0.812	0.485
18	My expectations were taken into consideration in the consultation process.	97	1.00	7.00	4.89690	1.90659	-0.706	0.245	-0.654	0.485
19	Please indicate how long you believe you waited for the clinician.	94	1.00	6.00	4.27660	1.23918	-0.234	0.249	-0.664	0.493
20	I was comfortable with the time I had to wait.	99	1.00	7.00	5.41410	1.75552	-1.084	0.243	0.185	0.481
21	I was kept waiting too long to see the clinician.	98	1.00	7.00	5.56120	1.78231	-1.129	0.244	0.133	0.483
	Valid N (listwise)	86								

4.4.2.2 Factorial structure.

An analysis of the lower-order, seven-factor structure represented a good fit with the data, χ^2 (168) = 280.383, p <.001, CFI = .935, TLI = .919, RMSEA = .082 (90% CI = .065 to .099), however, this model was flagged as not positive definite, owing to a correlation between empathy and trust that was greater than 1. Additionally, the latent variable correlations between relatedness↔trust (.99) and relatedness↔empathy (.98) approached 1, thereby indicating minimal distinction between these factors. These 3 factors were collapsed as a single latent variable in subsequent analyses, referred to hereafter as therapeutic relationship; the lower-order, five-factor structure represented a good fit with the data, χ^2 (179) = 228.97, p <.001, CFI = .937, TLI = .926, RMSEA = .079 (90% CI = .062 to .095). Standardised factor loadings and internal reliability estimates (ω) for the final 21 item, five-factor solution are detailed in Table 17. Latent factor correlations supported low-to-moderate positive associations between clinical time↔therapeutic relationship (r = .24, p = .024), clinical time↔expectations (r = .39, p=.001), clinic waiting time↔time (r=.47, p<.001), and clinic waiting time↔communication (r = .28, p = .035); large relations between time↔communication (r = .63, p <.001) and expectations↔therapeutic relationship (r = .82, p <.001); and non-salient associations between therapeutic relationship↔communication (r = .07, p = .502), expectations↔communication (r = .14, p = .225), clinic waiting time↔therapeutic relationship (r = .09, p = .468), and clinic waiting time↔expectations (r = .23, p = .080).

Table 17: Standardised factor loadings

		Therapeutic Relationship	Time	Communication	Expectations	Clinic Waiting Time
1	I felt as though I could trust the clinician who assessed me to do what is best for my condition.	.932				
2	I trusted that the clinician has the expertise to identify the best solution for my circumstances.	.910				
3	I trusted that this clinician will be able to identify alternative solutions if my circumstances change.	.930				
4	The clinician took the time to make me feel at ease.	.928				
5	The clinician demonstrated a willingness to understand my concerns.	.982				
6	I felt like the clinician was genuinely interested in how my problem was affecting my life.	.938				
7	When I arrived, the clinician introduced themselves by name.	.819				
8	I got the sense that the clinician I saw respected me as a person.	.953				
9	I got the sense that the clinician cared about me rather than seeing me as just another patient.	.929				
10	I felt like the clinician dedicated enough time to me during the consultation.		.968			
11	I had enough time with the clinician to ask all the questions I had about my condition.		.867			
12	The clinician did not seem like s/he was rushed during my consultation.		.400			
13	The clinician sought my input during the consultation process.			.902		
14	The clinician explained medical terms in a language that easy for me to understand.			.912		
15	It was easy to talk to the clinician who assessed me.			.955		
16	My experience in the clinic was better than I expected.				.826	
17	I expected that more could have been done to assess my problem.				.649	
18	My expectations were taken into consideration in the consultation process.				.890	
19	Please indicate how long you believe you waited for the clinician					.884
20	I was comfortable with the time I had to wait.					.683
21	I was kept waiting too long to see the clinician.					.699
	Omega	.98	.81	.94	.83	.80

4.4.2.3 Convergent validity evidence.

An analysis of the lower-order, five-factor structure together with observed scores for global satisfaction and service recommendation represented a good fit with the data, χ^2 (211) = 329.41, p <.001, CFI = .937, TLI = .925, RMSEA = .075 (90% CI = .059 to .091). Global satisfaction was associated with higher levels of therapeutic relationship (r = .26, p = .005), clinical time (r =.49, p <.001), communication (r =.48, p <.001), expectations (r = .38, p <.001), and clinic waiting time (r =.35, p <.001). Similar associations were observed for service recommendation and the patient satisfaction dimensions: therapeutic relationship (r =.21, p = .034), time (r =.48, p <.001), communication (r =.45, p <.001), expectations (r = .36, p <.001), and clinic waiting time (r =.35, p <.001). Global satisfaction and service recommendation were correlated positively (r = 87, p <.001).

4.4.2.4 Analysis of group associations

Statistically meaningful associations were demonstrated for profession with regard to clinic contact time (β = .38, 95% CI = .22, .55), such that the patients rated clinical contact time more highly with the triage physiotherapists; site with regard to clinical contact time (β = -.22, 95% CI = -.38, -.07), such that patients at FHHS rated clinical contact time higher than patients at SCGH; profession with regard to communication (β = .28, 95% CI = .08, .48), such that patients rated communication higher with triage physiotherapists than with surgical registrars; and profession with regard to clinical wait time (β = .37, 95% CI = .14, .60), such that patients rated clinical wait time higher for triage clinics than for surgical clinics. A summary of the statistical analysis of groups within the survey data is presented in Table 17. No other associations of statistical significance were demonstrated. Item level descriptive statistics are contained in Appendix 9.

Table 18: Descriptive statistics for group associations across factors

	Therapeutic relationship		Communication		Expectation		Clinic wait time		Clinical contact time	
Statistical Measure	β	SE	β	SE	β	SE	β	SE	β	SE
Age	-0.14	0.134	-0.076	0.097	0.11	0.137	0.09	0.115	0.012	0.112
Duration of symptoms	-0.110	0.148	0.134	0.111	-0.129	0.155	-0.012	0.136	0.097	0.067
Gender	-0.039	0.103	0.125	0.12	-0.010	0.111	-0.107	0.101	0.045	0.097
Profession	0.1	0.115	**0.277***	0.103	0.101	0.118	**0.367***	0.117	**0.381***	0.084
Site	-0.082	0.129	0.058	0.181	-0.077	0.154	0.055	0.175	**-0.221***	0.079

*** denotes p <.05**

4.5 Discussion

4.5.1 Environmental factors

4.5.1.1 Clinic waiting time

The results of this study support the inclusion of clinic waiting time in assessments of patient satisfaction within orthopaedic or orthopaedic triage settings. This finding is consistent with a number of studies evaluating the influence of clinic waiting time on levels of patient satisfaction (Bar-Dayan et al., 2002; McMullen & Netland, 2013; Thompson & Yarnold, 1995). This finding supports qualitative evidence from focus group and individual interviews identifying clinic wait time as influential to patient satisfaction (Waters et al., 2016). Clinic waiting time appears as a factor in a number of patient satisfaction survey tools (Beattie et al., 2005; Garratt et al., 2005; Ware & Hays, 1988), yet has not been included in assessments of patient satisfaction with orthopaedic services. Although clinic waiting time is included in the VSQ-9, which is used as the basis for a number of patient satisfaction surveys in orthopaedic triage, this factor was excluded by Kennedy et al. (2010) and by subsequent studies referencing the VSQ-9 (Desmeules et al., 2013; Razmjou et al., 2013).

Clinic waiting time was moderately correlated to both clinical contact time and communication, such that as waiting time increased both clinical contact time and

communication trended negatively. It is possible that patient perceptions of waiting time may direct an attitudinal influence on ratings of communication and clinical contact time. An explanation for this interpretation could be derived from the conceptual basis of patient satisfaction offered by Equity theory (Swan et al., 1985). For some patients, clinic wait time may represent an opportunity cost in terms of work or family. The relative nature of this "cost" may be also influenced by the degree of acuity or functional loss associated with the condition. If a patient's attitudes evolve as a result of these "cost" factors being extended, then this attitude may influence perceptions of communication or clinical contact time and subsequently levels of satisfaction. This attitudinal effect may play into perceptions of communication directly as the primary process by which the interpersonal interaction takes place. This issue was captured by clinician input within the focus group process (Waters et al., 2016 , page 50).

I think the key things are how long they've waited to come in the first time, how long they've been in the waiting room, because I think it's very hard to have a satisfied patient who's sat there for four hours before they've seen you, they're never satisfied." [male consultant]

"People who wait for three hours in clinic will almost invariably come in and have more issues. They'll have more problems and I find more complications than those who get seen swiftly and get moved sort of efficiently and timely." [male consultant]

There is evidence that this attitudinal response of a patient can be influenced by other factors within the clinical interaction. In an evaluation of the relationship between clinician communication styles and patient attitude, Cousin et al. (2012) found that the patient perception of care could be influenced by communication styles regardless of patient attitude, implying a dynamic process within the clinical interaction. This process appears to be derived from a summation of what is received against time spent waiting. In other words, although patients may have an extended wait (at the expense of their time), the input they received (from the clinician time) may be perceived as 'worth the wait'. This relationship between waiting time and the mitigating effect of care has been noted in past work (Saxon et al., 2014; Thompson et al., 1996b). It is possible that this relative cost and input could explain higher levels of satisfaction with older patients (Cohen, 1996; Hekkert et al., 2009; McKinnon, 2001) who may relate lower levels of

opportunity cost to their time and result in lower levels of clinical input sustaining their level of satisfaction with a clinical service.

4.5.1.2 Clinical contact time

Comparison to previously identified patient satisfaction scales (Chapter 2.0) demonstrated that clinical contact time is represented as a factor in only one satisfaction survey scale (Deyo & Diehl, 1986). The same survey was subsequently used by Sephton et al. (2010) to assess patient satisfaction in an orthopaedic triage setting, although did not report specifically on the influence of contact time as a separate entity. Clinical contact time was not included as a factor in any of the published literature assessing patient satisfaction in orthopaedic clinics.

Focus groups have identified that the issue of clinical contact time is driven by the patient requirements of the clinical interaction (Waters et al., 2016). The findings of this study suggest that the requirement for sufficient clinical contact time may be a function of how other factors such as the therapeutic relationship and perspectives of communication develop through the clinical interaction. This interpretation is reflected is the patient statements collected within the focus group (Waters et al., 2016, page 50).

“If you're feeling like you're rushed in and out, I don't think you develop the trust as much. I don't think you feel like they're maybe going to do the best work for you.” [female patient]

The competing elements of extended clinical wait times and the expectations of patients regarding time with clinicians are a potential source of discontent for both patients and clinicians. The potential risk for clinics failing to run by the appointed patient times is that clinicians may reduce clinical contact time and opportunities for communication to ensure they run on time. The potential conflict between patient time and clinician time pressures was identified by focus group input (Waters et al., 2016, page 51).

So time pressures, I think, is the biggest issue, because you don't have time to listen to everyone's problems; and if you listen to what they have to say, then quite often you can sort things out rather than them stewing on it for two weeks and come back and it's becoming a mountain [female registrar]

Mira et al. (2014) evaluated barriers to communication in a cross sectional study and found that reduced consultation time was a primary obstacle identified by patients in regard to communication with doctors. Previous research has demonstrated that meeting or exceeding patient expectations of contact time positively influences patient satisfaction (Arthur & Clifford, 2004; Chen-Tan et al., 2001).

4.5.2 Interpersonal Factors

4.5.2.1 Therapeutic relationship

Explicit items or statements of empathy were included in three of the patient satisfaction survey tools identified (Chapter 2) (ACSQHC, 2014; Deyo & Diehl, 1986; Hill et al., 1992). Empathy was identified in one of the patient satisfaction surveys in an orthopaedic clinic context (Heaney & Hahessy, 2011), although that survey was largely derived from the scale developed by Hill et al. (1992). Trust was included as a factor in only one of the patient satisfaction survey scales assessing patient satisfaction identified in the literature review (Wolf et al., 1978). Trust was not identified in any of the studies of patient satisfaction in the context of orthopaedics or orthopaedic triage. Relatedness is not explicitly recognised as a factor in any of the survey scales reviewed. Relatedness was also not included in studies of patient satisfaction in the context of orthopaedics or orthopaedic triage. Therefore, these factors have an inconsistent individual recognition across survey scales of patient satisfaction and within satisfaction literature related to orthopaedic and orthopaedic triage clinics. The operational definitions of trust, empathy and relatedness used within this study are presented in Table 19.

Table 19: Definitions of factors included in the therapeutic relationship

Dimensions within therapeutic relationship	Definition retained
Empathy	Adopting the perspective of another person in order to understand their beliefs and feelings, and expressing this understanding in positively through the practitioner-client interaction (e.g., communication). The expression of empathy between patient and clinician may occur from either party.
Relatedness	The extent, to which a patient feels connected to, respected or understood by the clinician.
Trust	A set of beliefs and expectations held by a patient (Trustor) that the actions of another (Trustee) will be beneficial to one's self-interest, especially in situations in which the Trustee must be counted on to assess risk and provide unique benefits (modified from Kramer and Carneyale, 2001). Trust can be assumed to an individual's associations and roles.

The results of this study did not support clear distinction between factors of empathy, trust and relatedness, which were subsequently collapsed in to a single entity of the therapeutic relationship. Previous published work has defined the therapeutic relationship as "a collaboration between clinician and patient, their affective bond and agreement on treatment goals" (Pinto et al., 2012 , page 77). At a superficial level this definition encompasses aspects of relatedness through a sense of collaboration and the affective bond. Trust is implied through this process such that the patient accepts the collaboration despite the vulnerability of entering a process with unequal control and knowledge. Empathy is also implied in that any agreement on treatment goals may assume that the clinician understands the patient perspective. In a review of therapist characteristics influencing the therapeutic alliance, Ackerman & Hilsenroth (2003) noted a range of factors identified within the literature such as trust, empathy, warmth and friendliness. All these factors imply a process and interaction between clinician and patient that reinforce the influence and complexity of interpersonal elements summated through the concept of the therapeutic relationship.

There is evidence of the potential for conceptual overlap within factors associated with the interpersonal aspects of the clinical interaction. Relatedness has been closely aligned to concepts such as being cared for (Ryan et al., 2008b), which has also been aligned to empathy (Mercer et al., 2004). Other studies provide broad references to "interpersonal manner" (VSQ) (Ware & Hays, 1988; Ware et al., 1983) "interaction" (MRPS) (Beattie et al., 2002), and "depth of relationship" (ConsultSQ) (Baker, 1990), "relationship" (SAPS) (Hawthorne et al., 2011), without offering a clear conceptual foundation for these terms. Without a clear conceptual reference, it is possible that these factors may have less clear definitional boundaries upon which to delineate them from each other.

The findings of this study suggest that although the subtle conceptual distinctions between empathy, trust, and relatedness were clear to members of the expert group with substantive expertise, they were less apparent to the cohort of patients. The statements retained within this survey such as, "I got the sense that the clinician cared about me rather than seeing me as just another patient" and "I got the sense that the clinician I saw respected me as a person" directly evoke a complex humanistic element subject to patients interpreting these factors meaningfully or accurately. It is possible that patients are potentially unable to, or have varying capacities to differentiate conceptual subtleties that distinguish these factors. The development of these factors was supported by clearly defined conceptual definitions by an expert group and from in the published literature. The issue is whether patients, unversed in these conceptual subtleties, can practically distinguish items representing these factors.

The ability of patients to distinguish these factors within a single clinical interaction may also be limited. A low to moderate positive association was observed with the therapeutic relationship and clinical contact time suggesting a possible relationship. Skirbekk et al. (2011) described trust as a staged process, with patients transferring levels or "mandates of trust" through the clinical process (Skirbekk et al., 2011 page 1184). Hall et al. (2001) concluded that trust does not appear to be related to either the length or depth of the clinician patient relationship but is associated more closely with communication style and interpersonal skills. This implies that patients may use other cues and transpose them to other factors where information or assessment is incomplete or impossible. In other words, a patient's position on an issue such as trust,

empathy or relatedness may not to be formed from the experience of the initial assessment, but could be transposed from an attitudinal stance derived from whatever cues are available.

The subsequent collapse of the factors of trust, empathy and relatedness does not provide a defacto definition of the determinants of the therapeutic relationship. It is likely that these factors constitute a portion of contributing elements. More work will be required to define the therapeutic relationship within this context of patient satisfaction and what items or elements may best represent this concept to patients.

4.5.2.2 Expectation

Expectation has been incorporated as part of patient satisfaction scales in past research (Hills & Kitchen, 2007b; Roush & Sonstroem, 1999), and is commonly included in evaluations of patient satisfaction with orthopaedic services (Anakwe et al., 2011; Bourne et al., 2010; Hageman et al., 2013; Hamilton et al., 2013; James, 2007; Mahomed et al., 2011; Mondloch et al., 2001; Myers et al., 2008; Noble et al., 2006; Ramaesh et al., 2014; Tashjian et al., 2007). Of these studies evaluating patient satisfaction in orthopaedic triage clinics, only Pearse et al. (2006) identified patient expectation as influential on patient satisfaction. Expectation is recognised as having an influence on patient satisfaction, yet in orthopaedics is associated with expectation of outcome rather than the clinical interaction. The results of the present study support the premise that patient expectation influences patient satisfaction, particularly with regard to the process of clinical assessment.

Expectation was strongly correlated with the therapeutic relationship suggesting that demonstrations of trust, empathy and relatedness are interrelated with patients' expectations of the clinical consultation. A moderate association was also noted between clinical contact time and expectation. Adequate clinical contact time may be important to allow clinicians sufficient time to meet the expectations of individual patients. This is consistent with the proposal of Mead & Bower (2002) regarding patient-centred practice. These authors suggested that any clinical agenda should be guided by the patient and that clinical time would be a function of that agenda.

The results of the present study did not support the notion that expectation was associated with the perceived quality of the communication of the clinical interaction. To some degree this finding is counter intuitive and is in contrast to previous studies where an association between communication and expectation has been observed (Main et al., 2009; Woolley et al., 1978). This difference may be explained by the way in which communication is assessed across different studies. Woolley et al. (1978), for example, conceptualised communication as the exchange of information between clinician and patient and, unlike this in this study, found no correlation between communication and patient satisfaction. Woolley et al. (1978) concluded that the nature of the communication, reflecting caring and clinician attitude may be more important. The authors suggesting that patient perceptions of communication may be influenced by the delivery style of that communication. Main et al. (2009) connect the addressing of expectation as a fundamental element in clinician-patient communication but acknowledge that the "style and "climate" of the exchange may also be influential (Main et al., 2009 , page 219). The notion that patients perceived communication quality through style rather than content is supported by other studies evaluating patient responses to clinical communication (Kafetsios et al., 2014; McGilton et al., 2009; Tajeu et al., 2015). A clinician may well address the expectations of a particular patient, however, if that content was delivered in an unsupportive manner, the patient may still rate communication poorly. In this sense it is possible to satisfy one factor without necessarily fulfilling the other. Therefore, the non-significant association between expectation and communication may be related to the different process by which patient process these factors.

4.5.2.3 Communication

Items or statements relating to communication as a factor influencing patient satisfaction are widely represented within the group of survey scales identified (see Chapter 2) (ACSQHC, 2014; Deyo & Diehl, 1986; 2005; Hill et al., 1992; Hills & Kitchen, 2007b; Linder-Pelz & Struening, 1985; Pettersen et al., 2004; Ware & Hays, 1988). There was only one reference to communication as a factor influencing patient satisfaction within the orthopaedic context (Heaney & Hahessy, 2011). However, in the context of orthopaedic triage, issues of communication are widely recognised (Daker-White et al., 1999; Desmeules et al., 2013; Kennedy et al., 2010; Razmjou et al., 2013;

Reeve & May, 2009; Samsson & Larsson, 2015; Sephton et al., 2010). Therefore, the inclusion of communication as a factor is consistent with both existing survey scales and examinations of patient satisfaction in orthopaedic triage services.

Communication was strongly associated with clinical contact time rather than with therapeutic relationship or expectation. This finding is consistent with that of Mira et al. (2014) who identified inadequate patient consultation time as a primary obstacle to satisfactory communication with doctors. Research has also noted that the clinical communication process retains strong characteristics of negotiation (Dean et al., 2005; Øien et al., 2011). The nature and style of this negotiation may be reflected in the attitude of the patient when assessing clinical communication. Quigley et al. (2014) also reported an association between clinical time and patient ratings of communication. However, this association appeared to vary across different medical specialities suggesting that acuity or vulnerability of the patient may influence the patient's perspective of these factors. Consistent with the findings of the present study, Quigley et al. (2014) found that patient with less acute conditions placed greater emphasis on clinical contact time when evaluating clinician communication.

The association between reinforcing patient autonomy and levels of satisfaction with care potentially offers some insight to the association between clinical time and communication. Previous research has associated satisfaction with care with communication that emphasises patient autonomy consistent with the conceptual model proposed by SDT (Deci, 1985). In a systematic review evaluating communication within the clinical interaction, Oliveira et al. (2012) concluded that communication approaches that support patient autonomy was associated with satisfaction with care. If communication that reinforces patient autonomy is a primary influence in patient ratings, it is possible that clinicians who shorten clinical contact time may circumvent patient autonomy by delivering clinician directed initiatives within patient input.

The minimal association with between communication and the therapeutic relationship, demonstrated within this study appears counter intuitive. This finding is inconsistent with current evidence of the relationship between communication and the therapeutic relationship. Ackerman & Hilsenroth (2003) identified "lucid communication" as key

characteristic of the therapeutic alliance (Ackerman & Hilsenroth, 2003 , page 28). Bensing (2000), in an review of studies assessing communication frameworks for medical consultation, concluded that communication has two primary functions to “foster the relationship” and “information giving” (Bensing, 2000 , page 287). Communication has been described as the critical element in the development of the patient clinician relationship (Farin et al., 2013; Main et al., 2009). More work is required to assess how communication influences patient satisfaction.

4.5.3 Group associations within data

The primary intent of this study was to conduct an initial first look at reliability and validity evidence for a self-report tool examining characteristics of patient satisfaction within orthopaedic assessment. As a contribution to this effort, observations can be made in relation to group differences within the data attained. The finding that patients rated clinical waiting time higher with triaging physiotherapists is consistent with the proposal that clinical load within orthopaedic clinics is less than that experienced by medical clinicians, resulting in lower waiting times. The finding that patients assessed by physiotherapy triage, rated communication items higher than with medical assessment, may also be a reflection of workload. Previous research has confirmed that physiotherapists undertaking triage generally spend more time with patients than with medical counterparts (Samsson & Larsson, 2014). The higher ratings of clinic wait time and communication may have in turn, resulted in higher ratings of clinical contact time in the orthopaedic triage clinics.

The differences noted between conventional orthopaedic clinics and physiotherapist triage clinics provide an insight into higher patient satisfaction ratings of orthopaedic triage reported by other studies (Daker-White et al., 1999; Desmeules et al., 2013). Although higher satisfaction ratings may support physiotherapy-led orthopaedic assessments, consideration should also be given to the relative efficiency of these models of practice. If these satisfaction ratings were derived from increased clinical contact time, then the relative cost of the orthopaedic triage service may be higher. Previous research has suggested triaging physiotherapists could be cost effective (Edmondston et al., 2011; Weale & Bannister, 1995), however, this proposal is deductive rather than the result of a systematic cost analysis. In the Western Australian

public health system, as of the 1st of July 2017, advanced practice physiotherapists receive a salary equal to 92% of a 3rd year orthopaedic registrar (WA Awards 2017). Without comparable productivity, increased rates of patient satisfaction may be associated with increased service costs. This issue underpins the importance of an understanding of the characteristics of patient satisfaction and the resultant costs that may arise from integrating these considerations into clinical service delivery. Whilst it is beyond the scope of this thesis to analyse cost effects, changes to health care delivery designed to improve patient satisfaction may result in these services being provided to potentially fewer but more satisfied patients.

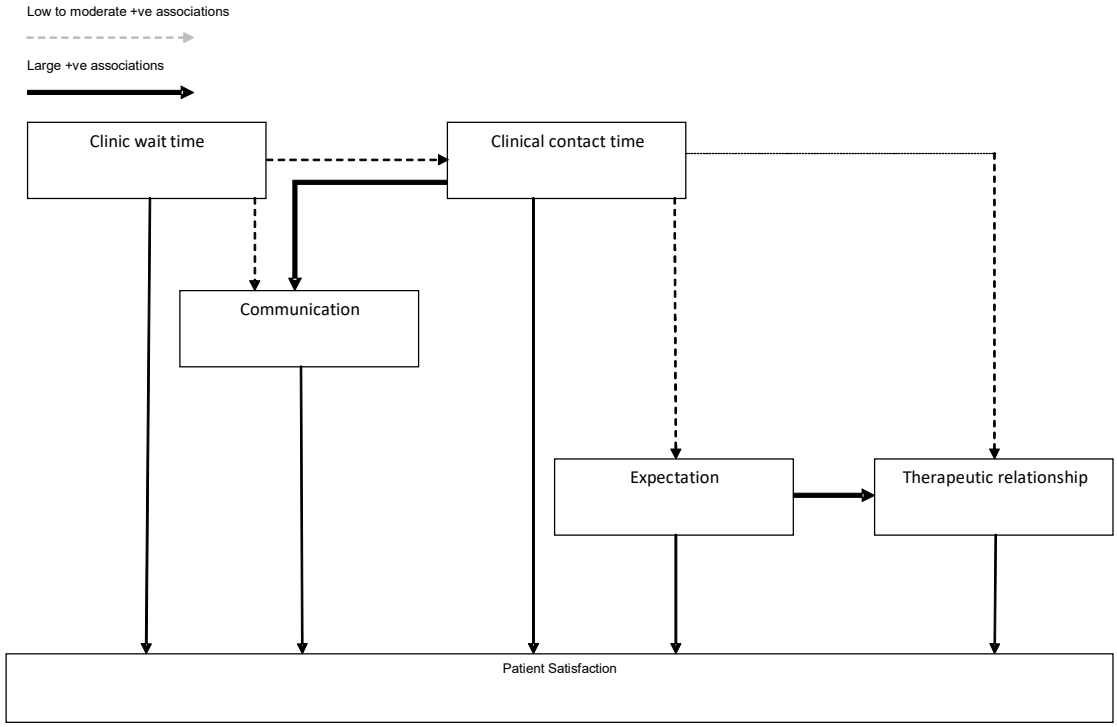
4.5.4 Model for patient satisfaction within context of orthopaedic assessment

The results of the validation process supported a five factor model for the assessment of patient satisfaction in orthopaedic clinics. The clinical environment is defined by time factors rather than any physical aspects of the clinic environment such as access, cleanliness or appearance. Three interpersonal factors are defined by communication, expectation and the therapeutic relationship. These factors have been demonstrated to be significantly associated with global measures of patient satisfaction but are distinct enough (i.e. low to moderate correlations) in that they represent independent dimensions of the patient satisfaction construct.

This study demonstrated a strong positive correlation between global satisfaction and willingness to recommend the service is consistent with previous research in health services. (Jenkinson et al., 2002; Jorina, 2013; Tung & Chang, 2009). The correlation between satisfaction and willingness to recommend is a recognised element in consumer models of behaviour (Anderson & Mittal, 2000). Similarities between consumers and patients have been observed in other studies evaluating patient satisfaction and the willingness to change providers (Knight et al., 2010). Therefore, consumer models of behaviour could potentially inform conceptual models of patient satisfaction in future extensions of this current work.

From the results of this research, several key factors or drivers have been identified that independently influence patient satisfaction. A conceptual model is proposed in Figure 5.

Figure 5: Conceptual model of factors and associations of patient satisfaction within clinical assessment



The primary characteristic of patient satisfaction within the clinical environment relates to time related issues. Clinic wait time may have attitudinal effects on communication and contact time. Previous research suggests that any negative attitudinal effect from the patient waiting can be moderated through clinical contact time (Anderson et al., 2007). The results of this study support this interpretation and the notion that for patient satisfaction to be maintained the potential price of clinic waiting times is increased clinical contact time. Clinic waiting time, therefore, is a key element to ensure the efficiency of any clinical service as to provide a potential platform through which patient satisfaction can be developed.

The results of this study suggest that that clinical contact time should be directed toward addressing patient expectation and fostering a positive therapeutic relationship. Communication exploring the agenda of the patient and in particular the expectations of the patient with the clinical process appear to be a central feature of enhancing the

therapeutic relationship. Patient-centred principles of communication (Mead & Bower, 2000b) may be able to guide this process ensuring patient involvement, participation and elevation to the decision making process.

Addressing patient expectation is particularly relevant in the context of orthopaedic triage. Patients presenting to an orthopaedic clinic may come with preconceived expectations of being assessed by a consultant, requiring surgery or needing a specific test. The process of referral from the point of primary care may be the genesis of these expectations (Bederman, 2010). The role of the internet and general access to specialised information may also potentially play a role in expectation (Lee et al., 2017; Mason, 2008). There is evidence that through the process of communication these expectations can be rationalised and negotiated within the clinical interaction (Øien et al., 2011).

Development of the therapeutic relationship is closely related to addressing patient expectation. The development of the therapeutic relationship may inform participation in future management of the condition either at a self-managed level or where significant risk is involved such as surgical intervention. There is evidence that conceptual frameworks such as SDT (Ryan & Deci, 2000) may provide an useful reference point for the development of these patient behaviours facilitating clinical management (Lonsdale et al., 2017; Murray et al., 2015).

4.7.5 Conclusion

The validation process undertaken in this study has provided preliminary support for the construct validity of a five factor model of patient satisfaction with orthopaedic assessment. Environmental factors are defined by the influence of clinic waiting time and clinical contact time, whereas interpersonal factors are defined by the therapeutic relationship, communication and expectation. A model for the characteristics of patient satisfaction with orthopaedic assessment is proposed (see Figure 5). The results of this study support the influence of patient contact time within the clinical interaction and the mediating influence on any influence of clinic waiting time. The results also highlight the need to address patient expectation within the consultation process underpinning the therapeutic relationship. The results of the validation process support the findings

of the focus group process evaluating influences on patient satisfaction with orthopaedic assessment.

Chapter 5.0

Review of findings

The findings of this research can be reviewed in terms of the questions formed to guide the research process:

- *Why is patient satisfaction an important issue to consider?*

Patient satisfaction is an important in that it references the patient experience of clinical care outside any therapeutic result. It is a key aspect the patient-centred approach, which is highly relevant to public funded services.

- *How can patient satisfaction be defined?*

Patient satisfaction can defined as an affective response of the patient to the process and experience of healthcare.

- *What is the conceptual basis for patient satisfaction?*

There is no evidence of a single unifying conceptual basis for patient satisfaction with a number of psycho-social theories appearing to have direct relevance to the process of health care. The context of patient, setting and diagnostic presentation may influence the process from with satisfaction is derived.

- *What survey tools exist to assess patient satisfaction within an orthopaedic/musculoskeletal context?*

Many survey tools exist to evaluate patient satisfaction with varying factors and domains. Many of the existing survey scales have been translated and modified across clinical settings without a clear process of validation. No

well validated survey scale exists for assessing patient satisfaction within the context of orthopaedic triage.

- *What examinations of patient satisfaction have been undertaken in the context orthopaedic practice?*

  There have been a number of evaluations of patient satisfaction within the context of orthopaedic practice. These evaluations are characterised by a focus of clinical outcome measures. There are very few examples of the influence of the process of care within orthopaedic practice.

- *What examinations of patient satisfaction have been undertaken in the context orthopaedic triage practice?*

  There are a number of studies evaluating patient satisfaction with orthopaedic triage. These studies however, tended to modify existing survey scales with limited validation of the translated scale. There are no examples of a survey scale related to orthopaedic triage developed from a ground up approach and validated through with methodological rigour.

- *What factors are likely to best represent patient satisfaction within the context of orthopaedic/orthopaedic triage?*

  Thematic analysis of focus groups identified a number of factors specifically relating to orthopaedic triage. Seven factors were initially identified consisting of two environmental factors of clinical wait time and clinical contact time. Five interpersonal factors were also identified including trust, communication, expectation and relatedness.

- *What items best represent those factors within a survey?*

  Expert groups identified a number of items that best represented those factors identified by focus groups. A draft 34 item survey scale was proposed

- *How can we evaluate those factors as characteristics of patient satisfaction within the context of orthopaedic/orthopaedic triage?*

  A validation sample evaluated how those factors represent characteristics of patient satisfaction. A final factor model is proposed consisting of clinical wait time, clinical contact time, expectation, communication and the therapeutic relationship.

5.1 Summation

The process undertaken within the studies detailed in this thesis represents initial efforts to develop and generate and a conceptual model of and validity evidence for a scale assessing patient satisfaction in the context of orthopaedic assessment. Unlike previous studies that have assessed patient satisfaction within an orthopaedic or orthopaedic triage context, the development of the scale has been guided by an inductive, bottom-up approach using qualitative analysis to build and develop the construct validity of the scale. Examination of existing literature was undertaken to establish both face validity and a conceptual foundation for patient satisfaction and those factors that potentially influence it. Factor validity evidence was assessed through an independent sample with a preliminary assessment of the psychometric properties of the scale. The results of this process have provided initial evidence for those characteristics of patient satisfaction in the orthopaedic assessment. Three interpersonal factors were assimilated as a result of factor analysis and redefined as the therapeutic relationship, given their statistical overlap and conceptual similarities. A final five factor model is proposed incorporating three interpersonal factors (communication, expectation and the therapeutic relationship) and two environmental factors (clinic wait time and clinical contact time). Support was found for willingness to recommend as a global assessment of patient satisfaction. The identification of these factors can inform understanding of the characteristics of patient satisfaction within the context of orthopaedic assessment. These factors can also inform clinical service design and the training of physiotherapists undertaking these positions. These factors also have relevance to the training of orthopaedic registrars looking to understand the clinical interaction beyond the provision of technical prowess.

5.2 Strengths and weaknesses

The primary intent of the validation process was to examine the associations between the factors, refine the proposed scale and establish factorial validity evidence of the hypothesised model of patient satisfaction. This goal was supported by a rigorous process of factor development within the initial stage of the process. The factor loadings gained by the calibration sample support factor alignment with patient satisfaction. Therefore, initial support for the construct and factorial validity of the five factor model evaluating patient satisfaction has been established.

Although the sample provided calibration in relation to factor analysis and model fit, an argument could be made that the resultant model is data driven or influenced largely by characteristics of the specific sample taken. As such, any observations obtained from group analysis may also be limited to the population obtained. To counter this limitation, a further independent or cross validation sample could be undertaken possibly across several different sites. This analysis would serve to strengthen the validity evidence of the model proposed by this research.

The primary weakness within this research is that the sample size gained for validation is small relative to typical approaches to scale development in the health sciences. Research by survey allocation within patients can difficult in terms of patient and institution participation, given the continual and ubiquitous use of surveys within hospitals (Farley et al., 2009). Anthoine et al. (2014), in an assessment of sample sizes with patient reported outcomes, suggest that guidelines are unclear, although accepts that 10-250 participants with an item to sample ratio of between 2 and 20 items per participant is recommended. This study accessed 101 participants with an item/participant ratio of 4.8. Although the current study met those thresholds, the quality of the findings would have been strengthened by a greater number of participants.

The poor response rate among patients in the survey study may also have produced some selection bias within participant cohort. In total, 323 surveys were distributed across the 2 sites with FHHS retaining a return rate of 49.7%, whereas SCGH managed only 10.0% raising the possibility of bias within these samples. At the time of

the survey distribution (2015-2016), the Western Australian Department of Health initiated a series of major reforms and rationalisation of clinical services affecting both clinical sites (WA Department of Health 2015; WA Department of 2016). The research assistant roles of recruiting patients and distribution of surveys were affected by changes in staff and assignment of duties especially at the SCGH site. The lead researcher for the trial was also moved from the FHHS to the Fiona Stanley Hospital, which made liaison and administration of the survey more difficult at the FHHS site. No assessment was undertaken of the non-responder group at either site. Although no significant difference could be determined across the 2 site samples, the limited participation achieved at the SCGH site restricted the degree to which concurrent validity could be developed.

5.3 Future development

To establish the psychometric properties of the survey scale, further development will need to be undertaken. Male et al. (2017) proposed five criteria to evaluate the performance of a survey instrument through convergent validity, discriminant validity, predictive validity, test-re-test validity and responsiveness. These five criteria set a road map for development of the scale. Most likely,

the development will require application within a relatively stable health system environment, possibly across several states or countries external to Australia. The design and objectives of the survey should seek alignment with objectives of the institution and be guided by locally based contacts and managers who will supervise the survey. The use of technology using web based survey applications or apps may improve compliance and rates of return. Assessment of non-responder groups should be sampled through phone follow up of global measures. The distribution of the survey would need to be supported by lectures on conceptual basis and aims of the survey at each site.

Appendix

Appendix1: Curtin ethics approval

Curtin University

Memorandum

To	Dr Daniel Gucciardi, Physiotherapy and Exercise Science
From	Professor Peter O'Leary, Chair Human Research Ethics Committee
Subject	Protocol Approval **HR 96/2014**
Date	22 May 2014
Copy	Stuart Waters, Physiotherapy and Exercise Science Dr Stephen Edmondston, Physiotherapy and Exercise Science Professor Piers Yates, Physiotherapy and Exercise Science

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 "*Validation of a survey to evaluate patient satisfaction with Orthopaedic assessment*". The Committee notes the prior approval by South Metropolitan Health Service (SMHS) Human Research Ethics Committee (HREC) (14/22) 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 96/2014.** *Please quote this number in any future correspondence*.
- Approval of this project is for a period of four years **22-05-2014** to **22-05-2018**.
- 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 (South Metropolitan Health Service (SMHS) Human Research Ethics Committee (HREC)) and Curtin University **96/2014.**

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

Appendix 2: SMHS ethics approval

Government of Western Australia
Department of Health
South Metropolitan Health Service

Human Research Ethics Committee

dm
20 May 2014

Mr Stuart Waters
Coordinator Musculoskeletal / Outpatients
Physiotherapy Department
Block V Level 4
Fremantle Hospital

Dear Mr Waters,

Project Title: Validation of a Survey to Evaluate Patient Satisfaction of Orthopaedic Assessment.
HREC Reference: 14/22

Thank you for attending the South Metropolitan Health Service (SMHS) Human Research Ethics Committee (HREC) meeting on May 6th 2014 and for answering Members' questions on the above project.

Document/s

- WA Health Ethics Application Form
- WA Health Research Protocol Template for Non-Clinical Trials March 2013
- Participant Information Sheet and Consent Forms

Approval of this project from SMHS HREC, is valid to May 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 Health Service
Sir Charles Gairdner Hospital

[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.

The SMHS HREC is registered with the Australian Health Ethics Committee (Code EC00265) and operates according to the NHMRC National Statement on Ethical

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

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: **14/22**

Yours sincerely

DR PHILLIP CLARINGBOLD
CHAIRMAN
SOUTH METROPOLITAN HEALTH SERVICE
HUMAN RESEARCH ETHICS COMMITTEE

Appendix 3: Governance approval FHHS

Government of Western Australia
Department of Health
South Metropolitan Health Service

cg
14/22
27 June 2014

Mr Stuart Waters
Coordinator Musculoskeletal / Outpatients
Physiotherapy Department
Block V Level 4
Fremantle Hospital

Dear Mr Waters

Project Title: Validation of a Survey to Evaluate Patient Satisfaction of Orthopaedic Assessment.
HREC Reference: 14/22

On behalf of the South Metropolitan Health Service (SMHS), I give authorisation for your research project to be conducted at the following site(s):

Fremantle Hospital Health Service

The following documents have been approved for this project.

Document/s
• **WA Health Ethics Application Form** • **WA Health Research Protocol Template for Non-Clinical Trials March 2013** • **Participant Information Sheet and Consent Forms**

This authorisation is based on the approval from South Metropolitan Health Service (SMHS) Human Research Ethics Committee (HREC) and the review from the Research Governance Office. This authorisation is valid subject to the ongoing approval from the HREC.

This authorisation is based on the ethical approval from the HREC, and on the basis of compliance with the 'Conditions of Authorisation to Conduct a Research Project at Site' (attached) and with the compliance of all reports as required by the Research Governance Office and approving HREC. Non compliance with these requirements could result in the authorisation be withdrawn.

The responsibility for the conduct of this project remains with you as the Principal Investigator at the site.

Yours sincerely

DR DAVID BLYTHE
EXECUTIVE DIRECTOR
FREMANTLE HOSPITAL & HEALTH SERVICE

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

Appendix 4: Governance approval SCGH

Government of **Western Australia**
Department of **Health**

Our Ref: 2014-091 approval SCGOPHCG

Sir Charles Gairdner Hospital

15 August 2014

Mr Stuart Waters
Physiotherapy
Level 4 Block V
Fremantle Hospital
PO Box 480
FREMANTLE WA 6959

Dear Mr Waters

HREC No: 2014-091
Project Title: Validation of a Survey to Evaluate Patient Satisfaction of Orthopaedic Assessment

On behalf of the Sir Charles Gairdner Osborne Park Health Care Group, I give authorisation for your research project to be conducted at the following site:

Sir Charles Gairdner Hospital

The following site specific documents are to be used in addition to those approved by the Human Research Ethics Committee (HREC).

Document
SCGH Participant Information Sheet and Consent Form - Patients, version 1.0 dated July 2014

This authorisation is based on the approval from the South Metropolitan Health Service Human Research Ethics Committee and the review from the Research Governance Office. This authorisation is valid subject to the ongoing approval from the HREC, and on the basis of compliance with the 'Conditions of Site Authorisation to Conduct a Research Project' (attached) and with the compliance of all reports as required by the Research Governance Office and approving HREC. Noncompliance with these requirements could result in the authorisation be withdrawn.

The responsibility for the conduct of this project remains with you as the Principal Investigator at the site.

Yours sincerely

Dr Victor Cheng
A/EXECUTIVE DIRECTOR
SIR CHARLES GAIRDNER AND
OSBORNE PARK HEALTH CARE GROUP

Appendix 5: Consent and information forms for focus group participants

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

INFORMATION SHEET

TO BE USED IN CONJUNCTION WITH THE CONSENT FORM

Validation of a survey to evaluate patient satisfaction with orthopaedic assessment.

We invite you to participate in a clinical research study sponsored by the Health Department of Western Australia and Curtin University evaluating patient satisfaction in orthopaedic outpatient clinics. This study has been approved by the WA Department of Health Human Research Ethics Committee (Approval No: 14/22) and the Curtin University Ethic committee (Approval No; HR 96/2014). This study forms part of a submission by the researcher for post graduate study at Curtin University.

If you decide to take part in this research study, it is important that you understand the purpose of the study. Please read the following pages, which will provide you with information of how you can participate and contribute to the study.

What is the nature and purpose of the Focus Group?

The aim of this study is to develop a survey to assess patient satisfaction with orthopaedic assessment. This focus group will provide a forum to identify and bring together perspectives of key stakeholders' perspectives of patient satisfaction. The group will incorporate a wide range of perspectives from professional clinicians to patients and patient advocates. Your potential to contribute to the group has been recognised from your expertise and experience. It is important that you bring your own perspective and knowledge to the issue of patient satisfaction.

How will the process work?

Your involvement with the process will be either through group session at a given time or through a 1-1 interview at a time and place that is most convenient to you. The individual or group interview should take approximately 30-60 minutes. Your responses will be sought from a range of questions. In the group setting, these questions will act as a framework to guide discussion that may ensue. Interviews and focus group discussions will be digitally recorded, transcribed verbatim, and subsequently analysed by the researchers (e.g., common themes). Participants will be invited to review their interview transcript to ensure it accurately captured their perceptions; if not, they will be

offered the opportunity to elaborate where required. A key focus will be on what elements of factors contribute to patient satisfaction with clinical assessment.

Benefits

By participating in this study you will be able to have an active participation in what contributes to patient satisfaction. Along with current concepts within the published literature these factors or domains of satisfaction will form the basis of a draft survey for validation. The intention of this survey is to accurately capture the patient experience with clinical orthopaedic assessment. This assessment process in turn will allow examination of an important perspective of the clinical service and service reforms.

Discomforts and Risks

There are no foreseen risks or discomfort to you associated with participation in this study.

Confidentiality

No individual contribution will be able to be identified within the final submission or future publications.

All data collected in the course of the project will be held in secure storage within the Department of Physiotherapy at Fremantle Hospital for a period of 7 years. Storage and destruction of the data will comply with the Practice Code for the Use of Personal Health Information (2009) in accordance with WA Health Research Governance Policy and Procedures (2012; OD 0411/12) and the West Australian University Sector Disposal Authority (SD 2011011).

Voluntary Participation and Withdrawal from Study

Your participation in this study is entirely voluntary. You may withdraw from this study at any time, for whatever reason(s).

If you should have any complaints or concerns about the way in which the study is being conducted, you may contact the South Metropolitan Health Service Human Research Ethics Committee on 9431 2929.

If you have any questions in relation to this study you can contact the primary investigator Stuart Waters Coordinator for Outpatients and Musculoskeletal, Fremantle Hospital. Ph. 9431 2060 or email: Stuart.Waters@health.wa.gov.au

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR xx/2014). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or by emailing hrec@curtin.edu.au.

CONSENT FORM

TO BE USED IN CONJUNCTION WITH THE INFORMATION SHEET

Validation of a survey to assess patient satisfaction with orthopaedic assessment.

Participants Name:.....

1. I agree voluntarily to take part in '**Validation of a survey to assess patient satisfaction with orthopaedic assessment."**

2. I have been given a full explanation of the purpose of this study, of the processes involved and of what will be expected of me.

3. I understand that I am entirely free to withdraw from the study at any time.

4. I agree to offer my opinions and expertise freely, honestly and without fee.

5. I offer permission that my responses and contribution will be recorded and transcribed. I understand that I may review this transcription at any time.

6. I understand and submit that any contribution I make may be used either wholly or partly by the researchers for any processes or purpose relating to this study or any future studies.

7. I understand that I will not be referred to by name in any report concerning this study. In turn, I cannot restrict in any way the use of the results that arise from this study.

8. I understand that information attained from this study will be stored securely for 7 years before being destroyed.

9. I have been given and read a copy of this Consent Form and Information Sheet.

Signature by participant Signature of (Witness)

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

Date:..... Date:.....

If you have any questions in relation to this study you can contact the primary investigator Stuart Waters Coordinator for Outpatients and Musculoskeletal, Fremantle Hospital. Ph. 9431 2060 or email: Stuart.Waters@health.wa.gov.au

Appendix 6: Consent and information forms for expert group participants

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

TO BE USED IN CONJUNCTION WITH THE CONSENT FORM

Validation of a survey to evaluate patient satisfaction with orthopaedic assessment.

We invite you to participate in a clinical research study sponsored by the Health Department of Western Australia and Curtin University evaluating patient satisfaction in orthopaedic outpatient clinics. This study has been approved by the WA Department of Health Human Research Ethics Committee (Approval No: 14/22) and the Curtin University Ethic committee (Approval No; HR 96/2014). This study forms part of a submission by the researcher for post graduate study at Curtin University.

If you decide to take part in this research study, it is important that you understand the purpose of the study. Please read the following pages, which will provide you with information of how you can participate and contribute to the study.

What is the nature and purpose of the Expert Group?

The aim of this study is to develop a survey to assess patient satisfaction with orthopaedic assessment. Information derived from the literature review and focus groups with key stakeholders has been used to generate items that capture key features of patient satisfaction. These features or domains will form the basis of a draft survey that will be will be subjected to expert review from scholars with expertise in satisfaction and/or psychometrics. Your potential to contribute to the group has been recognised from your expertise and professional experience. It is important that you bring your own perspective and knowledge to the issue of patient satisfaction and the design of the survey.

How will the process work?

A summary of the literature review and input from the focus group will be provided to each nominated expert. A draft survey will also be included for review.

Given your expertise in psychometrics and patient satisfaction, we would invite you to offer feedback and opinion. In particular, we need you to consider the face validity of

the key features of patient satisfaction generated from a literature review, and whether or not there are additional components need to be considered.

We will be seeking feedback via an online survey.

Benefits

By participating in this study you will be able to have an active participation in what contributes to patient satisfaction. Along with current concepts within the published literature these factors or domains of satisfaction will form the basis of a draft survey for validation. The intention of this survey is to accurately capture the patient experience with clinical orthopaedic assessment. This assessment process in turn will allow examination of an important perspective of the clinical service and service reforms.

Discomforts and Risks

There are no foreseen risks or discomfort to you associated with participation in this study.

Confidentiality

All data collected in the course of the project will be held in secure storage within the Department of Physiotherapy at Fremantle Hospital for a period of 7 years. Storage and destruction of the data will comply with the Practice Code for the Use of Personal Health Information (2009) in accordance with WA Health Research Governance Policy and Procedures (2012; OD 0411/12) and the West Australian University Sector Disposal Authority (SD 2011011).

Voluntary Participation and Withdrawal from Study

Your participation in this study is entirely voluntary. You may withdraw from this study at any time, for whatever reason(s).

If you should have any complaints or concerns about the way in which the study is being conducted, you may contact the South Metropolitan Health Service Human Research Ethics Committee on 9431 2929.

If you have any questions in relation to this study you can contact the primary investigator Stuart Waters Coordinator for Outpatients and Musculoskeletal, Fremantle Hospital. Ph. 9431 2060 or email: Stuart.Waters@health.wa.gov.au

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR 96/2014). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or by emailing hrec@curtin.edu.au.

CONSENT FORM

TO BE USED IN CONJUNCTION WITH THE INFORMATION SHEET

Validation of a survey to assess patient satisfaction with orthopaedic assessment.

Participants Name:.....

1. I agree voluntarily to take part in '**Validation of a survey to assess patient satisfaction with orthopaedic assessment."**

2. I have been given a full explanation of the purpose of this study, of the processes involved and of what will be expected of me.

3. I understand that I am entirely free to withdraw from the study at any time.

4. I agree to offer my opinions and expertise freely, honestly and without fee.

5. I offer permission that my responses and contribution will be held on record for the purposes of analysis and research by the researchers.

6. I understand and submit that any contribution I make may be used either wholly or partly by the researchers for any processes or purpose relating to this study or any future studies.

7. I understand that I will not be referred to by name in any report concerning this study. In turn, I cannot restrict in any way the use of the results that arise from this study.

8. I understand that information attained from this study will be stored securely for 7 years before being destroyed.

9. I have been given and read a copy of this Consent Form and Information Sheet.

Signature by participant | Signature of (Witness)

Signed..... | Signed:.....

Date:..... | Date:.....

If you have any questions in relation to this study you can contact the primary investigator Stuart Waters Coordinator for Outpatients and Musculoskeletal, Fremantle Hospital. Ph. 9431 2060 or email: Stuart.Waters@health.wa.gov.au

Appendix 7: Consent and information for patients participating in validation sample

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

INFORMATION SHEET

TO BE USED IN CONJUNCTION WITH THE CONSENT FORM

Validation of a survey to evaluate patient satisfaction with orthopaedic assessment.

We invite you to participate in a clinical research study sponsored by the Health Department of Western Australia and Curtin University evaluating patient satisfaction in orthopaedic outpatient clinics. This study has been approved by the South Metropolitan Health Service Human Research Ethics Committee (Approval No: 14/22) and the Curtin University Ethic committee (Approval No; HR 96/2014). This study is forms part of a submission by the researcher for post graduate study at Curtin University.

If you decide to take part in this research study, it is important that you understand the purpose of the study and the procedures you will be asked to undergo. Please read the following pages, which will provide you with information about the treatments involved, and also the potential benefits, discomforts and precautions of the study.

Nature and purpose of the Study

We have asked you to participate in this study as you have been referred to the Orthopaedic Outpatient Department at SCGH.

The aim of this study is to develop a survey to assess patient satisfaction with orthopaedic assessment

What the study will involve

Involvement in this study will not alter your normal course of assessment within the orthopaedic outpatient clinics.

You will be seen by either the orthopaedic registrar or by a triage physiotherapist.

If you decide to participate within the study you will be offered a consent form to sign. Within 7 days of your assessment within clinic you will be posted a survey to fill in this. This will come with a paid self addressed envelope to return the survey.

Follow up

A follow-up appointment at the Orthopaedic Outpatient clinic will be arranged as per normal care.

Benefits

By participating in this study you will be able to have a say in how services are potentially designed in the future. Improving the design of these clinical services has the potential to reduce waiting times and improve access to patient in need of assessment and care. This survey also offers an opportunity for you as a patient to raise concerns about aspects of the care in orthopaedic outpatients.

Discomforts and risks

There are no risks or discomfort to you associated with participation in this study.

Confidentiality

Your personal contact details will be required to send you the survey following your appointment. On receiving the returned survey, however all personal detail identifying you will be erased from the record.

Where information relating to this study is extracted from your clinical records it will be secured with the primary investigator. It will be held within secure storage for a period of 7 years.

The results of the study may be reported, although it will not be possible to identify individual subjects.

Voluntary participation and withdrawal from study

Participating in this trial will not in any way interfere with your treatment. Treatment recommendations will be made according to standard clinical guidelines.

Your participation in this study is entirely voluntary. If you decide not to participate in this study, you will receive an appointment to be seen by the Orthopaedic

consultant/registrar at the first available opportunity, without any prejudice to present or future management in this hospital.

You may withdraw from this study at any time, for whatever reason. Such withdrawal will not in any way influence decisions regarding future standard or conventional medical treatment you may require.

If you should have any complaints or concerns about the way in which the study is being conducted, you may contact the Chair of the South Metropolitan Health Service Human Research Ethics Committee on 9431 2929.

If you have any questions in relation to this study you can contact the primary investigator Stuart Waters Coordinator for Outpatients and Musculoskeletal, Fremantle Hospital. Ph. 9431 2060 or email: Stuart.Waters@health.wa.gov.au

CONSENT FORM

TO BE USED IN CONJUNCTION WITH THE INFORMATION SHEET

Validation of a survey to assess patient satisfaction with orthopaedic assessment.

Patient's Name:..... Date of Birth: .....

1. I agree voluntarily to take part in '**Validation of a survey to assess patient satisfaction with orthopaedic assessment.".**

   I am over 18 and less than 65 years of age.

2. I have been given a full explanation of the purpose of this study, of the procedures involved and of what will be expected of me. The research assistant has explained any possible issues that might arise as a result of my participation in this study. I have been given the opportunity to ask any questions.

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 treatment or 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 and the clinical trial staff on the understanding that it will be treated confidentially. I also understand that information attained from this study will be stored securely for 7 years before being destroyed.

5. I understand that I will not be referred to by name in any report concerning this study. In turn, I cannot restrict in any way the use of the results that arise from this study.

6. I understand that I will be invited to complete a patient satisfaction questionnaire as part of my participation in this study.

7. I have been given and read a copy of this Consent Form and Information Sheet.

Signature by patient	Signature of Research Assistant
Signed.....	Signed:.....
Date:.....	Date:.....

If you have any questions in relation to this study you can contact the primary investigator Stuart Waters Coordinator for Outpatients and Musculoskeletal, Fremantle Hospital. Ph. 9431 2060 or email: Stuart.Waters@health.wa.gov.au

Appendix 8: Results and notes from process of expert review

Expert Group Review

Expert assessment of factor items and definitions

Definition ratings

	Yes	No	Unsure	Comments
Trust	7		1	include ref being cared for.....? Use of institution in context
Empathy	8			?simpler word for interpersonal interaction...use terminology consistently
Relatedness	7		1	?use of context of clinician...care with overlap with empathy....empathy related to doing.... Relatedness to feelings
Sufficient Time	8			
Communication	8			potential overalp with empathy relatedness...over lap with empathy
Clinic Waiting Time	7		1	use "actual"....use perceptual context?
Expectation	7		1	add "both" within definition.....do we need "existing beliefs and values"

Item ratings

Factor: Clinical waiting time

Question	Relevance					Clarity			Comments	Revsions
	0	1	2	3	4	Yes	No	Unsure		
Please indicate how long you believe you waited for the clinician.				2	6	8				
I became annoyed waiting to be seen.	1	2	3	1	1	7		1	context for annoyed??	
I could understand why the clinic was running late.	1		2	2	2	8				
I felt comfortable with the time I had to wait.		1	1	1	5	8				I was comfortable with the time I had to wait.
I had more important things to do other than wait for the clinician to see me.	2		4		2	7		1	Relevance questions by some reviewers	

Factor: Clinical contact time

Question	Relevance					Clarity			Comments	Revisions
	0	1	2	3	4	Yes	No	Unsure		
I felt like the clinician dedicated enough time to me during the consultation.				1	7	7		1	remove the word "like"	The clinician dedicated enough time to me during the consultation
I had enough time with the clinician to ask all the questions I had about my condition.			1		6	7				
I felt I needed some more time discussing my problem.			1	1	6	7		1	"too vague"	I needed more time to discuss my problem
The clinician did not seem like he or she was rushed during my consultation.		1		1	6	5	2	1	remove he or she reference....confusing with double negative	The clinician did not seem like they were rushed during the consultation.
The clinician seemed to spend more time looking at things other than my problem.		1	2	1	4	4	2	2		
During the consultation, it seemed like the clinician was pressured by things other than my examination.	1		1	1	5	7		1		
The clinician did not appear to be rushed during my consultation.		1	1	2	4	7		1		
The clinician sometimes cut me off when I was talking.			5	2	1	6		2	over lap with commuication or lack of empathy	omit
Even though it seemed like the clinician was pressured or seemed in a rush, she/he allocated a reasonable amount of time to my consultation		1	1	1	5	7		1	"too wordy"	
The clinician sometimes finished my sentences for me.		1	5		2	8			"overlap with communication"	omit

Factor: Trust

Question	Relevance					Clarity			Comments	Proposed Revision
	0	1	2	3	4	Yes	No	Unsure		
The hospital was the best place to be sent to help my problem.		2	1	2	3	7		1	bias from use of word "sent"	I can trust the hospital to help with my problem.
I believe that the clinician has the expertise to identify the best solution for my circumstances.			1	1	6	7		1		I trust that the clincian has the expertise to identify the best solution for my circumstances.
I felt as though I could trust the clinician who assessed me to do what is best for my condition.				2	6	8				
I expect that this clinician will be able to identify alternative solutions if my circumstances change.			1	1	6	7		1		I can trust the clincian to identify alternative solutions if my circumstances change.
I am comfortable with the idea that this clinician knows what is best for my situation.			1	4	3	7		1	exchange comfortable for "I believe"	I can trust the clincian to know what is best for my situation
I am willing to let the clinician make decisions for me.			1	3	4	8				I can trust the clincian to make decisions for me.
I can count on the clinician to do what is best for my welfare.			3	2	3	5	1	2		
I expect that this clinician has the necessary qualifications and experience to make informed decisions regarding my welfare.			1	2	5	7	1		"sentence seems odd"....sentance too wordy	I trust that the clincian has the qualifications an experience to make informed decsiins for my welfare.
Even when I'm uncertain about how this clinician will act, I expect him/her to do what is best for me.	1		2	3	1	5	1	2	Unclear why use uncertain	
Even when I'm uncertain about the outcome of my treatment, the hospital will still do what is best for me.	1		2	3	1	6	1	1	?shift from personal to institution	

Factor: Empathy

Question	Relevance					Clarity			Comments	Revisions
	0	1	2	3	4	Yes	No	Unsure		
I felt the clinician understood what I was going through.	1			2	5	8			Use actions rather than feeling to define empathic elements	I sensed that the clinician understood what I was going through.
The clinician who assessed me appeared to be sympathetic to my problem.				2	6	8				
I felt at ease with the clinician during my assessment.		1	2	4	1	8			ease not always related to empathy	
The clinician was compassionate.				2	6	8				
The clinicians are very busy at the hospital and I felt uncertain whether my problem was important enough.		1	4	2	1	5		3		
I felt that the clinician was genuinely interested in how my problem was affecting my life.			1		7	8			"wording vague"	The clinician was genuinely interested in how my problems was affecting my life
The clinician tried to understand my perspective of my health issue.				2	6	8				
This clinician asked questions to gain an understanding of my thought and feelings.			1	2	5	8			Why change to "this clincian"	
I felt like this clinician took the time to understand me as a person.		1		4	3	7		1		
I believe this clinician did well at understanding the situation from my perspective.		1		1	6	7		1	"owrding too woolly"	
This clinician took the time to make me feel at ease.			1	4	3	8				
This clinician demonstrated a willingness to understand my concerns.				3	5	8				
The clinician was attentive to my personal needs.			1	3	4	7		1	"needs unclear"	
The clinician checked to see whether or not his/her assessment took my perspective into account.			1	3	3	6	2			
I felt like the practitioner listened carefully to what I had to say.			1	3	4	7		1	over lap with communication	Omit

Factor: Relatedness

Question	Relevance					Clarity			Comments	Proposed evision
	0	1	2	3	4	Yes	No	Unsure		
									Use feelings as a basis for relatedness	
I feel like the clinician respected my opinions or experiences in regard to my problem.			2	1	5	8			too close to empathy	I felt like the clinician was working with me to solve my problem.
I got the sense that the clinician cared about me rather than seeing me as just another patient.			1	1	6	8			a/a	
When I arrived the clinician introduced themselves by telling me their name.			1	5	2	8				I
I felt the clinician was someone who I could work with.			2	3	3	8				
The clinician used my name when talking to me.			2	3	3	7		1	unsure of context ie aggresssive or caring	omit
I got the sense that the clinician I saw respected me as a person and not simply another patient.			2	2	4	7		1	relation to being connected?	Retain
I got the sense that the clinician valued his/her interaction with me.			2	5	1	7		1		
The clinician paid attention to me whilst I talked .			2	2	4	8			?overlap with communication ...overlap with empathy	Omit

Factor: Communication

Question	Relevance					Clarity			Comments	Revisions
	0	1	2	3	4	Yes	No	Unsure		
I felt like the clinician listened carefully to what I was saying.			3	1	4	8				The clincian listened carefully to what I was saying.
I could ask any the clinician any question I wanted to.			3		5	7	1			
I had felt that I had an opportunity to have a say in how my problem will be managed.	1		3	1	3	5	3		? Communication ot autonomy	
The clinician explained medical terms in a language that easy for me to understand.			1		7	8				
It was easy to talk to the clinician who assessed me.			2	2	4	8				
I was offered the opportunity to tell my story.			3		5	8				
The clinician sought my input during the consultation process.			2	2	4	8				
The clinician made the effort to engage me in the management of my health condition.			3	1	4	7		1	Engage too jargoned	Omit
I was made to feel included in the decision-making process.			2	3	3	8				I was included in the decision making process.
The clinician asked me lots of questions about my health condition.			3	2	3	8				
The clinician took the time to explain things in terms I could understand.			2		6	8				
I did not have to ask the clinician to explain the medical terms.			4	1	3	8				

Factor: Expectation

Question	Relevance					Clarity			Comments	Revision
	0	1	2	3	4	Yes	No	Unsure		
I expected to find out more about what the problem is.			2	2	4	7		1		Retain
The clinician understood what I wanted from the consultation.		1	3	1	3	8			strong overlap with other categories	Omit
I was pleasantly surprised by my experience in the consultation.		2	2		4	8			?use of surprised..not an expectatncy	My experience in the clinic was better than I expected.
The assessment changed my mind about the best way to manage my problem.		1	2	3	2	8				
I need more to be done to solve my problem.		1	2	3	2	6	1	1	not an expectancy	I expected that more could have done to assess my problem.
My expectations were taken into consideration in the consultation process.			3	3	2	7		1		Retain
The clinician took the time to understand my expectations of the diagnosis of my health condition.		2	3	1	2	6		2	empathy?	Omit
The clinician took the time to understand my expectations of how to manage my health condition.		2	3	2	1	5		3	empathy?	Omit

Appendix 9: Patient satisfaction survey administered to patient cohort

Patient Satisfaction with Orthopaedic Assessment Survey

Purpose: Whilst the outcome of any clinical intervention is important, it is not the only influence how satisfied a patient is with the service they have experienced. Focus groups have identified factors influencing satisfaction in both the clinical environment and from the patient –clinician interaction. The purpose of this survey is to investigate how much these factors influence patient satisfaction with an orthopaedic service.

Procedure: This survey contains a number of questions. It is essential that you provide your own ***honest opinion***; there are no right or wrong answers. There is no time limit. Please answer all the questions. There are guidelines for you to follow at the beginning of each section. Please read these carefully as some sections ask you to answer things differently. If you don't understand a part of the survey, you may ask the research assistant. You will need about 15 minutes to answer all the questions.

The survey should be completed in one sitting, so please ensure that you have set enough time aside to complete the **entire** questionnaire. Completed surveys can returned to the clinic clerk at the front desk.
All information provided is confidential. You cannot be identified on the survey.

In this first section of the survey, we are interested in gathering your perceptions of the time you spent waiting in the clinic and your allotted time with the clinician.

1 Please indicate how long you believe you waited for the clinician.

5 minutes	15 minutes	30 minutes	1 hour	2 hours	3 hours or greater

Instructions: Using the scale below, please rate each of the following statements as an indication of your experience as a patient waiting to see the clinician and your experience with the clinician – *remember there are no right or wrong answers so be as honest as possible*.

1 *Strongly Disagree*	2 *Disagree*	3 *Slightly Disagree*	4 *Neutral*	5 *Slightly Agree*	6 *Agree*	7 *Strongly Agree*

2	I was comfortable with the time I had to wait.	1	2	3	4	5	6	7
3	I felt like the clinician dedicated enough time to me during the consultation.	1	2	3	4	5	6	7
4	I had enough time with the clinician to ask all the questions I had about my condition.	1	2	3	4	5	6	7
5	I was kept waiting too long to see the clinician.	1	2	3	4	5	6	7
6	The clinician did not seem like s/he was rushed during my consultation.	1	2	3	4	5	6	7

The following questions are looking to explore your impressions of the clinician who saw you.

Using the scales above each section, please indicate your rating of the following statements as an indication of your experience as a patient – *remember there are no right or wrong answers so be as honest as possible.*

1	2	3	4	5	6	7
Strongly Agree	*Agree*	*Slightly Agree*	*Neutral*	*Slightly Disagree*	*disagree*	*Strongly Disagree*

During my assessment….

7	I felt as though I could trust the clinician who assessed me to do what is best for my condition.	1	2	3	4	5	6	7
8	The clinician took the time to make me feel at ease.	1	2	3	4	5	6	7
9	I trusted that the clinician has the expertise to identify the best solution for my circumstances.	1	2	3	4	5	6	7
10	When I arrived, the clinician introduced themselves by name.	1	2	3	4	5	6	7
11	I got the sense that the clinician I saw respected me as a person.	1	2	3	4	5	6	7
12	I got the sense that the clinician cared about me rather than seeing me as just another patient.	1	2	3	4	5	6	7
13	The clinician demonstrated a willingness to understand my concerns.	1	2	3	4	5	6	7
14	I felt like the clinician was genuinely interested in how my problem was affecting my life.	1	2	3	4	5	6	7
15	I trusted that this clinician will be able to identify alternative solutions if my circumstances change.	1	2	3	4	5	6	7

The following questions are asking about the communication between yourself and the clinician.

Using the scale below, please rate each of the following statements as an indication of your experience as a patient – *remember there are no right or wrong answers so be as honest as possible*.

1	2	3	4	5	6	7
Strongly Disagree	*Disagree*	*Slightly Disagree*	*Neutral*	*Slightly Agree*	*Agree*	*Strongly Agree*

During my assessment.....

16	The clinician sought my input during the consultation process.	1	2	3	4	5	6	7
17	The clinician explained medical terms in a language that easy for me to understand.	1	2	3	4	5	6	7
18	It was easy to talk to the clinician who assessed me.	1	2	3	4	5	6	7

The next questions are to help us find out more about what your expectations of the service were.

Using the scale below, please rate each of the following statements as an indication of your experience as a patient – *remember there are no right or wrong answers so be as honest as possible*.

1	2	3	4	5	6	7
Strongly Agree	*Agree*	*Slightly Agree*	*Neutral*	*Slightly Disagree*	*Disagree*	*Strongly Disagree*

From my assessment, I could say….

19	My experience in the clinic was better than I expected.	1	2	3	4	5	6	7
20	I expected that more could have been done to assess my problem.	1	2	3	4	5	6	7
21	My expectations were taken into consideration in the consultation process.	1	2	3	4	5	6	7

Demographic Information

35. How old are you?

_____

36. Are you (please circle)?

Male	Female

37. How long have you had this particular problem that was assessed?

_____

38. Is your condition part of a compensation claim or disability pension (please circle)?

No	Yes

40. How would you rate your overall level of satisfaction with the orthopaedic service (please circle)?

1 *Highly satisfied*	2 *Satisfied*	3 *Slightly Satisfied*	4 *Neutral*	5 *Slightly Dissatisfied*	6 *Dissatisfied*	7 *Strongly Dissatisfied*

40. How likely would you be to recommend the orthopaedic service to a friend or family (please circle)?

1 *Highly Likely*	2 *Likely*	3 *Somewhat Likely*	4 *Unsure*	5 *Somewhat Unlikely*	6 *Likely*	7 *Highly Unlikely*

Thank you for completing this survey!

Appendix 10: Descriptive statistics group associations within survey data

TheRel =Therapeutic relationship

age = Patient age

ageprob = age of condition

expectation = Expectation

clinwaitime = Clinic wait time

Commun= Communication

Time=Clinical contact time

Therapeutic relationship ↔ age and age of condition

	Mean	Std. Deviation	N
TheRel	5.3438	1.85908	97
age	51.1134	13.95445	97
ageprob	37.3737	86.58495	97

		TheRel	age	ageprob
Pearson Correlation	TheRel	1.000	-.071	-.105
	age	-.071	1.000	.152
	ageprob	-.105	.152	1.000
Sig. (1-tailed)	TheRel	.	.244	.152
	age	.244	.	.068
	ageprob	.152	.068	.
N	TheRel	97	97	97
	age	97	97	97
	ageprob	97	97	97

Clinical contact time ↔ age and age of condition

	Mean	Std. Deviation	N
time	5.6632	1.29770	97
age	51.1134	13.95445	97
ageprob	37.3737	86.58495	97

		time	age	ageprob
Pearson Correlation	time	1.000	-.028	.071
	age	-.028	1.000	.152
	ageprob	.071	.152	1.000
Sig. (1-tailed)	time	.	.394	.245
	age	.394	.	.068
	ageprob	.245	.068	.
N	time	97	97	97
	age	97	97	97
	ageprob	97	97	97

Communication↔ age and age of condition

	Mean	Std. Deviation	N
commun	5.8924	1.39883	96
age	51.1042	14.03640	96
ageprob	33.2943	74.11930	96

		commun	age	ageprob
Pearson Correlation	commun	1.000	.027	.036
	age	.027	1.000	.177
	ageprob	.036	.177	1.000
Sig. (1-tailed)	commun	.	.396	.362
	age	.396	.	.042
	ageprob	.362	.042	.
N	commun	96	96	96
	age	96	96	96
	ageprob	96	96	96

Expectation↔ age and age of condition

	Mean	Std. Deviation	N
expectation	4.8129	1.67323	98
age	51.2551	13.95302	98
ageprob	37.6046	86.16780	98

		expectation	age	ageprob
Pearson Correlation	expectation	1.000	.057	-.107
	age	.057	1.000	.154
	ageprob	-.107	.154	1.000
Sig. (1-tailed)	expectation	.	.287	.147
	age	.287	.	.065
	ageprob	.147	.065	.
N	expectation	98	98	98
	age	98	98	98
	ageprob	98	98	98

Clinic wait time ↔ age and age of condition

	Mean	Std. Deviation	N
clinwaittime	5.5361	1.55330	97
age	51.1134	13.95445	97
ageprob	37.3737	86.58495	97

		clinwaittime	age	ageprob
Pearson Correlation	clinwaittime	1.000	.009	-.066
	age	.009	1.000	.152
	ageprob	-.066	.152	1.000
Sig. (1-tailed)	clinwaittime	.	.465	.261
	age	.465	.	.068
	ageprob	.261	.068	.
N	clinwaittime	97	97	97
	age	97	97	97
	ageprob	97	97	97

Gender: Male↔ female group associations

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
TheRel	male	28	5.5079	1.88669	.35655	4.7764	6.2395	1.00	7.00
	female	72	5.2610	1.90532	.22454	4.8133	5.7087	1.00	7.00
	Total	100	5.3301	1.89387	.18939	4.9544	5.7059	1.00	7.00
time	male	28	5.3095	1.29871	.24543	4.8059	5.8131	1.33	7.00
	female	71	5.7559	1.37201	.16283	5.4311	6.0806	1.67	7.00
	Total	99	5.6296	1.36018	.13670	5.3583	5.9009	1.33	7.00
commun	male	29	5.5977	1.81129	.33635	4.9087	6.2867	1.00	7.00
	female	70	5.9714	1.30124	.15553	5.6612	6.2817	2.00	7.00
	Total	99	5.8620	1.46927	.14767	5.5689	6.1550	1.00	7.00
expectation	male	28	4.8690	1.52709	.28859	4.2769	5.4612	1.00	7.00
	female	72	4.8449	1.74450	.20559	4.4350	5.2548	1.00	7.00
	Total	100	4.8517	1.67889	.16789	4.5185	5.1848	1.00	7.00
clinwaittime	male	28	5.6071	1.37003	.25891	5.0759	6.1384	2.50	7.00
	female	71	5.4437	1.65519	.19643	5.0519	5.8354	1.00	7.00
	Total	99	5.4899	1.57464	.15826	5.1758	5.8040	1.00	7.00

Clinical process: Medical ↔ Physiotherapy triage group associations

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
TheRel	medical	50	5.1181	2.03784	.28819	4.5389	5.6972	1.00	7.00
	triage	32	5.5972	1.91262	.33811	4.9077	6.2868	1.33	7.00
	Total	82	5.3050	1.99186	.21996	4.8674	5.7427	1.00	7.00
time	medical	49	5.5102	1.53071	.21867	5.0705	5.9499	1.33	7.00
	triage	32	6.0729	.84554	.14947	5.7681	6.3778	4.67	7.00
	Total	81	5.7325	1.32646	.14738	5.4392	6.0258	1.33	7.00
commun	medical	49	5.6327	1.68496	.24071	5.1487	6.1166	1.00	7.00
	triage	32	6.3437	.99275	.17549	5.9858	6.7017	2.00	7.00
	Total	81	5.9136	1.48584	.16509	5.5850	6.2421	1.00	7.00
expectation	medical	50	4.8033	1.80629	.25545	4.2900	5.3167	1.00	7.00
	triage	32	5.1146	1.66690	.29467	4.5136	5.7156	1.00	7.00
	Total	82	4.9248	1.74942	.19319	4.5404	5.3092	1.00	7.00
clinwaittime	medical	49	5.1735	1.70646	.24378	4.6833	5.6636	1.00	7.00
	triage	32	6.3594	.89112	.15753	6.0381	6.6807	3.50	7.00
	Total	81	5.6420	1.54765	.17196	5.2998	5.9842	1.00	7.00

Site: SCGH ↔ FHHS triage group associations

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
TheRel	scgh	14	5.4286	2.42136	.64714	4.0305	6.8266	1.00	7.00
	fhhs	86	5.3141	1.81079	.19526	4.9259	5.7023	1.00	7.00
	Total	100	5.3301	1.89387	.18939	4.9544	5.7059	1.00	7.00
time	scgh	13	6.0513	1.07880	.29921	5.3994	6.7032	3.00	7.00
	fhhs	86	5.5659	1.39192	.15009	5.2675	5.8643	1.33	7.00
	Total	99	5.6296	1.36018	.13670	5.3583	5.9009	1.33	7.00
commun	scgh	14	5.9286	1.97063	.52667	4.7908	7.0664	1.00	7.00
	fhhs	85	5.8510	1.38444	.15016	5.5524	6.1496	1.00	7.00
	Total	99	5.8620	1.46927	.14767	5.5689	6.1550	1.00	7.00
expectation	scgh	14	4.8452	2.02175	.54033	3.6779	6.0126	1.00	7.00
	fhhs	86	4.8527	1.63027	.17580	4.5032	5.2022	1.00	7.00
	Total	100	4.8517	1.67889	.16789	4.5185	5.1848	1.00	7.00
clinwaittime	scgh	13	4.6538	1.80721	.50123	3.5618	5.7459	1.00	7.00
	fhhs	86	5.6163	1.50816	.16263	5.2929	5.9396	1.00	7.00
	Total	99	5.4899	1.57464	.15826	5.1758	5.8040	1.00	7.00

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