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**University of Southampton**

Faculty of Environmental and Life Sciences

School of Health Sciences

**A qualitative study to explore the decision making and clinical reasoning processes among experienced Pelvic health physiotherapists in the United Kingdom and the Kingdom of Saudi Arabia while managing patients with urinary incontinence**

By Jawahr Alagil

Thesis for the degree of Doctor of Philosophy

**September 2022**



**University of Southampton**

**Abstract**

Faculty of Environmental and Life Sciences/ School of Health Sciences

Thesis for the degree of Doctor of Philosophy

A qualitative study to explore the decision making and clinical reasoning processes among experienced pelvic health physiotherapists in the United Kingdom and the Kingdom of Saudi Arabia while managing patients with urinary incontinence. By Jawahr Alagil

Urinary Incontinence can significantly affect (and be affected by) different aspects of a patient's life and can be a chronic and recurrent disease that may require self-management; this may lead to unique clinical reasoning by pelvic health physiotherapists. Clinical reasoning is complex in nature and can be represented by different models that may overlap with each other in terms of their terminology and meaning. The existing bio-psychosocial model is limited and has weak implementation in the current literature. Also, the clinical reasoning of physiotherapists working within different countries and organisational cultures are likely to differ. However, there is a lack of research regarding the influence of different cultures and other factors, such as patients' social and organisational factors, on physiotherapists' clinical reasoning processes and the factors that might affect their decision making. This study aims to explore the clinical reasoning process and decision making of physiotherapists in the United Kingdom (UK) and the Kingdom of Saudi Arabia (KSA) while assessing and treating patients with urinary incontinence. Using qualitative research that involved focus groups and interviews with experienced physiotherapists in the UK and KSA. A framework approach to analysis was used to explore and interpret findings. A total of 28 participants were recruited from both countries to undertake semi-structured interviews to understand their thinking processes while managing patients with urinary incontinence. Another 20 participants were recruited to discuss the factors influencing physiotherapists' decision making across three focus groups in both countries.

The results showed four main themes: 1) contextual factors (culture, resources, and healthcare system), 2) Physiotherapists' factors (multifaceted knowledge and experience, interpersonal characteristics and dealing with complex emotional and ethical issues), 3) patients' factors (patients' characteristics and expectations) and 4) making sense of physiotherapists' clinical reasoning and decision making. The existing models of reasoning are insufficient on their own because they do not include individual and organisational cultures. Sense making theory was used to interpret the

participants' thinking process because it helps in understanding ambiguity and uncertainties; in addition, it considers organisational cultures. Comparing two different countries increase understanding of the influence of individual and organisational cultures on decision making. Introducing sense making theory, institutional logics and cultural humility assist in understanding physiotherapists' clinical reasoning and decision making in the UK and KSA while managing patients with urinary incontinence. The findings of this study can be relevant to physiotherapists' clinical reasoning and decision making in other chronic conditions. Further studies are needed to explore the effect of adding cultural humility to cultural competency in physiotherapists' management plans of ethnic minority patients within the UK.







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## **Research Thesis: Declaration of Authorship**

Jawahr Alagil

A qualitative study to explore the decision making and clinical reasoning processes among experienced pelvic health physiotherapists in the United Kingdom and the Kingdom of Saudi Arabia while managing patients with urinary incontinence

I declare that this thesis and the work presented in it are my own and have been generated by me as the result of my original research.

I confirm that:

- This work was done wholly or mainly while in candidature for a research degree at this University;
- Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
- Where I have consulted the published work of others, this is always clearly attributed;
- Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
- I have acknowledged all main sources of help;
- Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
- None of this work has been published before submission

Signature: Jawahr Alagil

Date: 20.09.2022





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**Abbreviations**

BF: Biofeedback

CR: Clinical reasoning

DM: Decision Making

EBM: Evidence-Based Medicine

EBP: Evidence-Based Practice

FGM: Female Genital Mutilation.

FGs: Focus groups

HD: Hypothetico-Deductive

HRA: Health Research Authority

IOPTWH: International Organization of Physical Therapists in Pelvic and Women's Health

ICS: International Continence Society

IUGA: International Uro-gynecological Association

MOH: Ministry of Health

MUI: Mixed urinary incontinence

NHS: National Health Service

NICE: National Institute for Health and Care Excellence

OPTION: Observing Patient Involvement Instrument

OC: Organisational Culture

PFM: Pelvic floor muscle

PFMT: pelvic floor muscle training

PGT: Post-graduate training

PHE: Public Health England

PHPTs: Pelvic Health Physiotherapists

POGP: Pelvic Obstetric and Gynaecological Physiotherapy

POP: Pelvic Organ Prolapse

PRR: Progression review report

## Abbreviations

PTNS: Posterior Tibial Nerve Stimulation

KSA: Kingdom of Saudi Arabia

SDM: Shared Decision Making

SUI: Stress Urinary Incontinence

UI: Urinary incontinence

UUI: Urgency Urinary incontinence

WPT: World Physiotherapy

SPTWHA: Saudi Physiotherapy Women's Health Association

WHO: World Health Organisation

WHPTs: Women's Health Physiotherapists

UK: United Kingdom

USA: United State of America

## Chapter 1 Introduction and Background

### 1.1 Introduction and Background

This study explored the clinical reasoning (CR) and decision making (DM) process of physiotherapists assessing and treating patients with Urinary Incontinence (UI). In simple terms, clinical reasoning is the process by which health professionals ‘collect and evaluate data and make judgments about the diagnosis and management of patient problems’ (Higgs and Jones, 2008p.4).

#### The problem of Urinary Incontinence

Urinary incontinence is defined by the International Continence Society and the International Uro-gynecological Association (IUG) ‘as any involuntary loss of urine’ (Haylen *et al.*, 2010 p 7). The true prevalence of UI is difficult to estimate and is influenced by the sample population studied and the definition of incontinence. It is agreed that UI is more frequent in women than men (Hunskar *et al.*, 2000), which is often related to the effects of childbirth, obesity, increasing age and menopause (MacArthur, Lewis and Knox, 1991; Hannestad *et al.*, 2000). The prevalence of UI, using the most inclusive definitions of UI (‘ever’ ‘any’ or ‘at least once in the past 12 months’) ranges from 25 to 45% (Botlero *et al.*, 2008).

Urinary incontinence is common; Coyne *et al.* (2009) conducted a multinational cross-sectional study in the United State of America (USA), Sweden, and the United Kingdom (UK), comprising 15,861 female participants. Stress Urinary Incontinence (SUI) was reported in over a third of all women surveyed (31.8%), while nearly a quarter of all women surveyed reported Urge Urinary Incontinence (UUI) (24.4%). Similar reports have also been recorded in the KSA, where SUI was found to be the most common type of UI, with prevalence estimated at 50% of women. However, the sample was taken from women visiting the family doctors in five different hospitals, so these estimates may not be fully representative of the general population (Altaweel and Alharbi, 2012). Nevertheless, it is clear that UI is a highly prevalent problem globally, especially in women, which can have a major impact on the patients’ quality of life. This is discussed further in the following section.

Experiencing UI has been shown to have numerous psychosocial impacts. Lee (2005) argues that the voluntary control of the bladder is essential for the sense of normality, self-esteem, and independence. Hence, a loss of bladder control resulting in urine loss can have a profound impact on social activities of women. Although it is not considered a life-threatening condition, UI can have a significant psychosocial impact on a woman's life, and can substantially interfere with a patient's general health, wellbeing, and quality of life. Women with UI report higher levels of anxiety and depression than the general population (Perry, McGrother and Turner, 2006; Melville *et al.*, 2009). Senra and Pereira (2015) conducted a study involving 80 women with UI in Portugal that compared the link between quality of life and urine loss severity (mild, moderate, and severe). They highlighted the negative effect of UI on women's sexual satisfaction.

Urinary incontinence may have a greater effect on the quality of life of Muslim women due to the disruption to religious observance (Chaliha and Stanton, 1999; Siddiqui *et al.*, 2014). Muslims pray five times a day at different intervals, and Muslim women are required to do ablution (Wudu<sup>1</sup>). The actions of prayers can lead to leakage in UI women because it requires them to stand, bend and sit (Chapra, Khan and Al Shaikh-Ali, 2008). Qualitative studies conducted in mixed Western populations (White, Black, Hispanic, Asian and Arab) suggested that Muslim women and other ethnic minorities only seek help after having severe urinary leakage (Siddiqui *et al.*, 2014). The culture of secrecy, sense of shame and self-blame for UI limit help-seeking for UI in women from ethnic minorities (Siddiqui *et al.*, 2014; Toye and Barker, 2020). Some Muslim women may be hesitant to undertake Uro-gynecological tests because there are customs that demand that women should expose certain body parts to their husbands only (Khattab, 2001).

Due to the effects of UI, women (of any race or religion) may often feel unable to leave their home. This could be due to feelings of fear, embarrassment and shame of leaking urine in a public place, mainly because of anxiety regarding odour, feeling wet and not being able to locate a bathroom in time (Huang *et al.*, 2006). Consequently, women with UI will often change their daily routines, isolate themselves from social activities and

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<sup>1</sup> "Wudu: is a form of worship to Allah that aims to purify the body and mind by washing water to some predetermined body parts, which are carried out before the prayer." Reza, I.F. (2020) 'Wudu as Islamic Psychotherapy to Improve Sleep Quality in Young Women', *Journal An-Nafs: Kajian Penelitian Psikologi*, 5(1), pp. 64-75.

avoid social gatherings. This in turn can affect their emotional, working lives, wellbeing, restricting physical activities such as, walking, running and dancing (Bø, Talseth and Vinsnes, 2000; Coyne *et al.*, 2003; Sinclair and Ramsay, 2011). It is clear from the existing literature that UI can have a significantly negative impact on the quality of life of the patient (McClurg *et al.*, 2017). It can be assumed that the lifestyles women have will affect how UI is experienced. It is therefore likely that women in different countries and cultures experience and perceive incontinence differently. It is also possible therefore that pelvic health physiotherapists decision making and clinical reasoning may vary in different cultures.

There are a number of interventions to reduce the symptoms of UI in women; for instance, pharmacological and surgical interventions (Virkud, 2011; Nambiar *et al.*, 2018). However, for a number of women, the first line of treatment is physiotherapy intervention (Smith *et al.*, 2013; guideline, 2019).

Pelvic Floor Muscle Training (PFMT) with or without the use of adjunctive therapy such as vaginal cones, biofeedback or electrostimulation aims to strengthen the pelvic floor muscles to improve bladder control (Dumoulin, Hay-Smith and Mac Habee-Seguin, 2014). Physiotherapy interventions can also include a combination of lifestyle modification and education to improve management of UI. These may include bladder training to increase the capacity of the bladder by consciously increasing the time between voiding by contracting the PFM to inhibit the detrusor muscles' over-activity (Ostaszkiwicz, Chestney and Roe, 2004; Dumoulin and Hay-Smith, 2010). It also includes advice on lifestyle changes, for instance, through the management of fluid intake, caffeine and levels of physical activity (Imamura *et al.*, 2015). PFMT can also be carried out with electrical or magnetic stimulation as a supplemental treatment, depending on the severity and type of UI (Bo *et al.*, 2014).

Since UI is more frequent in women than in men (Buckley and Lapitan, 2010), particularly following childbirth; the number of women seeking physiotherapy treatment for UI is high. The International Organization of Physical Therapists in Pelvic and Women's Health (IOPTPWH), an official subgroup of the World physiotherapy, defined women's health physiotherapists as those who provide specialist skills and knowledge related to the prevention and management of many conditions unique to women's health. These conditions include, but are not limited to, incontinence, pregnancy, pelvic pain,

osteoporosis, bone health, breast health, cardiovascular health, and other musculoskeletal conditions (Porter, 2008).

Pelvic health physiotherapists (PHPTs) provide management to a range of conditions that can cause pelvic problems, such as incontinence of the bladder and bowel, pelvic pain, pelvic organ prolapse (POP) and sexual dysfunction (Bo *et al.*, 2014; Gynaecological and Physiotherapy, 2019). Pelvic and women's health physiotherapy differs from other physiotherapy specialities, as PHPTs deal with sensitive and intimate body parts, meaning these physiotherapists require a specific knowledge base and post-qualification, specialised clinical training (Bo *et al.*, 2014; Frawley, Neumann and Delany, 2019). Physiotherapists often work autonomously and treat complex cases drawing upon a range of models that inform their decisions. The researcher's own practical experience as a pelvic health physiotherapist means there is an awareness of how physiotherapists have to make decisions that account for a complex range of physical, psychological, and socially sensitive issues (Coyne *et al.*, 2003). It is not always clear how to best manage different UI conditions and take account of this complexity. PHPTs assess (including identifying symptoms, mechanisms, and impact on women's life) and carry out treatments using the most appropriate regime. To do this, PHPTs need to clinically reason about likely causation and impact and make decisions about what management to apply. This study therefore seeks to explore and understand the clinical reasoning undertaken by pelvic health physiotherapists, while acknowledging the complexity and uncertainty experienced by physiotherapists during assessments. It also aims to see how physiotherapists consider the impact of UI on women's bodies and their lives. The next section will explore the meaning of clinical reasoning.

## **1.2 Clinical Reasoning**

### **1.2.1 Definition**

Different terms have been used interchangeably within the literature; decision making, clinical judgement, problem solving and clinical reasoning. There are controversies in the literature regarding the concept of clinical reasoning. In nursing, it has been differentiated from decision making (Murphy, 2004), while in physiotherapy clinical reasoning and decision making are used interchangeably as suggested by Oostendorp, Elvers and Trijffel van (2020) clinical reasoning is a process by which physiotherapists work together with



the patient and significant others; make inductive and deductive decisions, step-by-step on the ultimate diagnostics, management options, and outcome measurements related to patients (Hendriks *et al.*, 2000; Oostendorp, Elvers and Trijffel van, 2020). In this study, clinical reasoning focuses on the thinking processes that a physiotherapist uses to make a decision or judgement and solve problems (Hendriks *et al.*, 2000; Kautz *et al.*, 2005), clinical reasoning is the pioneer to decision making and action.

Clinical decision making (DM) has often been defined as the process of choosing between alternatives or options (Thompson and Stapley, 2011). However, Tiffen, Corbridge and Slimmer (2014) developed a definition of clinical decision making by reviewing the literature and asking a panel of nurse practitioners to provide feedback on the new definition. Clinical decision making is defined as a continuous, contextual, and evolving process, where data are gathered from different resources, interpreted, and evaluated in order to select an evidence-based choice of action (Tiffen, Corbridge and Slimmer, 2014).

### **1.2.2 A personal perspective on Clinical Reasoning in Pelvic Health Physiotherapy**

The researcher's own experience as a physiotherapist, working in the Kingdom of Saudi Arabia (KSA) showed her that even after explaining the benefits of pelvic floor muscles (PFMs) many patients found it difficult to contract these muscles and isolate them from another adjacent muscles. Many of her patients were shy during the consent process, required before assessing pelvic floor muscles, and often did not accept digital palpation (vaginal examination). The researcher understood from her own experiences that these women were desperate to get help; she did not want to discharge them with a home exercise programme. She believed they would not adhere to the exercises without a follow-up appointment. In fact, she felt caught between her eagerness to follow research evidence which supports using digital palpation as a way to demonstrate how to contract pelvic floor muscles correctly, and satisfying and respecting her patients' preferences and choices. The latter was contradicting the current available research evidence: isolating pelvic floor muscles from other surrounding muscles was challenging without digital palpation or using other biofeedback tools. Even though the physiotherapy department where the researcher worked prioritised following high quality research evidence over patients' preferences, it was challenging to ignore individual patients' preferences and to follow the department's recommendations solely. However, some of her colleagues were

supportive of the researcher's approach and followed their patients' preferences also; others did not.

To summarise my professional past, I worked as a pelvic health physiotherapist for about five years at KSA. In 2008, I was offered a position at King Saud University in Riyadh, KSA, to work as a lecturer in general physiotherapy and pelvic health physiotherapy. During my work as a clinician and lecturer, I was influenced by the positivist paradigm, which, with its search for unique answers to determinate questions, dominated my professional education. In the years that followed, I was excited about the need for high-quality research evidence, and I shared this with my students. As a physiotherapist, my main concern was to develop my knowledge and skills in women's health and pelvic rehabilitation in the form of cause-effect relationships. I used clinical reasoning in my daily practice; I saw it as a purely hypothetico-deductive (HD) process that helped me during this period, and I taught it to my students.

I thought following the HD process was sufficient for clinicians to make a competent diagnosis. I assumed that clinical reasoning should be the domain of clinicians and that patients should not have any involvement. However, I became aware that my perspective of clinical reasoning was too narrow, and I began to feel uncomfortable with some of my beliefs, so I decided to reconsider my experiences as a lecturer and a physiotherapist. My assumptions seemed limited, and I needed to understand the complexity of physiotherapists' clinical reasoning to grow fully and develop as a practitioner. Therefore, I began a personal journey to increase my knowledge in this area. The purpose of clearing a researcher's concepts and thoughts about a topic, in addition to their personal biases, is to bring awareness and disclose what is assumed about a topic. By carrying the researcher's beliefs to the consciousness level, the researcher is in an excellent position to approach the topic fairly and openly (Speziale and Carpenter, 2007).

Therefore, in 2013, I relocated to the UK to obtain my master's degree in physiotherapy at the University of Brighton. During my studies, I became even more aware of the importance of clinical reasoning in physiotherapy; this became the focus of my master's thesis, which I completed in 2015. This subsequently led me to my PhD at Southampton University. My research idea, which reflected my previous experiences, was to identify the gaps in clinical reasoning in the Kingdom of Saudi Arabia and the UK. I was interested

in exploring clinical reasoning processes whilst managing patients with UI among experienced pelvic health physiotherapists in the UK and the KSA. In addition, I started to reflect on the distinctive characteristics of the Saudi healthcare system and the status of the physiotherapy profession in Saudi Arabia compared with those of the UK, and I developed a keen interest in progressing the clinical reasoning knowledge of pelvic health physiotherapists. See section 3.22 for more details about my reflection and reflexivity.

I realised that there are limited studies on the clinical reasoning processes of pelvic health physiotherapists for UI that consider cultural perspectives. However, given its importance, exploring the impact of culture is necessary. Therefore, this study was mainly conducted to understand how pelvic health physiotherapists clinically reason while considering the factors that impact UI management. It also sought to explore similarities and differences in the UK and KSA reasoning and decision making.

### **1.3 Thesis structure**

This thesis consists of seven chapters; this first chapter introduces the topic and presents a brief background of the research field, including definitions and presenting a personal perspective on clinical reasoning in pelvic health physiotherapy. The subsequent chapter presents a detailed literature review, including the mechanism of incontinence and pelvic floor muscle training and alternative treatment options for UI. Clinical reasoning methods in physiotherapy and a summary of the literature are also presented. A rationale for the present study and the research questions and aims are also included. Chapter three outlines the methodology and data analysis methods that are utilised in this study, which include semi-structured interviews and focus groups. Chapter four presents the findings regarding the factors that were found to influence pelvic health physiotherapists' clinical reasoning and decision making, while chapter five provides an overview of the sense making process of pelvic health physiotherapists' decision making and clinical reasoning. Chapter six discusses the findings with regard to the literature, while chapter seven presents the conclusions that have been drawn from the findings and their implications and recommendations for future research.

## Chapter 2      Literature review

This chapter presents a contemporary understanding of what is already established within existing physiotherapy clinical reasoning literature and presents an exploration of the knowledge gaps. The literature review chapter has been divided into four sections: the first section presents an overview of the field and defines relevant terms; it also presents an introduction of the health systems in the UK and the KSA. This is followed by the second section, which presents the process and the results of a scoping review and narrative synthesis of clinical reasoning and decision making within physiotherapy practice in general; it also considers the limitations of the existing models of clinical reasoning. The third section highlights the need for introducing different decision theories to overcome the limitations of the clinical reasoning models. The fourth section identifies the factors that influence pelvic health physiotherapists' decision making and clinical reasoning, in addition to outlining the frequently used decision making and clinical reasoning models of health practitioners in the KSA and, finally, the study rationale.

An aim of this study is to understand pelvic health physiotherapists' decision making and clinical reasoning when assessing and treating patients with UI. It is therefore, of interest to outline the mechanisms associated with continence/incontinence and mention the anatomy of the pelvic floor muscles in more detail and to highlight the physical, psychological, and social impacts of the condition. This will highlight the complexities of mechanisms, symptoms, and treatment options available, which physiotherapists are required to take into account of in their reasoning.

### 2.1      Mechanisms of continence and incontinence

There are different types of UI. The most common types are Stress Urinary Incontinence (SUI), Urgency Urinary Incontinence (UUI), and Mixed Urinary Incontinence (MUI). The definition of each type<sup>2</sup> are in the footnote (Berghmans, Seleme and Bernards, 2020; Frawley *et al.*, 2021).

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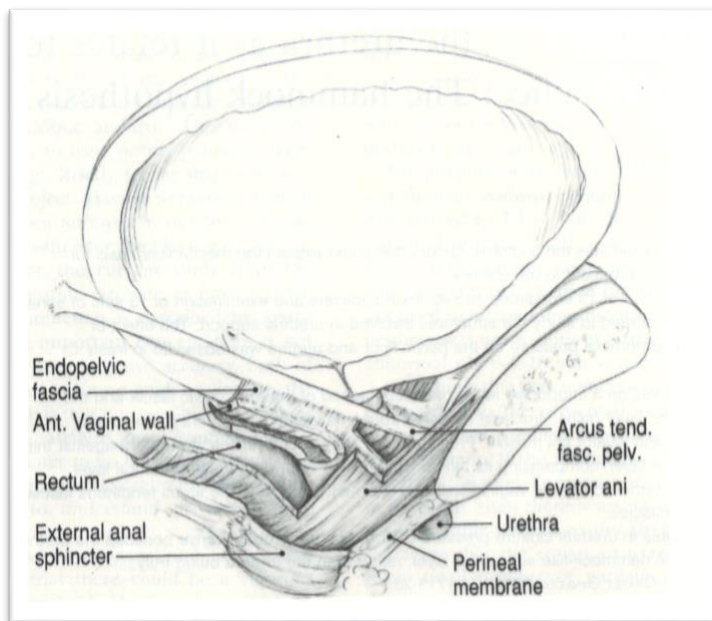
<sup>2</sup> Urgency: is the complaint of a sudden compelling desire to pass urine, which is difficult to defer.

## Chapter 2

The primary anatomical basis of continence is the urethra, whose wall contains small muscles that are able to generate intra-urethral pressure (Laycock and Haslam, 2013). The continuity of the endo-pelvic fascia, vaginal wall, arcus tendinous fascia pelvis, and levator ani muscle forms the hammock-like structural layer against which the urethra is compressed. This is facilitated by an intact nervous system control. The support of the urethra, as illustrated in Figure 2-1, is determined by the state of relaxation or contraction of the levator ani muscle (pelvic floor muscle) (DeLancey, 1994).

Figure 2-1 Illustrate the connection of the endopelvic fascia and vaginal wall

The endo-pelvic fascia and vaginal wall that lie under urethra to arcus tendinous fascia pelvis; its connection to levator ani muscle forms the hammock-like structural layer.



Source: (DeLancey, 1994) (Permission to use image granted by J.O. DeLancey)

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Stress Urinary Incontinence: is the complaint of involuntary leakage on effort, exertion, sneezing, or coughing.

Urgency Urinary Incontinence: is the complaint of involuntary loss of urine associated with urgency.

Mixed Urinary Incontinence: is the complaint of involuntary leakage associated with urgency and exertion, effort, sneezing, or coughing.

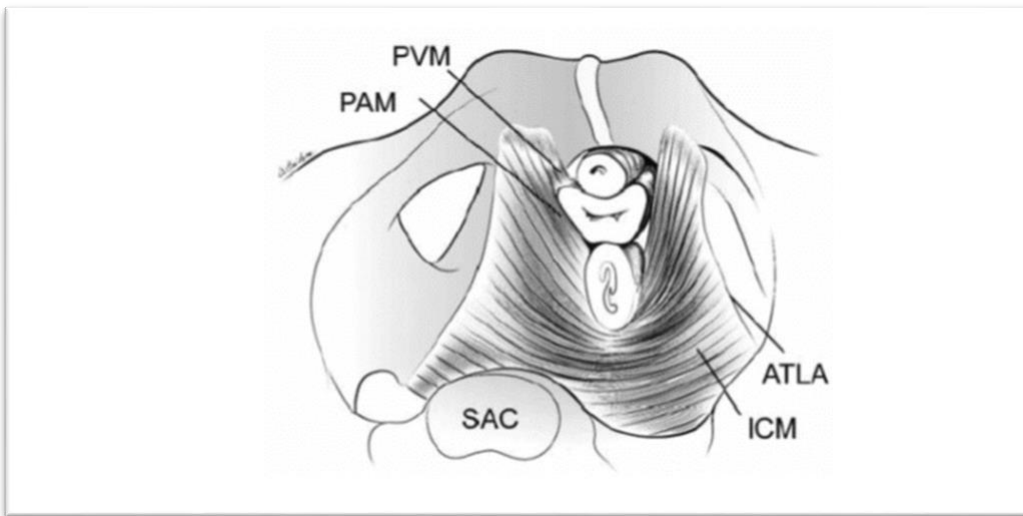
Voluntary contraction of the levator ani muscle causes bladder neck elevation, while voluntary relaxation causes it to be lowered at the onset of micturition. With increased intra-abdominal pressure (for example, during coughing, sneezing, and carrying heavy weight) the urethra is compressed between abdominal pressure and pelvic fascia, which leads to higher pressure in the urethra compared to that in the abdomen and the bladder. This pressure differential maintains continence and avoids urine leakage (DeLancey, 1994; Haylen *et al.*, 2010; Frawley *et al.*, 2021). The role of the pelvic floor in giving support to the bladder and urethra, and in allowing normal abdominal pressure transmission to the proximal urethra is also considered necessary in the maintenance of continence. If, however, the layer under the urethra becomes weak and unstable (for example, due to frequent spontaneous vaginal delivery, nerve damage, post-menopause or obesity), the opposing force that causes urethral closure is lost, and the occlusive action is diminished, which leads to incontinence (DeLancey, 1994; Rehman *et al.*, 2017). Urethral support is not the only factor involved in the incontinence mechanism; competence of the bladder neck and urethral function also plays a vital role (DeLancey, 1994).

## 2.2 Pelvic floor muscles

The main muscular supports for the pelvic organs (including the uterus, vagina, urethra, and rectum) are provided by the levator ani muscles. The levator ani, which is of crucial importance for the pelvic floor re-education (Laycock and Haslam, 2013), can be divided into different parts: pubovisceral muscle, pubovaginalis, iliococcygeus, puborectalis and pubococcygeus **Error! Reference source not found.** (DeLancey, 1994; Kearney, Sawhney and DeLancey, 2004; Laycock and Haslam, 2013). The levator ani muscle has a constant tone and relaxes during urine voiding and defecation. It has the ability to fast contract with an immediate increase in intra-abdominal pressure, for instance, during sneezing and coughing (DeLancey *et al.*, 2007).

Figure 2-2 The levator ani muscle is seen from above, looking over the sacral promontory.

Showing the pubovaginal muscle (PVM). The urethra, vagina, and rectum have been transected just above the pelvic floor. PAM = puboanal muscle; ATLA = arcus tendinous levator ani; and ICM = iliococcygeal muscle (The internal obturator muscles have been removed to clarify the levator muscle origins. The vagina and rectum have been transected just above the pelvic floor).



Source: (DeLancey *et al.*, 2003) (Permission to use image granted by J.O. DeLancey)

The levator ani muscles are composed of striated muscles. It is known that two-thirds of the fibres are type I (slow-twitch) muscle fibres responsible for the resting tone of the levator ani muscle (Gilpin *et al.*, 1989). One-third of the fibres are type II (fast-twitch) fibres, which are thought to act when a quick, powerful contraction is needed during coughing and sneezing (Gosling *et al.*, 1981). These might contribute to the management of UI by using constant pelvic floor muscle contraction that stimulates slow-twitch muscle fibres and using ‘the knack’; this is the fast contraction of the pelvic floor muscles before coughing and sneezing, which would stimulate the fast-twitch fibres (Bø, Talseth and Holme, 1999; Miller *et al.*, 2008).



## **2.3 Evidence supporting physiotherapy management for Urinary Incontinence**

There are several options for pelvic health physiotherapists to use in terms of UI management; this section presents some of the most frequently used options.

### **2.3.1 Pelvic floor muscles training**

Pelvic floor muscle training (PFMT) is the most widely used option and is supported by scholars Smith et al. (2013); McClurg et al. (2017); Dumoulin, Cacciari and Hay-Smith (2018). An international standardisation committee defined pelvic floor muscle training as an exercise to improve pelvic floor muscle strength, endurance, power, relaxation or a combination of these parameters (Frawley et al., 2021). A Cochrane review by Dumoulin, Cacciari and Hay-Smith (2018) compared pelvic floor muscle treatment for managing female stress, urgency and mixed UI with no treatment or control treatments. The review included 31 trials, with one study of women with MUI and only one study with UUI alone, with no data on cure or improvement or the number of episodes of UI of these participants. Dumoulin, Cacciari and Hay-Smith (2018) found that pelvic floor muscle training can cure or improve symptoms of stress UI and the other types of UI. Women undertaking pelvic floor muscle training lost smaller amounts of urine on the clinic-based pad tests. They reported emptying their bladder less often during the day and having better sexual outcomes. However, some trials found no evidence of an improvement in general health status quality of life measures, probably because these types of measures are less sensitive to changes in continence management or because of a lack of evidence (Beuttenmüller et al., 2010; Carneiro et al., 2010; Pereira, Correia and Driusso, 2011). Furthermore, the review, conducted using a robust methodology, reported difficulties in drawing any conclusions about the most effective type of exercise or setting for exercise provision because of variations in the regime type and incomplete description of the pelvic floor muscles training programmes.

There was also a lack of follow-up beyond the end of treatment in most trials, meaning that the long-term outcomes of using pelvic floor muscles training remain uncertain. There were potential biases in the clinical trials; for instance, some of the studies lacked genuine randomisation, limited blinding of the outcome assessment and significant differences in the participants' age. The review's findings suggest pelvic floor muscle training should be included in first-line conservative management programmes for women with UI. Dumoulin,

Cacciari and Hay-Smith (2018) indicated that further attention needs to be paid to socio-economics, as it has not been addressed enough until now; other studies are required in order to understand the significance of the follow-up beyond the end of supervised treatment because the purpose of therapy is longterm continence, it would be convenient too if there were measured at least one year after the end of treatment.

Moreover, Bascur-Castillo *et al.* (2022) analysed the systematic evidence of 32 reviews on the beneficial effects of pelvic floor muscle training, biofeedback, electrical stimulation, and lifestyle changes such as weight loss and vaginal cones. The result of the systematic review showed that pelvic floor muscles training is the most successful treatment for UI, with 70.6% of the studies reporting an improvement using this strategy. Of all the 32 reviews that Bascur-Castillo (2022) included, only three systematic reviews and one meta-analysis were of high quality; they analysed the effect of pelvic floor muscle training and non-surgical weight loss on UI. Therefore, there is scientific evidence to confirm the impact of these conservative management in treating UI. Pelvic floor muscle training has been considered the first-line treatment for UI and has several forms, however. However, there is not enough evidence to suggest which program of pelvic floor muscles treatment is better than others (Dumoulin, Cacciari and Hay-Smith, 2018; guideline, 2019; Okeahialam *et al.*, 2022).

At present, there are some inconsistencies within the literature regarding the effective exercise parameters, such as differences in the type (near maximal, submaximal, 'the Knack', with or against gravity), the number (per set, per day or per week), or the duration of contractions. However, it is recommended that the basic physiological principles to improve muscle strength and endurance should be adhered to, which may include: overloading muscles by performing more work than usual to the point of muscles fatigue; in addition, a specificity that may consist of training the muscles with exercise or physical activity that is as close as possible to the functional movement required (Garber *et al.*, 2011). Maintenance is essential in pelvic floor muscle training because the benefits of the exercise will reverse if they are not undertaken on a regular basis (Garber *et al.*, 2011). Smith *et al.* (2013) suggest pelvic floor muscle training of at least three months' duration and pelvic floor muscle training programmes are most effective when containing at least 8-12 slow to moderate velocity, moderate to maximal intensity contractions performed 2-4 times per day, 2-3 days per week with progression over 16 weeks (Kraemer *et al.*, 2002). Often pelvic floor muscle training can be performed by an individual as self-management, but the literature suggests that it is most effective when carried out under the supervision of a physiotherapist

(Smith *et al.*, 2013; Fitz *et al.*, 2020). Also, physiotherapy treatment can be provided individually or during group exercises. The effect of pelvic floor muscle training is better if it is delivered regularly in supervised training (Hay-Smith *et al.*, 2012). Supervised training is defined as a pelvic floor muscle training program taught and monitored by a health professional field (Bo *et al.*, 2017). A Cochrane review by Hay-Smith *et al.* (2012) found that pelvic floor muscle training with regular weekly supervision was better than pelvic floor muscle training with little or no supervision; however, it was not clear if the supervision was best provided individually or in a group. There are several limitations of the review: because there was a possibility of a relationship between attention and reporting of more improvement in participants who were not blind to treatment allocation, some trials did not describe their intervention in detail. This Cochrane review found that the evidence was insufficient to make strong recommendations about the best approach to pelvic floor muscle training.

Pelvic floor muscle training can also be undertaken through facilitating co-contraction of another muscle group, such as the transversus abdominus; however, adding other muscles to pelvic floor muscle contraction did not improve the outcome of UI. A systematic review conducted by Bø *et al.* (2009) found two randomised control trials by Dumoulin *et al.* (2004) that shown there was no additional effect of adding transversus abdominus training to pelvic floor muscle training in the treatment of patients with urinary incontinence. Small co-contractions of the inner abdominal muscles have always been encouraging in rehabilitation programs by health practitioners, but exercising accessory muscles such as abdominal muscles in an attempt to activate the pelvic floor sufficiently to elicit a training effect is not recommended (Kruger *et al.*, 2019). Also, in a systematic review conducted by Bø and Herbert (2013) to assess the existing evidence of RCTs to treat mixed and stress UI using alternative interventions to pelvic floor muscle training such as Pilates exercises, abdominal conditioning, and the Paula method, which means contracting ring muscles of the mouth, eyes, or nose will result in co-contraction of pelvic floor muscles. The result of the systematic review showed that there is no substantial evidence that alternative exercise interventions can decrease urinary leakage in women with stress urinary incontinence; this is supported by other work by Bø *et al.* (2009); Hay-Smith *et al.* (2012); Dumoulin, Cacciari and Hay-Smith (2018) who reported that there is no substantial evidence that using additional therapeutic exercises to pelvic floor muscle training will lead to more activation of the pelvic floor muscles and decrease UI.

Research has shown that pelvic floor muscle training is the most effective option for UI management compared to other alternatives, such as electrical stimulation and vaginal cones in the treatment of stress urinary incontinence (Bø, Talseth and Holme, 1999). In international consultation on incontinence (ICI) regarding the National Institute for Health and Care Excellence (NICE) guidelines, in two editions of the ICI, both Okeahialam *et al.* (2022) and Abrams *et al.* (2018) recommended pelvic floor muscle training as the first line of treatment for women with stress or mixed UI. In addition, a high-quality randomised controlled trial conducted by Bø, Talseth and Holme (1999) compared pelvic floor muscle training, electrical stimulation and vaginal cones in the treatment of SUI in 107 women with SUI; women were divided into four groups: pelvic floor muscle exercise group (n=25), electrical stimulation group (n=25), vaginal cones (n=27) and a control group with no treatment (n=30). Using a pad test with standardised urinary volume and self-reported severity, the amount of urine leakage was tracked over a period of six months. Significantly reduced urine leakage was noted in the pelvic floor muscles exercise group in comparison to electrostimulation (difference of 22.8g, p=0.02) and vaginal cones group (difference of -15.5g, p<0.01).

Moreover, it was reported that the group with the highest compliance rate was the pelvic floor muscle exercise group, which might be the reason why this group had the best outcome. Moreover, pelvic floor muscle training was found to be superior to other interventions in the treatment of SUI, with pelvic floor muscle training exercise recommended as the gold standard by a Cochrane systematic review (Dumoulin, Hay-Smith and Mac Habee-Seguin, 2014). Dumoulin, Cacciari and Hay-Smith (2018) also compared pelvic floor muscle training with no treatment or placebo in women with SUI, MUI, and UUI and concurred that pelvic floor muscle training should be the first line of treatment for all types of UI.

There are some other options available for the management of UI within the literature; for example, electrical stimulation, vaginal cones and the use of different muscles as facilitators; however, these alternatives do not have a strong evidence base and, as such, are not highly supported by researchers (Dumoulin, Hay-Smith and Mac Habee-Seguin, 2014). As a result, it has been noted within the literature that pelvic floor muscle training often report that they have insufficient management options to offer to their patients (Slade *et al.*, 2020). Nevertheless, the following section highlights the common alternatives to pelvic floor muscle training.

### 2.3.2 Non-pelvic floor muscles training supporting / alternative options for treating urinary incontinence

The effectiveness of physiotherapy alone in improving SUI and MUI is established within the literature (Bo *et al.*, 2014; Dumoulin, Hay-Smith and Mac Habee-Seguin, 2014; McClurg *et al.*, 2017), while Urge Urinary Incontinence (UUI) may be caused by detrusor muscle contraction, which can be inhibited by a pelvic floor muscles contraction induced by electrical stimulation (McClurg *et al.*, 2017). Bo *et al.* (2014) suggest that when physiotherapy intervention fails, UUI may require additional pharmaceutical therapy to decrease urgency and bladder hyperactivity. Pharmacological therapy interventions can include botulinum toxin injected into the bladder for a persistent overactive bladder (Duthie *et al.*, 2011), anticholinergic drugs taken to relax the bladder (Marcelissen *et al.*, 2018) or oestrogen injected locally to the vagina, to decrease frequency and urgency (Araklitis and Cardozo, 2017). Anticholinergic drugs significantly correlate with increased risk of cognitive impairment and dementia, especially in frail and elderly patients. The provider needs to prescribe the lowest effective doses or alternative medications for patients at risk (Cancelli *et al.*, 2009).

Surgery has also been suggested as an alternative to improve UI, which generally aims to lift and support the ureterovesical junction. It has been suggested that the decision to manage UI using such an invasive surgical procedure depends on several factors, including the patient's physical features and the surgeons' preferences. Surgical interventions most frequently include mid-urethral sling procedures and sacral neuromodulation (SNM). The latter involves the placement of an electrode into the third sacral (S3) foramen, which is electrically stimulating the nerve root and suppressing the reflexes responsible for involuntary detrusor muscle contractions. The latter treatment only commences after failed physiotherapy intervention and where Botox injection proved to be an ineffective treatment for UUI. Furthermore, there are debates about suspending mesh mid-urethral slings from regular use in the UK, Australia and other countries due to the long-term morbidity; it is only considered for use as a last resort (Kmietowicz, 2018).

Different management strategies are available for physiotherapists to treat UI, such as acupuncture, functional magnetic chair, and posterior tibial nerve stimulation.

Acupuncture may include dry needling to increase or decrease muscle tone of the pelvic floor muscles. While electro-acupuncture (EA) uses needles placed in certain spots, a small electrode is attached to the needles. Costa et al. (2018) reviewed different systematic reviews of non-surgical treatment options available, ranging from pharmacological approaches to pelvic exercises. In addition, they assessed the benefits and side effects of acupuncture among adults with UI compared to pharmaceutical treatment; the result of the review showed 20 systematic reviews on pelvic floor muscle training programmes, vaginal cones, and acupuncture. Only one RCT was found, it compared acupuncture versus midodrine with 60 women, and the study result showed no difference between the groups. The RCT is of low methodological quality and poor reporting, and no conclusion could be reached regarding the efficacy and safety of acupuncture among patients with urinary incontinence (Wang *et al.*, 2013). In another systematic review by Zhao *et al.*, (2018) with a meta-analysis of ten RCTs including 794 patients, compared EA to sham acupuncture, or EA plus tolterodine vs tolterodine alone. The studies were of low quality and the authors reported that acupuncture might effectively reduce overactive bladder symptoms compared to sham treatment (Zhao *et al.*, 2018). However, acupuncture is comparatively well tolerated with few adverse reactions and is safe. There is a need for high-quality studies and larger sample sizes in the future to understand the effect of acupuncture on UI.

Functional magnetic chair treatment involves using a unique chair with a therapeutic head placed on the seats; as the magnetic field can penetrate through clothes, stimulation can be carried out in clothing, which increases the comfort and privacy of the treatment (Quek, 2005). The magnetic field stimulates the pelvic floor muscle and the pelvic organs; it also inhibits the reflex mechanism of emptying the bladder to increase bladder capacity. In a recent systematic review to understand the beneficial effect of different physiotherapy modalities in UI (Peng *et al.*, 2019), it was found that the functional magnetic chair is effective in the treatment of UUI and overactive bladder, while the results were inconclusive regarding the management of SUI (Mazur-Bialy *et al.*, 2020). Booth *et al.* (2021) used transcutaneous posterior tibial nerve stimulation to treat care home residents with UI. A total of 408 participants were randomised to receive transcutaneous tibial nerve stimulation or sham stimulation over a six-week period. The trial showed that transcutaneous posterior tibial nerve stimulation is ineffective in reducing UI. The study has some limitations because the participants had cognitive impairment, which increased the challenge of completing 24-hour pad collections for care home staff, resulting in

missing data. In addition, the participants were complaining of UI, and it is unclear which type of UI was included in the study because the literature suggested that transcutaneous posterior tibial nerve stimulation is a practical, minimally invasive option for the management of the UUI (Vandoninck *et al.*, 2004).

Feedback is sensory information available as the result of an activity of an intrinsic source from the individual or an extrinsic source from the physiotherapists (Bo *et al.*, 2017). Biofeedback uses specific equipment, such as vaginal cones, a perineometer, pelvic floor electromyography or an educator, to visualise the pelvic floor muscle contraction to demonstrate to the patient whether they are contracting the correct muscles. Regarding the effectiveness of biofeedback, a Cochrane review by Herderschee *et al.* (2013) found that women who received biofeedback combined with pelvic floor muscle training were significantly more likely to report improved UI compared to those who received pelvic floor muscle training alone. However, it could also be argued that women who received biofeedback had more contact with health professionals than those who did not, which may explain this result. Another study by Smith *et al.* (2013) also suggested that electrical stimulation and biofeedback might be considered in women who cannot actively contract the pelvic floor muscle to aid motivation and adherence to therapy. Based on current evidence, it is unclear if the apparent benefit of biofeedback can be related to the biofeedback or some other variable, such as more health professionals in contact with those women receiving biofeedback (Hagen *et al.*, 2020). A common issue in previous trials was unclear statements related to the purpose of biofeedback, or to describe the intervention protocol (Herderschee *et al.*, 2013). Thus, it was unclear if the way the biofeedback was used could theoretically or in practice improve the effectiveness of the pelvic floor muscle training (Hagen *et al.*, 2020). Despite this, National Institute for Health and Care Excellence guidelines discourage the use of perineometer or pelvic floor electromyography as biofeedback in a routine part of pelvic floor muscle training (Smith *et al.*, 2013; guideline, 2019;2021). Instead, pharmaceutical and surgical interventions are used as a last resort, when physiotherapy interventions do not work (Duthie *et al.*, 2011; Kim, Kim and Kim, 2020; Robinson and Cardozo, 2021) .

### **2.3.3 Social and psychological support**

UI is a chronic problem that can lead to stigma, social withdrawal and resulting psychological problems, such as anxiety and depression. Moreover, anxiety may also

contribute directly to overactive bladder symptoms and therefore, has to be considered in the management process (Lai *et al.*, 2016). Psychological disorders can also affect patient motivation, which is why they need to be considered, especially in elderly patients (Tarcan *et al.*, 2020). When managing chronic diseases there are different barriers that may necessitate social and emotional support (Bayliss *et al.*, 2003); hence, the treatments of chronic conditions have increasingly emphasised self-management of the condition via physical as well as psychological approaches (Keles *et al.*, 2007). Although it is important to acknowledge patients' social and psychological factors, there are inconclusive results regarding the relationship between patients' psychological issues and UI (Warner and Greenwell, 2018).

Nevertheless, there is no doubt that UI impacts women's daily living; it has been shown to interfere with the physical, psychological and social activities of women, reducing general health and wellbeing, as well as their quality of life (Smith *et al.*, 2013; Warner and Greenwell, 2018). Hence, it can be suggested that due to the physiological, sociological and psychological complexity of UI, it could be advantageous for physiotherapists to incorporate social and psychological factors into decision making and clinical reasoning when determining the type and causes of incontinence and deciding the most appropriate treatment approaches.

### **2.3.4 Lifestyle modifications**

The ICS and NICE guidelines have highlighted the importance of using lifestyle modifications for women as a potential UI management option for urgency or mixed UI issues Smith *et al.* (2013); Abrams *et al.* (2018); guideline (2019;(2021); Okeahialam *et al.* (2022). This includes bladder training that lasts for a minimum of six weeks and incorporates advice on lifestyle changes, such as reducing caffeine intake and achieving weight reduction. Both motivation and adherence are central factors in the therapeutic success of life-style modifications when managing UI, alongside other patients' factors such as co-morbidities and mental health problems (Smith, Higgs and Ellis, 2008). Although lifestyle modifications can be useful and helpful, they are not sufficiently effective in managing UI, when used as a stand-alone option, but rather are most effective when used in conjunction with another therapy (Abrams *et al.*, 2018). Moreover, there is evidence to suggest that adherence to physiotherapy management is often low among patients with a chronic disease that requires self-management (Peek *et al.*, 2016). The



determining factors of therapeutic adherence to pelvic floor muscles training have been analysed and classified based on patient personal parameters or factors dependent on the physiotherapeutic performance (Dumoulin *et al.*, 2015). There are potential differences in adherence in patients in the UK and KSA. Patients' adherence to physiotherapy management will be explored further in the next section, in addition to 2.6.

### **2.3.5 Urinary incontinence and patients' adherence**

High levels of patient adherence to management programmes have been linked to an increase in positive patient outcomes, such as a decrease in urinary leakage and improved function (Karnad and McLean, 2011). A scoping review was conducted by McClurg *et al.* (2015) on adherence promotion theories in pelvic floor muscle training. Twelve promising theoretical models were identified in an attempt to increase patients' adherence to pelvic floor muscle training, including such models as a social cognitive theory where self-efficacy is considered the core to the social cognitive theory. It refers to patients' beliefs in their ability to control or perform specific behaviours such as pelvic floor contractions. The importance of self-efficacy was highlighted by women doing pelvic floor muscles training for UI and was a common predictor of the intention to adhere to the pelvic floor muscles training (Messer *et al.*, 2007). Self-efficacy is considered to be one of the main determinants of adherence within the field of pelvic floor muscle training and behavioural change process, which is seen to encourage adherence. In addition to the self-regulatory model that views individuals as active problem solvers and their behaviour to health as an attempt to close the gap between current health status and future goals (Alewijns *et al.*, 2001). The World Health Organisation suggests that a health behavioural approach directed toward adherence in long-term conditions, such as UI, needs to be a process of motivation to do pelvic floor muscles training that involves family influence on individual motivation; however, it is still underdeveloped and requires further research (Organization, 2003). Motivational interviews are another theory suggested by McClurg *et al.* (2015) as outperforming traditional advice given by health professionals, and Miller and Rollnick (2012) suggested that clinical training is required for the effective implementation of motivational interviewing. Furthermore, self-care behaviour and its potential for the use of information for self-management; the behavioural change technique, embedding pelvic floor muscle training as part of a patient's routine; a simple explanation of the exercise; and patient education about the importance of pelvic floor muscle training (Griffiths, 1993; Fisher *et al.*, 2002; Abraham and Michie, 2008; May and Finch, 2009). The models that were identified in the scoping review showed there

is a need for future studies to explore how these strategies may improve pelvic floor muscle training adherence in different populations.

There are also different patients' factors that affect the outcome of physiotherapy treatment for pelvic floor muscle training. Reed *et al.* (2020) conducted a prospective observational study on the effect of a patient's health values on adherence to pelvic floor muscle trainings. The values were assessed using the Personal Values Questionnaire (PVQ). The health value section asks nine questions, each rated on a five-point scale. There are also three subscales (Intrinsically-held Value Choice, Aversively-controlled Value Choice, and Value-related Behaviour): 'Intrinsic Choice' represents the individual's commitment to the value; 'Aversive Choice' reflects the degree of external regulation of the value; and 'Behaviour' measures the degree to which the value is acted upon. The PVQ assessed the internal and external values towards change and how change was dealt with. The key findings were that the strength of the patient's health-related values predicted their ability to fully adhere to the treatment entirely. Levin and colleagues reported acceptable test-pre-test reliability within three weeks. Furthermore, there is no validation study published for the PVQ (Blackledge, Ciarrochi and Bailey, 2006; Levin *et al.*, 2014).

Many studies implement adherence aid to help with exercising, such as using a mobile device application (app), offering a physiotherapy consultation at the time of the initial urogynecologist's evaluation, providing supplementary printed information, and asking patients to repeat the prescribed strategy (Araujo, Marques and Juliato, 2020; Brown *et al.*, 2020; Peek *et al.*, 2020). Nonetheless, there is insufficient data to examine their use within clinical practice and to evaluate other strategies that promote self-management and adherence (Peek *et al.*, 2016).

Peek *et al.* (2020) argue that labelling patients as adherent or non-adherent puts all of the responsibility on the patient and does not acknowledge the physiotherapists' role in changing patients' adherence. Therefore, physiotherapists need to consider different factors, such as simplifying patients' education and exercise instructions rather than labelling patients as non-adherent to improve patients' outcomes.

### 2.3.6 Section summary

There are a number of management options available to treat patients with urinary incontinence, although the most commonly used option is pelvic floor muscles training, which is currently recommended as the gold standard and first-line treatment option by ICS and NICE guidelines. Regarding other options, there are inconsistencies within the literature regarding their effectiveness.

It could be argued that the complexity of UI presentation and the need to consider the impact of UI not only on women's bodies but also on their lives, is apparent and considered necessary. It can therefore be assumed that the lifestyles of these women will affect how they experience UI. This means that women in different countries and cultures are likely to experience incontinence differently. It is also possible that physiotherapists' decision making and clinical reasoning may vary in different cultures. This study is directed towards exploring physiotherapists' decision making and clinical reasoning in two differing cultures, the UK and KSA, concentrating on the experiences of womenwomen's experiences. The next section will explore an overview of KSA and UK culture. Culture in KSA and the UK

There are several ways to define culture. Minkov (2012) discussed cultural complexity, explaining that culture can be studied at different levels and not merely at the national level as researchers used to do. While, Hofstede (1984p.82) defines culture as 'the collective programming of the mind which distinguishes the members of one human group from another. There are several definitions for culture, but everyone agrees that culture is a complex multi-level construct, that is shared between people in the same group or society' (Dan, 2020p.227). This characteristic of culture allows people to predict, with some limitation, other people's behaviour. When this kind of behaviour becomes repetitive, it leads to shaping individual behaviour, and it will transfer to be the right thing to do and be accepted by society (Bonder, Martin and Miracle, 2004; Andreatta and Ferraro, 2012). These behaviours and beliefs can evoke a behavioural response, affecting their health (Spencer-Oatey, 2008). Hofstede (1984) argued that societies differ along four major cultural dimensions, including power distance, individualism/collectivism, and masculine/feminine and uncertainty avoidance. Uncertainty avoidance is defined as the extent to which individuals within a culture are made nervous by unstructured and unclear circumstances

and the extent to which these individuals attempt to avoid uncertainty. The other dimensions are explained in relation to the two countries being explored in this study.

The Kingdom of Saudi Arabia is called the Arabian Peninsula and is located in the Middle East in Asia. The location is considered the capital of Islam; Makkah is located in the Western parts of KSA – one of Islam's most holy sites. The location of KSA and the existence of Makkah have shaped KSA's culture and law. The law in KSA is based on the Holy Quran. In the 1940s, women traditionally occupied the domestic sphere, working as farmers or tailors while cooking and looking after their children. Their husbands tended to travel abroad to other Arab countries to earn money. Women were married at a young age and usually gave birth at home, assisted by one of their family members or a midwife (who got her title by experience only, not by a degree) if the delivery was complicated. Women were usually considered shy, reserved, and seen to walk and act in a 'decent' way (Song, 2019). KSA remains a conservative country, where women struggled to go to school before 1940 because of the influence of strong religious conservatism at the time. More recently, in particular, under the influence of the American Petrol Company, the government started to open female schools and women were allowed to study from 1940 onwards (Hamdan, 2005). Hence, women have been more able to access education and can now work in the private and public sectors. Nonetheless, most of the governmental sectors have a female branch, where women are expected to deal with women only. KSA has a traditionally patriarchal society, where men are often seen as superior to women, in contrast to Western culture.

More recently, in 2019, women have been allowed to drive, travel and finish their governmental services without requiring permission from their closest male relative (Rizvi and Hussain, 2021). This gave women the freedom to work in different sectors, gain money, seek medical treatment and help independently. Saudi women have been raised to share decisions with their family, mainly male figures; as a result, they can be reluctant to make independent decisions. This might be particularly common among elderly and illiterate women. These factors may influence their decision to seek help or medical advice (Xianhui and Shah, 2021). Women from different ethnic minorities living in the West, who hold similar spiritual beliefs, may share the same features as Saudi women. According to Hofstede's theory, Saudi society is based on a collectivist, masculine and power distant society. The power distance is the extent to which less powerful individuals within the community will accept inequality in power and accept it as the norm.

For instance, Saudi Arabian managers are expected to tell subordinates what to do; team hierarchy is likely to be accepted. In this way, collectivist cultures expect individuals to belong to one or more 'in-groups', such as extended families and clans, from which individuals cannot separate themselves. The 'in-group' protects the interests of its membership and in turn, assumes their permanent loyalty (Hofstede, 2003). Furthermore, masculinity is how individuals in a community expect women to care for children and provide non-material quality of life. The masculine culture expects men to be assertive, competitive, and able to strive for material success.

On the other hand, UK culture is diverse; it is shaped by human rights rather than religion. Historically, English culture and values were shaped by the Christian faith, which may still influence current beliefs, particularly regarding tolerance and acceptance of multiculturalism. According to Hofstede's theory, the UK society is based on individualism, defined as societies where individuals are primarily concerned with the interests and motives of their immediate family. Women's rights in the UK have improved exponentially, especially since women were officially granted the right to vote in 1918 and the effect of the Second World War where women were given more prominence within society. Currently, the laws protecting women's rights include the 1975 Equality Act which introduced women's right to equal pay and status in the workplace and the 2010 Equality Act which makes it illegal to discriminate on the basis of a range of protected characteristics including gender, age, religion and sexuality (Wadham *et al.*, 2010). Women have autonomy and freedom in most, if not all, areas that affect their lives, but especially regarding health care decisions. The UK is a diverse country with some areas of the country having a high proportion of ethnic minority populations, such as Leicester (50%), London (40%) and Birmingham (30%) (Gov.UK, 2020). Hence it is important to understand the needs for ethnic minorities.

The National Health Service (NHS) implements strategies to maintain cultural competency and ensure equality in health delivery within ethnic minorities (Haugevik and Bratberg, 2011; Luquis and Pérez, 2021). This research was undertaken in two different countries, as it was assumed that culture may affect how physiotherapists reach their decisions, due to the differences in societies and organisational culture. The meaning of this is discussed in the next section.

## 2.4 Organisational culture

Siehl and Martin (1989) argue that culture has an influence on the attitudes of individuals and employees within a company and consequently can influence organisational effectiveness. Organisations are made up of individuals but have distinct organisational cultures; they are based within societies and countries with a wider cultural context. Consequently, organisations themselves create their own organisational cultures within the context of broader cultural contexts (Willcoxson and Millett, 2000). Organisational culture (OC) encompasses the values and beliefs that employees of an organisation share, and is defined by Sun (2008p.138) as ‘the pattern of common beliefs and values that give fellows of an institute meaning, and provide with the rules for behaviour in their organisation’. Schein (1983p.14) explains that organisational culture can be understood as ‘a pattern of shared basic assumptions that a group learns as it solves its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems. It is clear that there are a number of different definitions of organisational culture within the literature. The type of definition chosen impacts how organisational culture is examined. In practice, an organisation may have its own cultural explanation and interpretation within a given environment and as Alkhoraif and McLaughlin (2018) suggest, organisational culture impacts the way in which people behave; therefore, it is necessary to understand the culture of an organisation.

In relation to decision making, Alkhoraif and McLaughlin (2018) suggested that an individual’s decision making process can be affected by their cultural background according to what is considered ‘the correct way or the norms’, which highlights the significance of individual culture and organisational culture. Also, organisational culture differs from one institute to another (Alkhoraif and McLaughlin, 2016). Fischer and colleagues explored the potential impact of cultural dimensions norms across different contexts. They found that most cross-cultural research has treated norms as abstract and content-free, and has several limitations (Fischer and Mansell, 2009). There are possibilities that norms may vary across cultural groups; the effects of norms may be different across variable behavioural domains and can be affected by situational context. For instance, the extent to which flexibility and wealth affect the strength of norm-

behavioural intentions and norm-behaviour relationships across national cultures (Lefringhausen, Spencer-Oatey and Debray, 2019).

Overall, different cultural norms exist within other countries. These factors may influence physiotherapy education and training, which may affect the decision making and clinical reasoning of physiotherapists. Different organisational bodies in the UK and KSA manage physiotherapists' education and training, as outlined in the subsequent section.

## **2.5 Pelvic health physiotherapists' education in the UK and KSA**

An overview of the regulatory bodies of physiotherapy education and practice in both KSA and the UK is presented in this section. In addition, the relationship between physiotherapy undergraduate curriculum content, international guidelines and pelvic health physiotherapists' competency are outlined.

### **2.5.1 Physiotherapy education and the regulatory bodies in KSA and the UK**

More than 16 universities in KSA offer a bachelor's degree in physiotherapy, but there is no uniform regulatory body for the education and curriculum (Alghadir *et al.*, 2015). The Saudi Health Commission conducts theoretical and practical exams for all physiotherapists before they practise to ensure high-quality patient care. In the UK, on the other hand, the educational curriculum is regulated and approved by the professional body- the Chartered Society of Physiotherapy (CSP). However, the CSP do not specify curriculum content; instead, they prescribe essential learning outcomes and the broader topics that must be included, as well as a recommendation of '1000 hours of hands-on clinical education' (Bithell, 2007).

### **2.5.2 Pelvic health physiotherapists' competency frameworks**

Competency frameworks vary within different professions and nations, as suggested by Lester and Religa (2017). Within physiotherapy, there are other competency frameworks in the core areas of practice at the undergraduate level, such as sports and orthopaedic fields (Bulley and Donaghy, 2008). While these core areas are not directly related to pelvic health physiotherapists' unique practice – as this area is not taught at the undergraduate level – it would give clinicians basic knowledge on how to practise in this area after

graduation. There is a lack of a pelvic health physiotherapist competency framework in the literature (Frawley, Neumann and Delany, 2019).

In the UK, one university provides an advanced postgraduate course in women's health and continence management. In addition, beginner and advanced courses are provided continuously by the Pelvic Obstetric Gynaecology Physiotherapy association to ensure pelvic health physiotherapists' competence before they practice to advance their members' skills. In KSA, on the other hand, there are limited entry-level and postgraduate pelvic health physiotherapist courses at universities; the Saudi Physiotherapy women's health Association also provides beginner-level courses at the post-graduate level.

The International Organization of Physical Therapists in Pelvic and Women's Health (IOPTPWH) recommends that the knowledge of entry-level physiotherapists should include basic and clinical science aspects related to the management of women's health problems (Frawley, Neumann and Delany, 2019; McPherson, Nahon and Waddington, 2020). Educators from the ICS developed a guideline for advanced skills and knowledge on pelvic health physiotherapist education and recommended using it in the educational curriculum of pelvic health physiotherapists (Bakker *et al.*, 2018). This may help in creating create minimum standards at the graduate entry level, resulting in structured competencies within pelvic health physiotherapists courses.

McClurg *et al.* (2013) conducted a UK-wide survey of continence education within undergraduate programmes, including medicine, nursing, midwifery, physiotherapy, and occupational therapy. The survey results demonstrated that, contrary to international recommendations by IOPTPWH and ICS, there is limited evidence of the essential inclusion of a specified number of hours of incontinence education in the UK. The survey reported that the average number of hours across all programmes and professions was 4.7. The response rate in the survey was 81%, with the highest response rate being achieved from the adult nursing programmes, which might not be representative of the other undergraduate programmes and potentially limits the possibility of generalising the results across all professions within the UK. In addition, in the survey, there was no distinction between faecal and urinary incontinence; thus, responses were interpreted as relating to both. The limited distinction between the two incontinence problems may lead to different answers from the participants. In this survey, the question about learning and teaching



strategies was used to promote continence learning, including various types of teaching strategies such as seminars, lectures and practice-based learning. While, seventy-eight percent of the programmes surveyed continued to rely heavily on lecture-based teaching, which might influence the participants reply on the average number of hours spent in continence education. However, the survey findings may highlight an area of concern given that examples of poor quality care and the number of patients at risk of incontinence are set to increase over the following decade (McClurg *et al.*, 2013). Moreover, there is evidence that if patients receive proper continence management, cost and social care savings can be achieved (Williams *et al.*, 2005).

## **2.6 Varying degrees of difficulties related to digital palpation**

Digital palpation or vaginal examination is considered a vital assessment method for patients with UI. The vaginal examination provides information about the strength of the pelvic floor muscles using the Modified Oxford Scale (MOS), which guides the physiotherapy treatment plan (Bo, 2005). Performing digital palpation in a clinical routine is essential to assess if the patients are contracting the right pelvic floor muscles, show patients' progress and is a method that does not require any equipment (Laycock, 1991).

Other options are available to assess pelvic floor muscles, such as ultrasound, electromyography and perineometer. The validity and reliability of transperineal ultrasound in assessing pelvic floor muscles are already established in the literature (Van Delft, Thakar and Sultan, 2015). However, there is the possibility of cross assessment from surrounding muscles in electromyography and perineometer, thus decreasing the reliability of the data (Bo *et al.*, 2014). The transabdominal ultrasound is a gold standard that images the base of the bladder during pelvic floor muscles contraction, resulting in a vertical displacement of the base of the bladder, representing pelvic floor muscle contraction. Imaging of transabdominal ultrasound does not provide physiotherapists with a muscle strength grade but instead a visualisation of a patient's ability to activate the pelvic floor muscles adequately to elevate the bladder neck (Bo *et al.*, 2014). There are different advantages and disadvantages to transabdominal ultrasound; one advantage is that it allows for lower extremities movement, which might be helpful in pelvic floor muscles training; also, it offers non-invasive pelvic floor muscle assessment of patients with contraindication to digital palpation such as sexual disorders, virgin and teenage girls with UI (Dietz, 2011; Bahrami *et al.*, 2021). The disadvantage includes advanced training

and limited ability to assess each levator ani muscles individually, that is only provided by digital palpation.

Most of the entry-level physiotherapy courses do not include pelvic floor examinations; they may not be formally taught or included as a core skill in the UK and/or KSA in section 2.5.2 (Frawley, Neumann and Delany, 2019). The literature suggests that digital palpation is an intimate examination requiring specific sensitivities since patients might find it challenging to disclose their symptoms (Lawrence *et al.*, 2008). Patients with UI have been found to show different levels of stress and anxiety during consultations, which may lead to varying degrees of discomfort related to obstetric history (Fitzgerald *et al.*, 2011; Kavvadias, Baessler and Schuessler, 2012; Bloomfield *et al.*, 2014). As a result, the decision to conduct digital palpation must be undertaken carefully. Assessment and treatment of an intimate body part require an awareness of cultural, religious and contextual factors and communication skills to assess the patient's understanding of the treatment plan (Delany and Frawley, 2012).

Hence, there are differences between the UK and KSA in terms of the organisational body overseeing the curriculum content and the competency frameworks in the core areas of practice in physiotherapy as well as at pelvic health physiotherapy undergraduate and post-graduate levels. The influence of pelvic health physiotherapists' education and competency in clinical reasoning and decision making will be explored further in this study. The following section details the health care systems in the UK and KSA.

## **2.7 Health care systems in the UK**

In each of the UK countries, the National Health System (NHS) has its structure and organisation, but overall, healthcare comprises two broad sections: one dealing with strategy, policy and management, and the other with actual medical/clinical care. In the UK health vision 2025, Public Health England (PHE) has substantial scope to say what assistive technology will be used to protect and improve the public's health and reduce health inequalities over the following five years (Public Health England, 2019).

Inequalities in health are seen by region, gender, socio-economic features and ethnicity. Limited access to healthcare can be a problem both internationally and in the UK (Ham, 2009). The health care system in the UK is divided into primary, which includes some community services, General Practitioners (GPs), and Dentists and Pharmacists. The first

contact practitioner roles are a new model evolving in the UK, which involves placing experienced physiotherapists with advanced skills directly into GP practices to assess, diagnose and recommend appropriate treatment or referral without the need for any initial assessment by a GP.

Secondary care includes hospital-based care, often in district general hospitals accessed through GP referral, whilst tertiary care involves specialist hospitals that treat particularly complex or rare Conditions (Boyle, 2011).

## **2.8 Health care systems in KSA**

The KSA health system is divided into primary, secondary and tertiary, similar to the UK. In KSA, the Ministry of Health (MOH) is the primary government provider and sponsor of health services. The MOH has undertaken many steps to reform the Saudi health care system. However, some challenges still exist, particularly concerning the workforce, financing and expenditure, utilisation of electronic health strategies and accessibility to health care services (Almalki, FitzGerald and Clark, 2011).

Regarding the broader context, Mousa and Aldehayyat (2018) found that health care efficiency in KSA differed across selected regions and between private and public sectors. Mousa and Aldehayyat (2018) used data from the Health Statistical Annual Book (2014) collated by the MOH in Saudi Arabia. The study included the health-care services provided in medical centres and hospitals in Saudi Arabia, including those governed by MOH and the private sector in 13 regions of Saudi Arabia. Mousa and Aldehayyat (2018) used different human and physical capital inputs to assess the efficiency of healthcare services, such as the number of physicians, nurses, and beds. Mousa's quantitative study using data envelopment analysis (DEA) showed that the Riyadh region, which employs a disproportionately large amount of health resources compared to other regions, is efficient in both sectors.

Mousa and Aldehayyat (2018) also found that less developed regions within KSA show a relatively high level of efficiency. In contrast, others, such as Makkah and the Eastern regions, seem to be the least efficient in both sectors. As part of KSA's Vision 2030, the Ministry of Health (MOH) has begun developing a new healthcare system that aims to help the nation socially, mentally, and physically through a new patient-centred Model of

Care (Rahman and Al-Borie, 2020). In KSA, there are different government hospitals, such as university and military hospitals. Staff training and research funding may vary from one sector to another, which may influence the staff level of certainty in decision making. This is supported by Mirzaei *et al.* (2019), who conducted research in a developing country assessing the possibility of applying for international accreditation in a university and military hospital.

The structure of the health care organisation in the UK and KSA are pretty similar. However, there is an apparent discrepancy in health access in most of the regions in KSA and the lower socio-economic areas of the UK. The high demands on the MOH in Saudi have led to the introduction of autonomy in financial and administrative services in hospitals in KSA. It could be argued that autonomy in management may create differences in organisational culture. Recruiting participants from different sectors and regions in KSA and the UK may be essential to understand the influence of these factors on clinical reasoning and decision making. An overview of the healthcare system in the UK and KSA is critical because this study compares the physiotherapists' clinical reasoning and decision making model while managing patients with UI in both countries.

### **2.9 Understanding clinical reasoning**

Clinical reasoning was defined in section 1.2.1. Clinical reasoning is essential for the autonomy of different health professions (Higgs, 2008). In 1977, the Department of Health memorandum HC (77)33 established professional autonomy for UK physiotherapists, permitting them to accept referrals from individuals themselves (self-referrals) and make their own diagnoses and treatment decisions. With greater autonomy (Øvretveit, 1985), came an increased demand for effective clinical reasoning to support practitioners' understanding of the required knowledge as well as cognitive and reflective skills that need to be developed to make high-quality assessments and treatment decisions (Higgs, 2008). Physiotherapists need to clinically reason about likely causation and impact and make decisions about what treatments to apply. Understanding how they clinically reason and make these decisions is essential for ensuring good practice, practical outcomes, and efficient services. Therefore, a scoping review and narrative synthesis of the literature were undertaken.

## 2.10 Scoping review and narrative synthesis of Clinical Reasoning in Physiotherapy

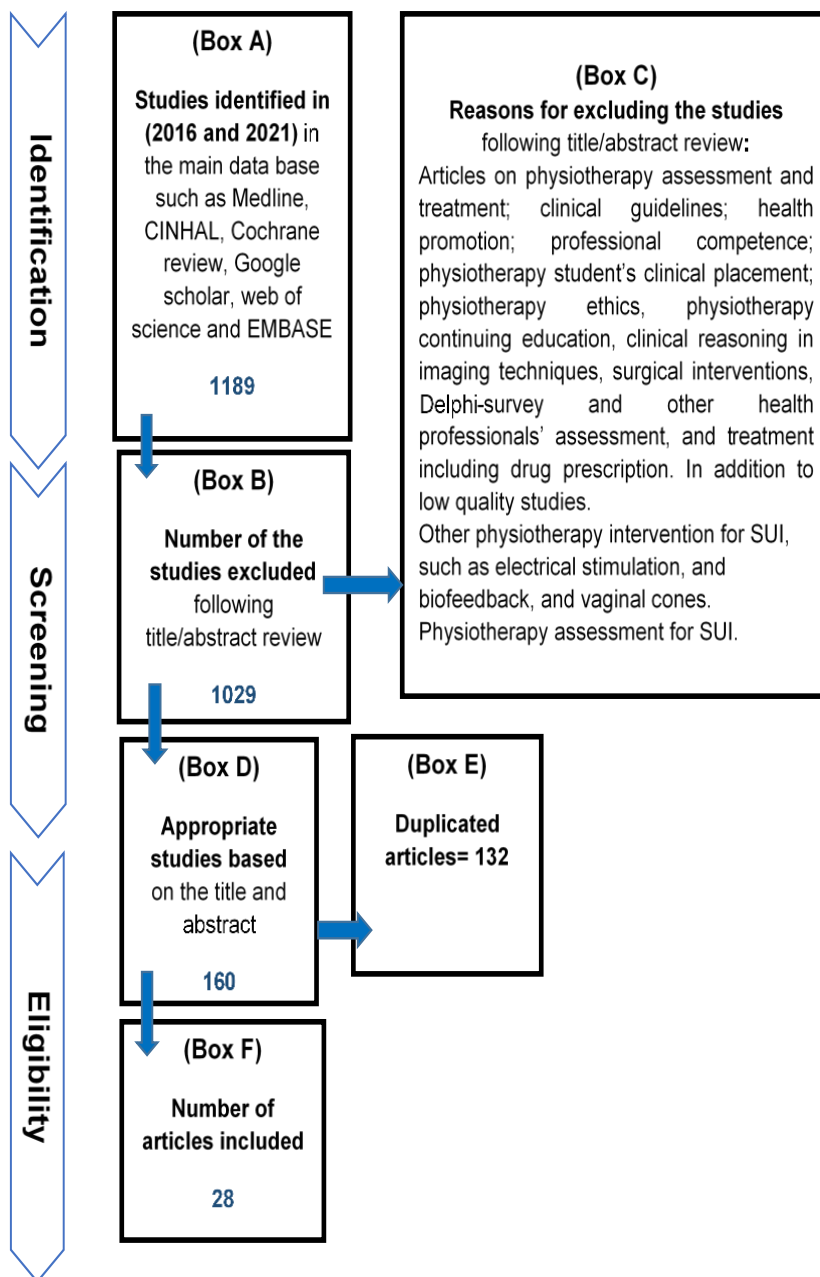
This scoping review, originally conducted in 2016 and updated in 2021, sought to understand pelvic health physiotherapists' decision-making processes in assessing and treating patients with UI following the procedure outlined by Arksey and O'Malley (2005). A systematic search of clinical reasoning in physiotherapists was carried out using different key words, for example: 'physiotherapy' AND/OR 'urinary incontinence' AND 'clinical reasoning' AND 'decision making'. Arksey and O'Malley (2005) suggested using different research objectives developed in support of the current research question or aim as a basis to create different key words of the search objectives was to explore the models of clinical reasoning among physiotherapists treating patients with UI (Appendix A).

The retrieved studies were scanned for the relevant references and processes of narrative synthesis to identify research gaps and to inform the rationale of the current study (Grant and Booth, 2009; Tong *et al.*, 2012). To understand the factors that may contribute to the similarities and differences of clinical reasoning in the UK and KSA, further keywords were added, including 'social' AND 'ethnicity' AND 'cultural diversity' AND 'organisation', in addition to other keywords. More details about the keywords, different databases, including grey literature, and inclusion or exclusion criteria are explained in Appendix A.

The scoping review demonstrated that, in total, 1189 papers were retrieved. After reading article titles and abstracts, 1029 studies were excluded because they did not address either clinical reasoning in physiotherapy for UI or clinical reasoning in physiotherapy more generally, in addition to other exclusion criteria mentioned in Appendix A. Those initially included (n= 28) were then read in full and described in a summary chart represented in Table 7-6 in Appendix B. No studies focussing on clinical reasoning and decision making in the field of physiotherapy for UI were identified at either time point – see Appendix A, and Appendix B. The twenty-eight studies related to physiotherapy in clinical reasoning more generally provided new insights and are discussed in the narrative in sections 2.11 and 2.15. To summarise, no papers reporting on clinical reasoning in physiotherapy for UI were found at either time point highlighting the need for this study. However, the broader literature on clinical reasoning in physiotherapy identified a range

of considerations of value to this study. The outcome of the 2016 and 2021 scoping review is presented in the following Figure 2-3.

Figure 2-3: The selection processes of different studies in 2016 and 2021 in clinical reasoning in pelvic health physiotherapy and other physiotherapy area using the Preferred Reporting Items for Systematic Review Chart (Moher *et al.*, 2009).



The quality of the qualitative studies was identified using both a checklist and framework, as suggested by (Williams, Boylan and Nunan, 2020). One of the most widely used appraisal tools or checklists is the Critical Appraisal Skills Programme by CASP (2022), which judges aspects of recruitment, sampling, data collection and analysis in qualitative research papers. In addition, the framework focuses on the overarching concepts of quality in qualitative research, including transparency, reflexivity, dependability, and transferability. The quality of the qualitative studies was discussed with the supervisory team, and only high-quality qualitative studies were included (Mays and Pope, 2020). Physiotherapy specialities treating acutely ill people, such as end-of-life disease management and cardio-respiratory care, were excluded from the search because clinical reasoning in those fields of physiotherapy is unlikely to be similar to that used in UI (Smith, Higgs and Ellis, 2008; Evans, Sharp and Shaw, 2012). The subsequent literature review discusses the narrative synthesis of the scoping review findings by describing the common clinical reasoning models and factors that might influence decision making in physiotherapy.

## **2.11 Clinical Reasoning in physiotherapy**

The most common clinical reasoning models discussed within the literature have been explored in relation to different physiotherapy specialities, such as musculoskeletal, neurology and domiciliary. The following sections present the findings of the scoping reviews and narrative synthesis for 2016 and 2021, which include different clinical reasoning models, such as hypothetico-deductive reasoning and pattern recognition, narrative, ethical and dialectical reasoning, in addition to bio-psychosocial reasoning.

### **2.11.1 Hypothetico-deductive clinical reasoning and pattern recognition**

In the hypothetico-deductive (H-D) model, physiotherapists start with a hypothesis regarding a patient that develops as they question and examine the patient. This process of questioning and examination is instrumental to the physiotherapist's acceptance or rejection of their original hypothesis (Elstein, Shulman and Sprafka, 1978). H-D reasoning is part of the cognitivist model of clinical reasoning. It involves information processing, memory representation and problem-solving (Case and Bereiter, 1984). The H-D reasoning model is frequently found to be used in physiotherapy and medicine within the diagnostic process (Payton, 1985). It has been suggested that the clinical reasoning of

experts and novices differ (May *et al.*, 2008a). Novice physiotherapists commonly use the H-D model, while experienced physiotherapists tend to use it in more complex cases or when facing a difficult diagnosis (Collins, Johnson and Masaracchio; May *et al.*, 2010a; Dierckx *et al.*, 2013; Karvonen *et al.*, 2017).

It has been suggested that as physiotherapists gain experience, they are more likely to use metacognitive skills and knowledge (Øberg, Normann and Gallagher, 2015; King *et al.*, 2018). Pattern recognition is a combination of cognitive and metacognitive skills as supported by Flavell (1979) and is often explicit in terms of intuitive reasoning (Marcum, 2013). It is characterised by speed and efficiency. It occurs in familiar clinical cases where physiotherapists use ‘illness scripts’ to aid rapid and accurate retrieval of information from a well-structured knowledge base. New cases are classified, and similarities are acknowledged in relation to previously experienced clinical cases (Schmidt, Norman and Boshuizen, 1990; Schuwirth, 2002). Novices may require experience and knowledge to use metacognitive reasoning (Schuwirth, 2002; Vedin, 2021).

Prokop (2018p.356) examined the use of the dual-processing theory in physiotherapy and asserted that ‘a crucial element to accurately manage the use of both types of processing is the awareness of the accuracy of the thought process.’ According to Croskerry (2009b) this theory proposes two general kinds of cognitive operations to explain and understand human reasoning. Often, the two processes consist of an implicit, more intuitive, unconscious process (Type I) and an explicit, more analytical, conscious process (Type II). This theory could explain how diagnostic failure occurs (Croskerry, 2009a).

The awareness of one’s own cognition, known as metacognition, is challenging to teach to physiotherapy students (Kosior, Wall and Ferrero, 2019; Daluiso-King and Hebron, 2020). Hence, it is important to consider the use of techniques that encourage metacognition, such as case-based learning, simulated and standardised patient interactions, and experiential learning to provide tools that promote metacognitive awareness in health profession students (Kosior, Wall and Ferrero, 2019).



### 2.11.2 Narrative reasoning

Narrative clinical reasoning is defined as a reasoning strategy that involves the clinician engaging themselves in gaining an understanding of the unique lived experience of the individual patient (Edwards *et al.*, 2004a). Hence, clinicians obtain information regarding patients' stories, experiences of illness, meaningful perspectives, contexts, beliefs and cultures (Mattingly and Fleming, 1994). Narrative reasoning helps to individualise and personalise the approach to each individual patient's needs (May *et al.*, 2008b; Foster and Delitto, 2011; Holdar, Wallin and Heiwe, 2013). A number of studies have shown that experienced physiotherapists used narrative clinical reasoning, with Edwards *et al.* (2004a) demonstrating that neurological physiotherapists use only narrative clinical reasoning in the assessment and treatment of neurological patients; and Mattingly (1991) reporting that occupational physiotherapists use narrative reasoning as a central model of clinical reasoning.

The use of the narrative model is in contrast with the biomedical model, in which therapists mainly focus on the pathology, included the physical symptoms and impairments, assessment goals and treatment modalities and strategies. Narrative reasoning includes story telling or story-making. Physiotherapists often make metaphors and analogies to make the exercise easier for the patients to learn and often they will model the movement or exercise for the patient. They will frequently depend on exercise modelling and movement in their clinical reasoning and decision making. For instance, they rely on their bodies and hands as tools to gather data and demonstrate information used in their clinical reasoning process (Edwards, Jones and Hillier, 2006; Øberg, Normann and Gallagher, 2015). However, it is more challenging for physiotherapists to use movement as a sensorimotor tool to demonstrate pelvic floor muscle exercise in comparison to other physiotherapy specialities, as a result this may influence their clinical reasoning and decision making. For instance, they may decide to use biofeedback to help patients visualise pelvic floor muscle contraction and relaxation, but this may be limited due to contextual factors. The therapeutic efficacy of narrative reasoning interventions is about much more than meeting specific treatment goals; it is about creating an experience that gives the participants a vision of themselves in the world (Mattingly and Fleming, 1994; Higgs, 2008).

The narrative model of reasoning has been presented as a core component of the clinician's competencies towards patient centred care (Kumagai, 2008); however, it has been shown that novice physiotherapists have difficulty in engaging in narrative reasoning compared to experienced physiotherapists (May *et al.*, 2010b; Cruz, Moore and Cross, 2012b). As such, this study will examine whether the physiotherapists included in this study use narrative reasoning within their clinical reasoning and decision making processes.

### **2.11.3 Ethical and moral reasoning**

There is a general lack of understanding regarding ethical clinical reasoning and decision making in rehabilitation. Ethical reasoning allows a clinician to use similar principles of inquiry, CR and validation in order to understand and make decisions regarding ethical issues. Walker (2002 p.353) has identified moral reasoning as the psychological process which 'entails deliberation regarding the various considerations relevant to different courses of action and making a judgement regarding which of the available actions would be most morally justifiable'.

Furthermore, in a qualitative study using hermeneutic phenomenology, physiotherapists described a recent ethically based clinical decision (they were asked to describe scenarios where they considered ethical values' importance in their decision making) (Finch, Geddes and Larin, 2005). After analysing the interview transcripts, it was revealed that physiotherapists had a clear understanding of professional ethos, valued patient autonomy and often explored a variety of alternative actions before implementing one. However, it was also found that physiotherapists were not always fully aware of certain ethical principles and often did not use a theoretical ethical approach to analyse the ethical problems. Other qualitative research has also reported similar findings, stating that physiotherapists often consult colleagues for advice on ethical dilemmas rather than referring to the evidence based ethical literature (Doherty and Purtilo, 2015).

A recent study by Delany, Edwards and Fryer (2019) explored physiotherapists' responses, interpretations and perceptions of ethical challenges in different work contexts, such as MSK, palliative care, continence and women's health. They found ethical challenges from the working environment, such as healthcare policies, ethical codes of conduct and pressure from hospital administrators and others to discharge patients that might be against the physiotherapist's decision. In addition, it was challenging to balance

diverse needs and expectations of physiotherapists, patients or their family, and other ethical obstacles that arise when providing services to diverse groups of people. This tends to happen where differences in language and cultural views about health and wellbeing make it ethically challenging to modify treatment to meet a patient's requirements, especially in end-of-life situations. The authors explored ethical reasoning within different work contexts but did not explain the influence of managing and making decisions on diverse groups of patients in detail.

Ethical reasoning is affected by a physiotherapist's values, universal ethical principles, codes of ethics, previous experiences, moral virtues, culture, patients' stories and ethos (Edwards, Braunack-Mayer and Jones, 2005). Pelvic health physiotherapists deal with intimate body parts and can be exposed to ethical or sensitive problems experienced by patients; hence this study focuses on the clinical reasoning and decision making processes of physiotherapists and aims to gain an insight into the impact of ethical challenges on their clinical reasoning and decision making.

#### **2.11.4 Literature for an integrated approach: Bio-psychosocial clinical reasoning model**

The existing physiotherapy clinical reasoning and decision making literature explores the use of bio-psychosocial clinical reasoning in detail; it is clear that there is an overlap between bio-psychosocial, collaborative, and shared decision making (SDM). In a recent concept analysis exploring the meaning and implementation of bio-psychosocial reasoning in musculoskeletal physiotherapy, Daluiso-King and Hebron (2020) mentioned that psychological and social elements are important with respect to biological causes in the treatment of chronic low back pain and chronic illness. Physiotherapists were aware of the importance of bio-psychological reasoning in gaining active patient engagement, and reported improved self-management adherence and better outcomes when compared to paternalistic clinical reasoning and decision making (Sanders *et al.*, 2013; Hall *et al.*, 2016). When the physiotherapists see the world through their patients' lens to understand the relationship between patients' beliefs, behaviour and psychological factors, the individual reported feeling heard after active engagement with their lifeworld (Solvang and Fougner, 2016).

Shared decision making is when physiotherapists and patients collaboratively make health-related decisions, discuss the treatment options and harms of each option, and consider the patient's values, preferences, and circumstances (Hoffmann *et al.*, 2014).

Hence, collaborative decision making and shared decision making often overlap conceptually and contextually within the literature; yet, the importance of collaboration and involving the patient, family, and the multidisciplinary team in the decision making process is often emphasised in clinical reasoning literature (Edwards *et al.*, 2004a; Furze *et al.*, 2015; Øberg, Normann and Gallagher, 2015). Patient-centred care or person-centred care is manifested by treating the patient as a person that may include sharing power, giving greater responsibility, and sharing the decision making with the patient to promote the self-management approach. The person-centred –care and evidence-based practice somewhat overlapping Fields (Ekman *et al.*, 2011). Treatment guidelines supported by evidence are diagnosis based and contrast with the ideals of person-centeredness. They did not accommodate the heterogeneity in patients’ initial presentation, recovery rate, and the reasons that people chose specific treatment options (Kittelsohn *et al.*, 2020). Scholars have reported that physiotherapists may experience challenges integrating patient-centred care elements within their clinical practice. Shared decision-making is one of the components of patient-centred care and there have been calls for a move toward person-centred physiotherapy care that includes a shared decision making (Dukhu, Purcell and Bulley, 2018; Hall *et al.*, 2018; Hutting *et al.*, 2020). Although shared decision-making is essential to the provision of patient-centred care and evidence-based practice, the integration into physiotherapy management of the chronic condition is low (Hoffmann, Lewis and Maher, 2020). The principles of shared decision making are well documented in the literature, but there is limited guidance about how to achieve that in daily clinical practice (Elwyn *et al.*, 2012). Hence, it is appropriate to be incorporated into managing long-term health conditions in people with multi-morbidity (Hoffmann, Jansen and Glasziou, 2018).

Dierckx *et al.* (2013); Jones *et al.* (2014) conducted observational studies to assess SDM in physiotherapy and the level of patient involvement during the clinical reasoning and decision making process. In these studies, the Observing Patient Involvement (OPTION) instrument was used to measure shared decision making by observers. Dierckx *et al.* (2013) used participant observations and agreement between therapists and patients on the ‘Control Preference Scale’ to assess the patient’s involvement in decision making. The results of both studies indicated that shared decision making was underdeveloped in the observed consultations. It was indicated that most patients preferred to give their thoughts about the assessment and treatment rather than delegating the decisions to physiotherapists. The reason for the low level of patients’ involvement in the above studies

might be because physiotherapists mistakenly think that they can estimate the patient's preferred level of involvement without asking (Hirsch *et al.*, 2012). In addition, physiotherapists in Dierckx *et al.* (2013); Jones *et al.* (2014) did not attend training in shared decision making, while the OPTION scores of health professionals who had been trained in shared decision making were significantly higher than scores of untrained health professionals (Hirsch *et al.*, 2012).

To date, most studies that aim to increase the uptake of shared decision making in physiotherapy have been conducted with therapists who work with musculoskeletal patients. The focus of shared decision making is on the interaction between the patient and physiotherapist, and to be part of the clinical routine, and it needs to be embedded within an organisation where it is encouraged and supported through leadership and adequate resources (Coulter, 2018). To implement patient-centred care, clinicians need to reflect on their own beliefs and practice, encourage patients' involvement and facilitate disclosure of beliefs, fears, and concerns. This collaborative decision making process promotes self-management and ultimately patient-centred care (Hutting *et al.*, 2020).

#### **2.11.5 Dialectical reasoning**

A 'dialectic' is a discourse between two or more individuals with differing points of view that intend a reconciliation through a dialogue of reasoned debate (Jones, 1995; Edwards, Jones and Hillier, 2006). Hence, dialectical reasoning is a term used to describe the process of arriving at a clear understanding by comparing and contrasting various solutions and viewpoints (Merriam and Baumgartner, 2020). Within clinical reasoning, Edwards *et al.* (2004a p.323) defined the dialectic reasoning model as an 'interplay between every recognised reasoning component of clinical practice, namely: diagnosis, procedure, interaction, teaching, collaboration, prediction, and ethical decision making.

In a qualitative study involving 12 physiotherapists, Edwards *et al.* (2004a) argued that the dialectical reasoning model fits well with recent models of health and disability, such as the 'biopsychosocial model' as well as the 'World Health Organisation (WHO), International Classification of Functioning, Disability and Health (ICF). Physiotherapists often use dialectic reasoning to assist with the clinical reasoning and decision making process; however, it has been criticised by some researchers as being over-simplistic and

limited because it does not include the role of movement (Øberg, Normann and Gallagher, 2015; Huhn *et al.*, 2019).

#### **2.11.6 Limitations of the bio-psychosocial model in clinical practice**

There is limited standardisation in implementing bio-psychosocial and shared decision making models in the clinical practice (Daluiso-King and Hebron, 2020). Qualitative studies using semi-structured interviews aimed to explore physiotherapists' approaches to patients' psychosocial concerns. Physiotherapists felt undertrained to handle patients' psychological elements related to their chronic pain or illness, and some of them felt these problems were outside their scope of practice (Sanders *et al.*, 2013). Pelvic floor health depends on life events and predisposition such as biological factors (aging and genetic factors) and external factors such as cultural, socio-economics, lifestyle and life events (Brandt, 2021). Ultimate or optimal pelvic floor health is understood to be a concept that encompasses the physical and functional integrity of the pelvic floor structures, in addition to the effect that pelvic floor muscle dysfunction has on an individual's psychological, social and quality of life context (Pierce *et al.*, 2015).

A range of contextual factors, such as time and resource and lack of relevant academic and professional training, have been cited as limiting the application of a biopsychosocial approach (Foster and Delitto, 2011; Singla *et al.*, 2015; Daluiso-King and Hebron, 2020). Others argue that the prominence of biomedical and hypothetico-deductive reasoning models in physiotherapists' student training methods have inhibited the integration of the shared decision making and bio-psychosocial models into clinical practice (Domenech *et al.*, 2011).

#### **2.12 Summary of clinical reasoning literature**

Physiotherapists move from one clinical reasoning model to the other based on their experiences, knowledge, training, and patients' cues. The presence of different types of reasoning in response to different factors is suggestive of the physiotherapists' clinical reasoning and decision making. Physiotherapists' reasoning incorporates a synthesis of patients' information, ongoing process, reflection, and reassessment of ideas in the reasoning process and decision making (Furze *et al.*, 2015; Nicola-Richmond, Pépin and Larkin, 2016; Elvén and Dean, 2017). There is a range of clinical reasoning approaches:

some suggest that physiotherapists may prefer the use of pattern recognition and bio-psychosocial models, but the evidence is weak (Slade et al., 2020). Despite mentioning bio-psychosocial, the focus of clinical reasoning appears to be more often on biology rather than psychology or social factors. Social factors are an important aspect when considering UI literature because patients with UI may reveal social withdrawal, whereby one cannot consider the impact of social factors in clinical reasoning and decision making without understanding those which affect women. It is also reasonable to assume that these factors will vary depending on the culture. To date, there has been little to no consideration of the impact of culture on physiotherapists' clinical reasoning and decision making.

Section 2.11 explored the existing literature on clinical reasoning in physiotherapy and evaluated the areas where the theories of reasoning may or may not be applicable for this current study. However, it also identified gaps in the literature and their ability to explain the complexity of physiotherapists' clinical reasoning and decision making while managing patients with urinary incontinence across two different countries and cultures. Therefore, there is a need for broader literature that considers various theories on decision making and reasoning beyond physiotherapy, UI, western cultures, and organisations. The literature on these potentially useful theories was not located through a single pre-defined systematic search strategy. Instead, it was found by scanning text (in textbooks and online) to gain a broad conceptualisation of the decision making literature, reading in further depth about the reasoning and decision making theories cited in the most relevant studies. Sufficient literature and theories were explored to address the conceptual complexity and will be discussed in the next section.

## **2.13 Theories in clinical reasoning and decision making**

There is a wide range of clinical reasoning and decision making theories in different disciplines, including economics, psychology, medicine, marketing, computer sciences and organisational sciences. A brief overview of the various theories will be presented.

### **2.13.1 Classic decision making theory**

The classic decision making theory is a normative approach that assumes health practitioners make decisions based on statistical probabilities. It assumes that “decision makers are objective, have complete information and consider all possible alternatives and

their consequences before selecting the optimal solution” (Huczynski and Buchanan, 2001p.630). There is a strong argument that this may not be how people make real life decisions.

### **2.13.2 Dual Process Theory**

According to Croskerry (2009a), this theory proposes that there are two general kinds of cognitive operations to explain and understand human reasoning. Often, the two processes consist of an implicit, more intuitive, unconscious process (Type I) and an explicit, more analytical, conscious process (Type II). In some circumstances, an intuitive approach may be applicable, while in others, an analytical approach might be preferred as suggested by Simon (1990), and a blend of the two may be sometimes optimal. Hammond (2000) believed there to be a continuous alternation between the two modes. The dual process theory has been extensively researched within the fields of reasoning, judgment, and decision making (Evans, 2008). It is widely recognised and applied in philosophy, psychology, neurology, neuroanatomy, neurophysiology, and genetics (Lieberman, Jarcho and Satpute, 2004; Buschman and Miller, 2007).

Croskerry (2009a) proposes that the dual process theory particularly applies to diagnostic reasoning within a medical setting. It can be used to understand and explain how diagnostic reasoning skills are acquired, how they optimally function and how diagnostic failures occur. At the beginning of the assessment, the health care professionals access features of the medical problem either from the patient or a colleague. Some conditions may be diagnosed on visual signs, such as facial palsy. Still, others will need additional evidence, such as an explanation of symptoms, quality of life or other severe aspects of the presentation. Early in the process, it will be obvious whether the condition is recognised or not. If it is, Type I (intuitive) processes will rapidly make the diagnosis, and nothing further may be required. If it is not, then analytical type II reasoning will need to be involved instead. Dynamic fluctuation may occur between the two systems (Hammond, 2000).

Different places in the dual process theory where diagnostic failure might occur. Most errors occur in type I processes and may be expected, while type II errors are infrequent and unexpected but may be substantial when they take place (Dawson, 1993). This model has precise applications in different areas. Such as across the work of variable health care fields, research in clinical decision-making, and education in all fields. Also, nursing traditionally emphasises ‘intuitive’ approaches in decision making (Thompson and Yang, 2009).



However, physicians might blend two methods depending on the time and resources, and sometimes an optimal calibration may be needed for specific clinical situations under particular conditions. It is unclear if physiotherapists are using dual process theory within their decision making processes or not, and this is explored within this study.

## **2.14 Perspective Theory**

The classic decision making theory and dual process provide possible solutions to less than optimal decision making and clinical reasoning. The goal of decision making in prescriptive theories is to shift decisions toward a normative world. There is an explicit limitation in the above theories because they do not provide an understanding of how people make decisions in real clinical life. In contrast, the following section considers theories that provide a good explanation of how decision making happens, concentrating on naturalistic decision making, institutional theory and sense making.

### **2.14.1 Naturalistic Decision making**

Naturalistic Decision Making (NDM) is “the way people use their experience to make decisions in the field settings (Zsombok and Klein, 2014p4). NDM is different from other traditional decision models because it considers the decision making in real-world behaviour and settings. There are four markers of NDM, which include task and setting factors, research participants (experiences versus novices), the aim of the research and the locus of interest within the decision episode (Zsombok and Klein, 2014). The NDM researcher studied people in different fields, such as Navy commanders, jurors, nurses, and engineers (Klein, 2008). NDM models are more convenient for explaining experts' reasoning in different domains, such as dynamic situations, time pressure, and multi-players.

NDM has different decision models; for example, the recognition-primed decision is one of the models of NDM as suggested by Klein, Calderwood and Clinton-Cirocco (1986). The recognition-primed decision (RPD) describes how people make decisions by matching the patterns they have learned from previous experience (Klein, Calderwood and Clinton-Cirocco, 1986). The RPD model includes a combination of intuition and analysis.

NDM has changed and established new models, such as the RPD and critical decision method (Mosier *et al.*, 2018).

In a study informed by the critical decision method (CDM), interview data were collected to understand challenging surgical moments for 32 surgical cases. Purposeful sampling was used to include surgeons with a variety of experiences. The result showed that surgeons begin each surgery with a planned course of action (pattern) and continue to review that course of action during the surgery in response to the emerging situation (analytical) and the perceived difficulty level. The proposed model was created based on existing theories of naturalistic decision making (Cristancho *et al.*, 2013). Furthermore, in a study by Reiter-Palmon *et al.* (2015) to understand how naturalistic decision making can be utilised as a learning tool to decrease hospital errors. They collected 226 falls over a certain time and implemented the naturalistic decision making theory. They found that the types of errors identified as contributing to patient fall changed, with a decrease in the number of errors. This study illustrates the role of NDM in health care and real-life settings.

NDM has been criticised because it focuses on experts' behaviour and decision-making processes (Elstein, 2001). For instance, expert decision makers usually generate an initial practical course of action and then assess the consequences of that action; if that action works as desired, they act. NDM did not consider other factors in the decision making processes, such as individual, social, and psychological factors; as a result, it might not be applicable in this study because of the complex nature of physiotherapists' decision making while managing patients with UI.

### **2.14.2 Institutional Theory and Institutional logics**

Comparing clinical reasoning models and decision making processes between two different cultures and healthcare institutions required an understanding of institutional theory. Institutional Theory can be understood as policy-making emphasising the substantial and legal aspects of government structures (Kraft and Furlong, 2019). Socially constructed belief and rule systems exercise enormous control over organisations—how they are structured and carry out their work (Scott, Scott and Meyer, 1994). Over decades there has been an evolution in the institutional theory; there is a variety of social norms and values constitute larger social institutions, which put the organisation under pressure. Friedland (1991) attempted to offer a new explanation of institutional theory by introducing institutional logics as “a set of material practices and symbolic constructions that constitute organising principles for institutions or supra-organisational pattern of human activity” (Friedland, 1991, p243) Institutional logic can be defined as the organisational values that underlie belief

and practices within an institutional setting, playing a traditional role in determining an individual's explanations and legitimatising their activities (Scott, 2013). The work of Thornton, Ocasio and Lounsbury (2015) proposes six forms of institutional logics: the market, professions, corporations, the state, the family and religion. Each has distinguishing features that are useful for studying multiple logics that might contradict each other. As this study sought to understand how different countries, cultures and organisations impacted clinical reasoning, it was anticipated that an understanding of institutional logics would be necessary.

The linkage between institutional logics and practices is well established; organisational practices are seen as manifestations of the institutional logics (Greenwood *et al.*, 2010). It is expected that institutional logics affects organisational decision-making by moving the attention of decision-makers. For example, Thornton, Ocasio and Lounsbury (2015) stated that when one logic is dominant, the concentration of decision-makers is directed toward issues and practices consistent with this logic. Often organisations experience multiple and sometimes conflicting institutional logics (Thornton and Ocasio, 2008). Health care is highly fragmented; as a result, health care organisations depend on many actors with possibly different logics (Pache and Santos, 2010). Other authors indicate shifts in institutional logics in the health care field from a professional logic to a business-like logic. In addition, it is acknowledged that multiple institutional logics might coexist (Kitchener, 2002; Reay and Hinings, 2009; Scott, 2013). As suggested by Goodrick and Reay (2011), autonomy is an essential aspect of professional logic, the core parts of the professional logic are high quality of care, sufficient time to spend directly on patients and autonomy. On the other hand, the business-like logic ascribes importance to practices that could lead to cost reduction (Reay and Hinings, 2005).

In a study *Productive Ward: Releasing Time to Care* by Robert *et al.* (2011), this programme was developed in 2006 by the NHS Institute for Innovation and Improvement in the United Kingdom. The core assumption of the programme is that nursing staff organise their own ward and improve processes themselves. This may increase the time spent on patient care, resulting in a higher quality of care and more patient and nurse satisfaction. One of the programme's core elements was to increase the nurse's empowerment and autonomy. How the programme is communicated throughout the organisation refers to multiple institutional logics. The labelling of the programme, 'Productive Ward: Releasing Time to Care, suggests that this could be an example of a hybrid practice that incorporates both the professional

nursing logics (Releasing Time to Care) and the business-like logic (Productive Ward)(Robert *et al.*, 2011).

Institutions enable organisational identities and their implementation and enactment (Scott, 2013). Thus, institutional-based categories can explain cultural ranges of meaning that organisations can fit to address the question of ‘who we are (Greenwood *et al.*, 2010). The answer simultaneously characterises their central features and classifies them as a member of one organisational field but not of others. This category distinguishes them from other organisations or social communities (Greenwood *et al.*, 2010). Cerderbom, Bjerck and Bergland (2020), in a qualitative study exploring physiotherapists’ views on their role in working with fall prevention services, found that a favourable policy environment is required to support the physiotherapists’ multifaceted role in fall prevention. A favourable policy environment involves person-centred communication and collaborative practices between professionals, focusing on patient cues and concerns and family interactions (Cerderbom, Bjerck and Bergland, 2020; Manhas *et al.*, 2020). Using institutional theory in this study is important because it has multiple logics and could help understand the possible differences and similarities between physiotherapists’ clinical reasoning and decision making in the UK and KSA.

This study aims to explore physiotherapists’ clinical reasoning and decision making. At the same time, managing patients with UI, the institutional theory may be sought by physiotherapists, but it does not consider different factors such as psychological and social factors. Sense making theory is one such theory, and the following sections describe this theory and present relevant studies.

### **2.14.3 Sense making processes**

Sense making has been adopted in the work of Weick (1995). Sense making provides a lens to explore clinical reasoning and decision making among other health practitioners; it also has the potential to help with understanding physiotherapists’ clinical reasoning while managing patients with UI. The sense making theory has been used widely in the nursing literature to account for nurses’ decision-making processes. This section presents a review of the theoretical background of sense making, followed by a discussion of its findings from selected studies.

### 2.14.3.1 Theoretical background

Sense making is an organisational theory with its origin in social psychology. It is a process by which people give meaning to their ongoing experiences. Sense making focuses on human agency, ambiguity, and relationships (Weick, 1995). The human agency concentrates on the actions people take based on their explanation of ambiguous circumstances that generate sense making (Weick, 1995; Weick, Sutcliffe and Obstfeld, 2005). Relationships refer to the social process of sense making, and consider the actions people take based on their explanation of an event, the social reactions to dealing with the event, and the subsequent sense making of the event (Weick, Sutcliffe and Obstfeld, 2005). Sense making occurs retrospectively and prospectively and reduces the ambiguity from an unpredicted event, allowing a health practitioner to carry out daily tasks within an ultimately complex system (Battles *et al.*, 2006). The seven properties of sense making, explained by Weick (1995), are presented in Table 2-1

Table 2-1: Weick (1995) describes seven properties that are part of the sense making processes

Properties of sense making	Meaning
Grounded in identity construction	The process of figuring out what is going on is a product of and a process based on who the sense maker is and who they are becoming
Retrospective	Making sense based on data that has occurred and trying to justify it. Shaping experience into meaningful patterns based on our memory of experience
Enacts sensible environments	This happens when deciding on a domain of activity and then taking action. In sense making, an individual creates their own environment for future action.

Properties of sense making	Meaning
Social	Considering sense making primarily as an introspective, intrapsychic process. Making sense of things while in conversation with others, reading and exchanging ideas with others.
Ongoing	Constantly bracketing moments in the flow of life as we seek to reflect on and codify the meaning of things. Bracketing means identifying a structure of information so it can be labelled to overcome ambiguity
Based on extracted cues	From actions around us, we tend to bracket and extract certain elements, which become the targets of the sense making process.
Based on plausibility, rather than accuracy	Organisational decision making is often based on odds and can involve intuition and careful analysis and systematic elimination of suboptimal choices.

### 2.14.3.2 Dimensions of sense making

Unanticipated events and workflow disruptions generate sense making. To resolve the circumstances and continue working, the individual tries to fit the issue into a familiar situation based on their personal knowledge, experiences, and knowledge, as well as the organisational rules and norms (Weick, 1995). When the issue is unfamiliar, an information gap occurs. The individual may seek out help, look for additional clues and take an action. The decision to seek help, improves the communication that may add perspective to the circumstances (Weick, 1995). Communication allows individuals to interpret and construct shared meaning that shapes future action. Recurring sense making from the individual health practitioners can also shift to include sense making at an organisational level (Weick, Sutcliffe and Obstfeld, 2005; Battles *et al.*, 2006).

### **2.14.3.3 An overview of the existing literature in sense making among different health practitioners**

Studies have used sense making theory to implement change in technology, business, and nursing (Paul, 1996; Battles *et al.*, 2006; Kristiansen, Obstfelder and Lotherington, 2015). Other studies have used the role of sense making processes to understand participants' performance, as well as to consider how to eliminate hazards or risks that are a threat to patient safety (Battles *et al.*, 2006; Rosness *et al.*, 2016). There are seven properties of sense making listed in Table 2-1, with much of the literature including all the properties of sense making or only some of the properties (Weick, Sutcliffe and Obstfeld, 2005). For instance, Rosness *et al.* (2016) studied the prospective and retrospective properties of sense making and tried to implement the use of these properties in the performance of participants in the operating theatre. On the other hand, Battles *et al.* (2006) mentioned that the participants' conversation about patients' safety incidents encouraged them to start to make sense of the cause of those hazards. This occurred by looking retrospectively and analysing the incidence of accidentally swapping the medications of two patients with the same name. An ongoing process of extracted cues guided the participants to take an action that helped participants to overcome uncertainty prospectively. Hence, sense making theory can be used to overcome ambiguity, to understand participants' performance, risk management, or to make sense of the influence of organisational culture on decision making. Within the existing physiotherapy literature, there is limited use of sense making process, therefore the use of sense making processes to overcome uncertainty in physiotherapists' clinical reasoning and decision making process is explored in this study. This was deemed important as the existing models of clinical reasoning used by physiotherapists who manage patients with UI, as proposed by Slade *et al.* (2020), did not consider or place adequate emphasis on the effect of culture or social context on clinical reasoning and decision making. This is discussed further in the following section.

## **2.15 Factors that might influence clinical reasoning**

The literature identifies several factors that can influence physiotherapists' clinical reasoning and decision making processes; these may relate to the physiotherapist, the patient or the context. Clear differences in reasoning have been demonstrated between experts and novices (Higgs, 2008; Ajjawi and Higgs, 2012; Cruz, Moore and Cross, 2012a; Holdar, Wallin and Heiwe, 2013), with novices using H-D reasoning, while experts use

pattern recognition. Expertise may be related to years of experience (Doody and McAteer, 2002; Wainwright *et al.*, 2011; Elvén and Dean, 2017), but Slade *et al.* (2020) also demonstrated, that in pelvic health physiotherapist, expertise related to the availability and engagement with continuous specialist pelvic health education and the ability of physiotherapists to interpret and critique research findings and clinical guidelines.

### 2.15.1 Physiotherapist factors

Expert continence clinicians have been found to highlight the importance of effective communication skills in identifying problems and discussing different treatment options in UI (Slade *et al.*, 2020). Communication is a key factor of bio-psychosocial and shared decision making models that enables ‘patient centred’ management, by incorporating the patient’s narrative (including goals, values, beliefs and choices) (Solvang and Fougner, 2016). Ways of embracing this have been emphasised through physiotherapists’ personal characteristics, motivational interviewing (involving open questions), attentive listening and giving patients time to discuss their story; these are common features within the bio-psychosocial model, which encourages active participation by patients (Cowell *et al.*, 2019; Langridge, 2019).

Higgs (2008) also argued that physiotherapists’ emotional intelligence (EI) which includes, but is not limited to, active listening, empathy, reassurance, encouragement and using simple language influences clinical reasoning (Marcum, 2013; Aljuraifani *et al.*, 2019). Furthermore, Slade *et al.* (2020) identified EI as a key feature of expert pelvic health physiotherapists. A study by Langridge, Roberts and Pope (2016) involving MSK physiotherapists suggested that external pressures (such as time restrictions) impacted their clinical reasoning. This caused them to have less consideration when it came to their feelings, emotional factors and physical responses, in particular when dealing with difficult and vulnerable patients. This concept was also discussed in clinical medicine (Marcum, 2013). Patients with UI have been shown to experience a range of negative emotions associated with their incontinence and may have experienced problems, such as sexual abuse that may lead to increased vulnerability; hence, the health practitioner may need time to build trust and rapport that will allow patients to expose some ethical or sensitive issues related to their UI and enable effective clinical reasoning.



### 2.15.2 Patients' factors

As well as factors associated with the physiotherapist, patients' factors have been shown to influence clinical reasoning (McGinnis *et al.*, 2009b; Amundadottir *et al.*, 2018). The biopsychosocial model of clinical reasoning asserts that physiotherapists take account of biological, psychological and social factors to reach their clinical decisions. However, Dune *et al.* (2021), Mescouto *et al.* (2020) and Brandt (2021) have indicated that social factors are known to impact an individual's health, such as class, gender, family relationships, macro socioeconomic and political contexts, as well as access to healthcare, may be given less consideration than biological or psychological factors. A patient's physical and psychological state is vital to consider in the clinical reasoning and decision making process (Holdar, Wallin and Heiwe, 2013), in addition to patients' goals, motivation, beliefs and their expectation of the physiotherapist and their treatment. All these common factors influence physiotherapists' decision making (Chapparo and Ranka, 2008; Wainwright *et al.*, 2011; Holdar, Wallin and Heiwe, 2013; Hall *et al.*, 2016; Elvén and Dean, 2017).

Patients' belief and culture can affect physiotherapists' clinical reasoning and decision making, since, Stewart and Bennett (2011) found that cultural competence was low among newly qualified UK physiotherapists, while Te *et al.* (2020) found that Australian newly graduated physiotherapists felt challenged when dealing with patients from different culture. Patients' belief and culture were also included as lists rather than in depth factors that influence physiotherapists' clinical reasoning and decision making in MSK, cardio-pulmonary, pelvic floor disorder and chronic illness. Yoshikawa *et al.* (2020) also found that discordance might affect the relationship between physiotherapists and patients which may affect patients' progress. However, it is important to understand how a patients' culture shapes the way health practitioners make decisions.

### 2.15.3 Contextual Factors

There is limited research regarding the effect of cultural, racial, language and/ or religious factors on clinical reasoning and decision making in physiotherapy in general (Mescouto *et al.*, 2020). Organisational culture has been shown to influence decision making in acute patient care, orthopaedic, medical, neurological and end-of-life diseases in Holdar, Wallin

and Heiwe (2013); Elvén and Dean (2017), but less consideration has been given to the patients or physiotherapists' cultural background.

A recent scoping review synthesised the sociocultural factors, such as cultural and linguistic diversity, affecting chronic pain management between patients, and their physiotherapists. The authors reported culturally generated discordance between patients and physiotherapists (Yoshikawa *et al.*, 2020). They indicated that although some physiotherapists were accepting of the differences in patients' beliefs, they did not necessarily apply that difference in culture into their management plan, which sometimes created stressful relationships between patients and physiotherapists. Yoshikawa *et al.* (2020) suggested that it is vital to adopt cultural competency in physiotherapy and provide physiotherapists with opportunities to improve their sociocultural awareness, with the possibility of practising in culturally diverse societies.

Mescouto *et al.* (2020) conducted a recent critical review of 66 studies in bio-psychosocial model of lower back pain care. They found that wider features of care, such as culture and power dynamics, received little attention. The results of the review suggested that multiple important aspects, such as interpersonal or institutional power relations, cultural considerations, as well as ethical and social factors of health, are not being integrated into physiotherapy research and practice when taking the biopsychosocial approach while working with people who have chronic pain and illnesses (Holdar, Wallin and Heiwe, 2013; Mescouto *et al.*, 2020; Brandt, 2021). Therefore, it can be suggested that the current clinical reasoning models may be inadequate when it comes to addressing patients' cultural factors. Additionally, given the complexities and sensitivities of treating women with UI, a reworking of the existing model may be necessary.

Moreover, most of the research on physiotherapy clinical reasoning has been conducted in Western democratic countries, such as Australia (Edwards *et al.*, 2004b; Higgs, 2008; Slade *et al.*, 2020), the UK (Jones *et al.*, 2014; Langridge, Roberts and Pope, 2015; Thackray and Roberts, 2017) and the USA (Payton, 1985). Relatively little is known about clinical reasoning in other cultures or how culture may shape clinical reasoning. It cannot be assumed that clinical reasoning in Western countries will be equivalent to that used in other cultures. This premise is explored in this study by including participants from two different countries, i.e., the UK and KSA.

One study that partly addresses the issue of culture within the treatment of UI is a systematic review of qualitative research by Siddiqui et al. (2014) that aimed to understand women's perceptions of UI in different racial and ethnic populations. The 23 studies included in the review were undertaken with women across different racial and ethnic groups such as mixed populations (white, black, Hispanic, Asian) in Western countries, Women of Asian and Southeast Asian backgrounds (Bangladeshi, Pakistani, Indian) and Chinese women backgrounds in addition to studies of Arab women included Syrian immigrants in Sweden and Moroccan/Turkish immigrants in the Netherlands. The included studies had varying levels of quality, with different methodologies, including mixed methods and qualitative studies. Siddiqui et al. (2014) found two main themes, UI management and UI experience, and were similar across racial and ethnic groups. In the studies included in the review, women from different races had difficulty communicating with health practitioners regarding UI and preferred to discuss UI with other women. There were some apparent variations in UI experiences within the diverse group, non-white women stated self-blame and perceived UI as a negative consequence of previous experiences such as giving birth and intercourse, while Muslim women had additional disruption from UI because of the need to retain purity during prayers. In addition, Latina women showed more secrecy around UI issues, even among close family members. Given these cultural differences in patient experience, it is likely that differences also exist in clinical reasoning.

Significant differences likely prevail between the UK and KSA regarding dominant models of medicine, patient preferences, physiotherapy education and culture. Although Saudi women play an essential role in society and can work in many sectors and fields, they are not necessarily able to hold the same positions as men. They are limited regarding certain decisions that require authorisation from a male relative; for instance, some women are not allowed, due to certain cultural beliefs, to travel abroad without the permission of a male relative. This may influence the health and well-being of Saudi women. For example, Pirotta (1994) claimed that assessing a female Saudi patient, even when a female staff member implements the assessment, can sometimes be problematic. This is because some female patients are hesitant to expose certain parts of the body, given the strictly held religious and cultural beliefs. In addition, Muslims in KSA pray five times a day and must perform a ritual ablution before prayer. Throughout the prayer, they must maintain that state of purity, which might be challenging for individuals suffering from UI. Muslims also fast during the holy month (Ramadan), fasting for ~15 hours (dawn to sunset) per day

for 30 consecutive days. Fasting can be very effective in weight loss, controlling diabetes and decreasing the risk of heart disease (Wei *et al.*, 2017; Malik *et al.*, 2021). However, fasting may affect the body's hydration level and voiding time and could change the routine of medication times. A review that assessed the risk of fasting on chronic kidney disease suggested that clinicians should perform a thorough risk assessment for patients within a month before Ramadan, as they may require medication changes and a plan for regular monitoring of renal function to fast safely (Malik *et al.*, 2021).

In recommendations established by the International Diabetes Federation and the Diabetes and Ramadan International Alliance, it is suggested that patients in the high-risk and very high-risk categories should be encouraged to explore alternative options to fasting, while those in the low–moderate category may be able to fast safely with guidance from their clinician (Hassanein *et al.*, 2021). Physiotherapists, therefore, may need to consider providing patients with alternative options to bladder training and lifestyle modifications during Ramadan. During fasting, Muslims are avoiding anything that breaks their fast, which includes having sexual intercourse during the day. As a result, some women attending physiotherapy sessions may not accept digital palpation. There is a difference of opinion among the scholars of Islam regarding this issue, some physiotherapists consulted different Mosques' Imams about the effect of digital palpation on a fasting woman, and they reported that digital palpation would not break women fast because it is done for a medical reason (Malik *et al.*, 2021). Physiotherapists managing patients from the ethnic minority may need to be aware of their patient's cultural needs, which is part of cultural competency; however, other physiotherapists might try to classify ethnic minority patients, potentially leading to stereotyping. As a result, cultural competency may be inadequate to manage patients from ethnic minorities.

### **2.15.3.1 Cultural humility'**

Cultural humility', introduced by Tervalon and Murray-Garcia (1998), gives a different and deeper perspective on cultural competence through a continuous reflection of one's self and acknowledgement of the power imbalances between patients and healthcare providers and the challenges of institutional-level barriers. Also, it considers the fluidity of culture and challenges to individuals and institutions to address health inequalities (Fisher-Borne, Cain and Martin, 2015). It is not about a particular ethnicity, race, behaviour, or belief but about integrating cultural perspectives into management

decisions. It requires physiotherapists to be open about patients' identities, giving it more weight than their own experience.

Overall, the two approaches – cultural competency and cultural humility – differ in their cultural perception, organisational assumptions, elements, interested parties and limitations, presented in Table 2-2

Table 2-2: shows the differences between cultural competency and cultural humility adapted from Tervalon and Murray-Garcia (1998) and Fisher-Borne et al. (2015)

<b>Cultural Competency</b>		<b>Cultural Humility</b>
<b>Perception</b>	<ul style="list-style-type: none"> <li>• Recognises the layers of cultural identity.</li> <li>• Challenges stereotypes.</li> <li>• May encourage systematic disparities.</li> </ul>	<ul style="list-style-type: none"> <li>• Recognises the layers of cultural identity.</li> <li>• Acknowledges that working with different cultures is a lifelong and continuous process.</li> <li>• Emphasises understanding ourselves and others as well.</li> </ul>
<b>Organisation assumptions</b>	Develops values, knowledge, awareness and skills to work within diverse cultures.	<ul style="list-style-type: none"> <li>• Develops self-awareness and attitudes toward diverse patients.</li> <li>• Includes understanding of ourselves, colleagues and communities to understand our patients.</li> <li>• Involves humility and acknowledgement of power imbalance between patients and health care providers, in addition to the relationships with society.</li> </ul>
<b>Elements</b>	<ul style="list-style-type: none"> <li>• Cultural knowledge.</li> <li>• Skills and behaviours.</li> </ul>	<ul style="list-style-type: none"> <li>• Questions power imbalances.</li> <li>• Institutional responsibility.</li> <li>• Integrated within management process.</li> <li>• Ongoing self-reflection and critique.</li> </ul>
<b>Interested parties</b>	Health practitioners	<ul style="list-style-type: none"> <li>• Health practitioners.</li> <li>• Patients and community.</li> <li>• Organisation.</li> </ul>

<b>Limitations</b>	<ul style="list-style-type: none"> <li>• Regarded as a checklist approach.</li> <li>• Focus on knowledge, leads to stereotyping the ‘other’ and does not encourage ongoing learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of pragmatic data.</li> <li>• Limited conceptual framework.</li> </ul>
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These cultural factors may influence the clinical reasoning and decision making of physiotherapists. Consequently, the impact of culture on clinical reasoning for physiotherapists will be explored in more detail. This concerns Saudi physiotherapists and the clinical reasoning of UK physiotherapists when working with ethnic minority patients with urinary incontinence.

### **2.15.3.2 Studies in culture as a factor that influences health practitioners clinical reasoning and decision making**

Managing ethical problems may vary based on different beliefs and religions. For instance, in Muslim majority countries, such as KSA, ethical issues are often solved within the family and not via higher authorities (such as social services or the police), though a generalisation cannot be made among all Muslims (Gill and Harrison, 2019; Rollston *et al.*, 2020). Delany, Edwards and Fryer (2019) explored how physiotherapists perceive, interpret (i.e., clinical reasoning) and respond to the ethical dimensions of physiotherapy practice in different settings. They found ethical challenges in the working environment, such as health care policies. In addition, they found balancing diverse needs and expectations to be ethically challenging. This included differences in language and cultural views regarding health (Delany, Edwards and Fryer, 2019). In a study by Sawrikar and Katz (2018) a number of barriers were found to reporting child sexual abuse among ethnic minorities in the UK, with the most significant barriers including the need to protect the family honour and name, as well as fears regarding being stigmatised by the community; this was more common among people from collectivist cultures, such as KSA.

Mobeireek *et al.* (1996) investigated the health system in KSA and commented that in traditionally conservative societies with strong traditional cultural identities, medical professionals are often considered to be figures of authority who must be ultimately

respected. This can lead to a power shift from the patients to the health practitioner, which can undermine the patients' autonomy. Therefore, be surmised that clinical reasoning in KSA may be influenced by this and might be mostly clinician-centred in nature (Simmens, 2009). Furthermore, Alshehri *et al.* (2018) undertook a study investigating physicians' attitudes and opinions towards physiotherapists' services in KSA. They identified that the physicians held superior attitudes towards physiotherapists with ambiguity about physiotherapist's identity. For instance, some of them believed that physiotherapists in KSA did not create good awareness about what they could offer patients, while physicians admitted that they did not have any adequate knowledge about physiotherapist services. The physicians reported that lack of knowledge and skills were a common feature within KSA physiotherapists, and there was limited cooperation between both professions.

AlHaqwi *et al.* (2016) is one of very few studies exploring decision making in KSA. In a study conducted within family medicine to assess patients' preferences regarding either shared decision making, paternalism or informed decisions in KSA, AlHaqwi *et al.* (2016) found that 57% of patients preferred shared decision making with the treating physicians, 28% preferred the paternalistic decision making, and 14% of patients preferred the informed approach. Most of the participants who preferred a paternalistic approach were over the age of 50, were female and suffered chronic conditions. Most of the participants who preferred shared decision making were highly educated and male. However, this difference might not be representative of all male KSA patients as this study took place in one of the university hospitals where most patients were either working there or relatives of the employee. In addition, 60% of the participants who took part in the study were male, which might bias the result of shared decision making towards male patients only.

In addition, Lewis *et al.* (2021) reported that self-management and patient autonomy in decision making may not be culturally accepted by the patient. Self-management is an essential component of patient-centred care and part of physiotherapy management of patients with UI. However, qualitative research identified that clinicians currently address self-management in people with chronic pain conditions, such as low back pain, is insufficient, because self-management strategies were not addressed (Hutting *et al.*, 2020). There are challenges in implementing patient-centred care in the world's middle- and low-income countries. This study will be conducted in Saudi Arabia, and although it has a high income, it is still recognised as a developing country. In a study by Oleribe *et al.* (2019); Alluhidan *et al.* (2020) Alsadaan *et al.* (2021) on the challenges facing health care professionals in the implementation of patient-centred care in developing countries, they

found that there are other challenges, including inadequate human resources, budget allocation to health, unique Arabic culture and poor leadership and management. The awareness of shared decision making is limited in low- and middle-class income countries, and there are multiple cultural and operational barriers to shared decision making happening (Sam *et al.*, 2020). Another study using a self-completion questionnaire by Mobeireek *et al.* (2008) identified that experienced Saudi physicians favoured individual patient autonomy in decision making, while patients and novice physicians preferred family involvement in the decision. This contrasts with practice in Western countries, where discussing serious medical issues with family rather than with patients alone and with their overt consent may be considered against patient autonomy (Bone *et al.*, 1990).

In terms of how clinicians are educated in KSA, Elzubier (2002) reported a lack of communication and skills training in many undergraduate and postgraduate medical curricula in KSA. This led Zaini *et al.* (2011) to establish a new framework for the curriculum of undergraduate medical students, which placed more emphasis on patient-centred care and physician-patient communication. Furthermore, Alshehri (2017) reported that there is a lack of clinical reasoning training within physiotherapy curricula in KSA universities and suggested that clinical reasoning might be introduced within clinical practice modules when students are required to see patients at the hospital. The learning system in KSA is more didactic in nature, which may limit physiotherapists' ability to learn and solve problems independently, in addition to limiting critical thinking and reflection skills in practice. Similarly, Alshehri (2017) suggested the significance of adding clinical reasoning into the curriculum to improve physiotherapists' clinical reasoning skills and increase their understanding of biopsychosocial reasoning. In addition, a study by Fielden (2012) reported similar findings, i.e., that newly graduated Saudi nurses have the inadequate critical thinking, reflection abilities and poor communication skills, with a tendency to focus on clinical understanding without considering patients' factors or characteristics.

These findings suggest that there is room for improvement within the KSA healthcare education system, especially with regard to critical thinking. The current limitations within the existing Saudi curriculum may affect clinical reasoning and decision making for physiotherapists, although there is no existing literature that examines this. Given the researcher's own experience of completing a master's degree in the UK, she was familiar with the differences in education and aware of the different cultures between the UK and KSA. This experience raised questions in the researcher's mind about how physiotherapists



make sense of the information, and the factors that influence them will depend on each of the two different cultures. Having knowledge of the existing Western literature and contemporary Western culture, as well as experience of studying in the UK, in addition to personal experience of KSA, meant the researcher was acutely aware of how culture could influence decision making. These assumptions and biases may be affected by the researcher's experiences working as a lecturer at KSA. The educational system in KSA encouraged students to memorise the subjects rather than critical thinking. The authoritarian system might drive this in KSA that does not promote critique and debate. Students sometimes found difficulty in reflecting on previous clinical training or providing honest feedback.

My experience working with Saudi students may influence the literature chosen because of the lack of critical thinking among the students I have taught. In addition, from my experience working as a physiotherapist with Saudi patients, I remember that some patients struggled to set their own goals and were happy to be informed about the management decision; they looked at me as an experienced clinician who should decide on their behalf, that might impact on the literature chosen because of my assumption that the KSA health system is clinician-centred rather than patient-centred care. Being aware of my experiences, background and beliefs, I tried to be open to all the literature. I found that male patients were delighted to share the decision with the health professionals in one of the university hospitals in KSA. In contrast, others prefer to be informed about the management decision, this findings supported my assumptions that some patients chose to be inform about the best decision related to their health (AlHaqwi *et al.*, 2016). It was also interesting that elderly and low-educated patients preferred informed decision making in different countries and not only in KSA. That put me at ease in trying to avoid biases in my literature review and findings.

## **2.16 Summary and Study rationale**

A literature search was undertaken using various search terms. This included physiotherapy, pelvic health physiotherapist, women's health physiotherapists, urinary incontinence, clinical reasoning, and decision making. The literature search in 2016 revealed no research into clinical reasoning and decision making by women's health physiotherapists or pelvic health physiotherapists, with most of the existing clinical reasoning and decision making literature was undertaken in the fields of musculoskeletal, cardiorespiratory, acute care and neurological physiotherapy (Case, Harrison and Roskell,

2000; Edwards *et al.*, 2004b; Smith, Higgs and Ellis, 2008; McGinnis *et al.*, 2009a; Haas *et al.*, 2012). The review of the existing literature identified biomedical, H-D and pattern recognition models of clinical reasoning and a range of factors that might influence decision making; however, it did not cover patients' sociocultural factors. Moreover, there are very few studies that address socio-cultural factors among ethnic minorities or examine organisational factors or explore how the vulnerability of patients with UI will influence physiotherapists' clinical reasoning and decision making. It is essential to consider the sensitive nature of UI and the fact that women from ethnic minorities often seek help only when they have severe symptoms.

Moreover, due to the substantial impact of UI on women's lives, it is reasonable to assume that the lifestyles that women lead will affect how UI is experienced. Consequently, it is likely that women in different countries and cultures experience UI differently, and thus there may be differences in pelvic health physiotherapist's clinical reasoning and decision making. However, most of the existing guidelines have been conducted in Western societies, with very few studies exploring the influence of culture and social factors in physiotherapists' clinical reasoning and decision making. Therefore, this thesis addresses an important gap in the literature, i.e., understanding what clinical reasoning models and processes are used by experienced physiotherapists in two countries with very differing cultures and identifying what factors shape their reasoning and decision making.

### **2.17 Research question**

What clinical reasoning and decision making processes are used by pelvic health physiotherapists while assessing and treating women with UI in the UK and KSA, and what factors influence their clinical reasoning and decision making?

### **2.18 Study Aim**

To explore pelvic health physiotherapists' clinical reasoning and decision making processes while assessing and treating patients with UI in two countries with differing cultures (UK and KSA).

## 2.19 Objectives

- To identify and understand the similarities and differences in clinical reasoning and decision making processes between pelvic health physiotherapists in the UK and KSA.
- To identify the clinical reasoning models being used during decision making processes in the UK and KSA.
- To explore the factors influencing clinical reasoning and decision making processes in the management of UI.
- To contribute towards the understanding of future development of theoretical frameworks of clinical reasoning specific to pelvic health physiotherapists in the UK and KSA.



## Chapter 3 Methodology

The previous chapters outlined the decision making and clinical reasoning processes used by physiotherapists and the study rationale. This chapter presents the research methodology, including the research design, data collection used in this study, as well as data analysis. The methods used to ensure the rigour and credibility of the study, as well as the researcher's reflexivity, are also discussed.

### 3.1 Research Paradigm

This study aimed to explore physiotherapists' decision making and clinical reasoning whilst assessing and treating patients with UI in two countries, the UK and the KSA. The ontological position or perspective of the researcher in the social world was to understand people's experiences, thoughts, views, feelings, memories, interpretations of actions and cultural practices (Mason, 2017). Quantitative research methods, such as surveys, randomised controlled trials and other methods commonly used within the positivist paradigm, are more frequently focused on identifying cause and effect relationships, proving hypothetical assumptions, and producing cumulative generalisations based on a data set. This approach is less useful for listening to and collecting participants' opinions and views on the research topic (Silverman, 2015), which is part of the aim of this research. There is a possibility that these aspects are interrelated and interconnected in the social worlds. Hence, an interpretivist paradigm using qualitative research was selected as the most appropriate method to help achieve the research aims in this study. It is a phenomenon linked to the early writings of Kant (1908), who published the Critique of Pure Reason in 1781. He suggested that knowledge of the world is based on understanding, which is a result of reflecting on what occurs, not just from having had certain experiences. Hence, the epistemological position that this research expresses or implements is interpretivist, as it views information as being created through a direct relationship and interaction with the participants (Charmaz, 2013). It places emphasis and value on human interpretation of the social world and the importance of both the participants' and the researcher's understanding and interpretation of the topic being studied (Ritchie *et al.*, 2013). In the interpretivist tradition, '*researchers see, hear and*

*construct meaning depending upon their prior interpretive frames, participant biographies and interests, as well as the research context, concrete field experience and nature of data'* (Denzin and Lincoln, 2008 p.206).

The conceptualisation of the research process in the interpretivist tradition begins with what the researcher brings to the inquiry (Ritchie *et al.*, 2013). Often, researchers bring their perspectives and experiences such as personal history, views of themselves and others, as well as ethical and political issues. The researcher also brings to the inquiry certain philosophical assumptions. These assumptions are in turn often applied in research using paradigms and theories. Paradigms are the researcher's beliefs and views that guide action (Creswell and Poth, 2017). For instance, the researcher's views, opinions and beliefs cannot be isolated during the interviews and focus groups; hence, in the current study, the researcher's epistemological position is interpretivist. This influences the way the researcher asks questions and therefore the participants' response. In this study, the researcher is a Muslim woman wearing a head scarf who encourages participants to talk about the effect of Muslim culture and beliefs on UI. The researcher aims to take a reflexive stance, but cannot avoid bias through their beliefs, which can guide their actions as a researcher (Creswell and Poth, 2017).

Nevertheless, the interpretivist approach was considered the most appropriate and suitable method as it allowed the gathering of rich and insightful data; it also enabled the exploration and understanding of the social world of physiotherapists, with a focus on their experiences and interpretations of their decision making and clinical reasoning processes, as suggested by Holloway and Galvin (2016). This paradigm also enabled the exploration of the connections between the social and cultural aspects of physiotherapists' decision making and clinical reasoning and the context in which certain actions occur.

This interpretivist philosophical assumption underpinned the research processes from research questions, data collection methods as well as the relationship between the participants and the researcher (Denzin and Lincoln, 2011).

### **3.2 Methodology and Research Design**

The methodology of any research should relate to its research questions and objectives (Denzin and Lincoln, 2011). To understand the process of clinical reasoning and explore any differences in decision making and clinical reasoning between UK and KSA physiotherapists, qualitative research was used to provide the necessary in-depth exploratory tools for obtaining a clear picture of clinical reasoning processes (Creswell and Creswell, 2017). Another objective of this study was to identify the clinical reasoning models used by physiotherapists and to contribute towards the understanding of the future development of theoretical frameworks of clinical reasoning specific to physiotherapists in the UK and the KSA.

The framework approach is a qualitative method developed by two qualitative researchers, Jane Ritchie and Liz Spencer, in 1994. It is a deductive form of analysis that is widely used in healthcare research. Framework approach tends to emphasise greater sample sizes and saturation of themes, and it is epistemologically grounded in the interpretivist tradition. Framework approach is suitable to applied or policy research in which the objectives of the investigation are typically set in advance rather than created from a reflexive research process. It starts deductively from the aim and objectives that have been set for the study (Pope, Van Royen and Baker, 2002). This approach was deemed suitable for the present study as it helps identify if the existing clinical reasoning theoretical models are applicable to physiotherapists in both the UK and KSA and highlights the similarities and differences between clinical reasoning and decision making in the UK and the KSA.

### **3.3 Methods**

Semi-structured interviews and focus groups (FGs), which are particularly appropriate for eliciting people's thinking and rationales, were used to collect data in this study. Hennink (2007) suggested combining multiple qualitative methods in a study design, as each method brings a particular insight to the research problem.

### **3.4 Other Methods Considered**

There are several other methods that can be used to collect data within qualitative research. One of the most common one used in qualitative studies is observation methods. It was initially considered for the current study as it would have enabled the observation of physiotherapists' clinical reasoning, as suggested by Higgs (2008). However, after careful consideration it was deemed unsuitable. This was because physiotherapists often use digital palpation to assess pelvic floor muscle power - a part of patients' biofeedback to show them if they are contracting the correct muscles or not. Patients often feel uncomfortable during this process and might not accept a researcher observing the procedure. Therefore, it might have been difficult to observe physiotherapists whilst assessing and treating patients with UI. This was the reason why observation as a data collection method was not selected for use in this study. This research was interested in gaining insights into how people think and not necessarily on what they do, so it was considered most beneficial to access this information through discussions with physiotherapists as individuals during interviews and during group discussions in the focus groups. The aim of the interviews conducted in this study was to discuss physiotherapists' clinical reasoning process, whilst focus groups were conducted to discuss the factors that influence physiotherapists' clinical reasoning and decision making during the management of UI.

### **3.5 Interview method**

Semi-structured interviews were selected as the most appropriate method for this study. They enable the researcher to explore the participants' perspectives, knowledge, interpretations and experiences, which are meaningful properties of the social reality and can be used to clarify the reasoning process behind their decisions during the evaluation and treatment of UI (Myers and Newman, 2007; Rubin and Rubin, 2011).

#### **3.5.1 What are semi-structured interviews?**

Qualitative interviews can be defined as a conversation that has a '*certain purpose of gaining a description of the life world of the interviewee in order to interpret the meaning*



*of the described phenomena*' (Brinkmann and Kvale, 2008 p. 3). Interviews come in different forms, ranging from structured to semi-structured interviews; most qualitative interviews, however, are semi-structured (Mason, 2002). A semi-structured interview is a qualitative method of enquiry that attempts to understand the themes of the lived daily conversations from the participants' own perspectives by using open-ended questions (Mason, 2002). The researcher provides some structure based on the research topic and interview guide, but enables the participants to be spontaneous and provide narrative description (Brinkmann, 2014).

### **3.5.2 Key features of and rationale for the use of interviews**

The interviewer and the interviewee are not only discussing a topic but are also reacting to one another's appearance, identity and personality (Hennink, Hutter and Bailey, 2010). The specific characteristics of in-depth semi-structured interviews involve using prompts to enable in-depth discussions, establishing rapport between the interviewer and the interviewee, utilising a pre-determined set of open-ended questions and motivating the interviewee to elicit his/her story by probing for more depth and details (Kvale, 2008; Silverman, 2015).

A particular advantage of interviews in the present study was that they provided an environment that facilitated the participants to discuss different decision making and clinical reasoning processes within their unique culture and context (Corbin and Strauss, 2008). Higgs and Jones (2008) suggested that studies in clinical reasoning research have started to use the interpretive paradigm that seeks to interpret human phenomena. Interpretive approaches use interviews and observations to record physiotherapists' perspectives and descriptions of their clinical reasoning. Many authors have used these methods of data collection in physiotherapy (Edwards *et al.*, 2004a; May *et al.*, 2010a; Ajjawi and Higgs, 2012). One advantage of these approaches is that they increase the likelihood of the research revealing physiotherapists' reasoning as used in practice. Also, these approaches help demonstrate that clinical reasoning is a complex, multidimensional, integrated, task- and context-dependent process.

Creswell and Poth (2017) highlighted the importance of good preparation for the interview and the development of effective research questions to ensure a productive and beneficial interview. McNamara (2009) applied several principles to the preparation phase of interviewing, which included the following elements: choosing a location where interruptions and distractions are minimal; explaining the aims and objectives of the interview; addressing terms of confidentiality; indicating the expected duration of the interview; providing the researcher's contact details; and affording the participants the opportunity to ask questions before the commencement of the interview. McNamara (2009) also suggested using open-ended questions that are as neutral as possible and that avoid influencing the answers.

### **3.5.3 Limitations of semi-structured interviews**

There are some limitations to conducting semi-structured interviews, such as the possibly limited feedback of the respondents, thus requiring a skilful interviewer who can establish rapport and listen to and interact with the participants. There may also be a need to change the order of the interview questions after listening to the participant's discourse, and this requires a high level of skill and expertise, as well as high familiarity with the content (Hennink, Hutter and Bailey, 2010; Creswell and Poth, 2017). In addition, the interviewee might assume that the interviewer knows the answer because of their experience in pelvic health physiotherapy and this might decrease the depth of the discussion. Further, the participant might be worried about judgement from the researcher so they may not provide detailed answers; this was more apparent with the KSA participants. Nevertheless, interviews have the potential to provide the researcher with a rich source of insightful data into the participants' views, opinions, and experiences.

## **3.6 Focus Group Method**

Focus groups were also selected as a data collection method in this research to complement the insights gained from the semi-structured interviews with further nuanced information.

### 3.6.1 What are focus groups?

Wilkinson and Silverman (2004 p 177) defined focus groups as ‘a way of collecting qualitative data, which essentially involves engaging a small number of people in an informal group discussion “focussed” around a particular topic or set of issues. Focus group research differs from other qualitative methods in terms of purpose, composition, and the process of data collection. The purpose of focus groups is not to collect the personal stories of participants but to obtain a range of these participants’ opinions and/or experiences. Discussions take place regarding people’s collective experiences as participants in the group rather than their individual experiences. Furthermore, focus group participants react to one another, and these reactions can be prompted by the opinions of others, which may not occur in an interview situation.

### 3.6.2 Key features of and rationale for the use of focus groups

An advantage of using focus groups is that they tend to be more natural than interviews, and they yield a large volume of data from many participants within a short period (Wilkinson and Silverman, 2004). One of the unique features of focus groups is their group dynamics; hence, the kind and range of data generated through the social communication and interaction of group members can often be deeper and richer than those from data obtained through face-to-face interviews (Thomas *et al.*, 1995). Focus groups can provide a range of information regarding an individual’s ideas and feelings, and participants may highlight issues between and among themselves with limited researcher influence (Hennink, 2007); they are therefore able to react to the comments of others in the group. Focus group discussions may lead to reflection, refinement or justification of the issues raised, which can, in turn, provide deeper insights into the context studied (Hennink, 2007). Similar to the results of semi-structured interviews, those from focus groups can be illustrated in simple ways using lay terminology, reinforced by the participants’ quotations (Thomas *et al.*, 1995).

### **3.6.3 Group homogeneity**

The distinctiveness of focus groups is their ability to create data based on the cooperation and interaction of group members. Therefore, group members need to feel comfortable with one another and participate in discussions (Krueger and Casey, 2000). Both homogenous and heterogeneous groups have advantages and disadvantages. However, Krueger and Casey (2000) believed that a homogenous group could generate rich data and encourage participants to be fully engaged with one another. As a result, the authors recommended spending time and effort choosing a group member. The authors indicated that participants might have similar features, such as gender, age-range and ethnic or social backgrounds. Other authors stated that if group members do not know one another, this situation may lead to an honest and natural discussion of opinions and stimulate a broader range of reactions. It may also prevent some behaviours regarding previous relationships and forms of control and leadership in the group (Thomas *et al.*, 1995). The physical environment of all the focus groups was quite similar, there was a table in the middle of the room, and the participants were sitting around the table; the facilitator was seated next to one of the participants but at the head of the table. The audio recorder was in the middle of the table and visible to the participants. The physiotherapists in the current study may likely have known some of the other physiotherapists attending the focus group as they could have been their colleagues or managers. In this case, the role of the group facilitator is significant, and this will be discussed in the following section (Krueger, 2014).

### **3.6.4 The role of the focus group facilitator and the observer**

A facilitator needs to create a relaxed environment in the group, manage the current relationship with and between participants, and encourage them to engage and discuss their feelings, opinions and thoughts about the topic explored. In this study, an observer was present in the focus group discussion, and her role included taking down notes; observing non-verbal communication; identifying the influence of group dynamics; documenting the general content of discussions; and writing reminders on the statements made by each individual in the group, thus adding to the transcripts and allowing for a more comprehensive analysis of the data (Kitzinger, 1994). The observer sat outside the discussion circle to address any disturbances or late arrivals. The observer also reminded

the facilitator if any critical issues or topics had been overlooked during the discussion. The observer was a colleague of the researcher and was known by some participants, especially in KSA.

The role of the facilitator might be similar to that of an interviewer in a semi-structured interview in terms of establishing rapport and remaining focused on the research topics (Hennink, Hutter and Bailey, 2010). However, a focus group facilitator's role might be more challenging and require additional skills in terms of managing the group members. A facilitator might use a directive approach at the beginning of a focus group discussion to provide focus and direction to the research topic. Then, during the central part of the discussion, he/she can apply a less directive style so that group interaction is allowed, and the discussion flows more naturally, allowing spontaneous views to emerge.

#### **3.6.5 Limitation of focus groups**

A limitation of using focus groups is the number of non-attendees; hence, it has been recommended to over-recruit by 10% to 25%, based on the research topic and the participants' background (Rabiee, 2004). Agreeing on the days/times that are convenient for the participants via email or phone well in advance of the planned focus group is essential to increase participation, and reminders can be sent a few days before the focus group discussion. Another limitation of focus groups is that the facilitator must have appropriate skills to deliver the questions, facilitate the discussion and manage any discomfort or disagreement within the group (Patton, 2002). In focus groups, it is also natural that some participants might dominate the discussion, and as the venue of focus groups involves a less-controlled environment, hierarchies might develop; the presence of a skilled facilitator to manage the focus group discussion is therefore important. Focus groups are also less confidential, so measures must be in place to ensure confidentiality

(see Section 3.13.2). Despite these limitations, focus groups were used in the present study, as they have the potential to generate a large amount of data from many participants.

### **3.7 Procedure**

The following sections outline in detail the procedures used to collect and analyse the data in this study.

#### **3.7.1 Sampling**

Purposeful and snowball sampling were used to gain variation in the sample. Purposeful sampling involves recruiting physiotherapists with a range of characteristics such as years of qualification, years as a pelvic health physiotherapist and postgraduate qualifications in pelvic rehabilitation. Snowball or chain sampling was used in combination with purposeful sampling, as it helped identify cases of interest from physiotherapists; they may know other professionals in the field who were aware of interesting and relevant cases (Creswell and Poth, 2017). Kuzel (1992) stated that the validity and significance of the views generated from qualitative enquiry are more likely to be related to the informational richness of the cases selected, and to the observations or analytical abilities of the research, than to the sample size. Pelvic health physiotherapy is considered a rare specialisation, and few therapists work in this field. Therefore, it was difficult to recruit many participants for the study. There were over 30 registered members of the Saudi Physiotherapy Women's Health Association (SPTWHA) at the time of recruitment, and their contact details were available by contacting the SPTWHA secretary.

#### **3.7.2 The participants**

#### **3.7.3 In the semi-structured interviews**

Seventeen pelvic health physiotherapists were selected to participate in the semi-structured interviews from the KSA, but two participants were excluded due to lack of clinical experience in treating patients with UI. In addition, thirteen participants from the UK were recruited for the semi-structured interviews. Four more pelvic health

physiotherapists in the UK contacted the researcher in order to take part. However, in the end, they could not participate because they lived far away. When the researcher suggested a Skype interview, they did not reply, which could have meant that they did not wish to participate in a video conference or were unaware of Skype programme. Overall, 28 participants were recruited from both the UK and the KSA for the interviews.

#### **3.7.4 In the focus groups**

In KSA, eight participants agreed to take part, but on the day of the focus group two participants dropped out. As a result, six participants took part in the KSA focus group whereas in both UK focus groups, eight participants took part.

##### **3.7.4.1 Inclusion criteria**

This study sought to obtain the views of physiotherapists with enough women's health experience in their clinical reasoning. They were required to meet one or more of the following criteria:

- Physiotherapists were included if they had been OR are currently registered with the Health and Care Professional Council (HCPC) in the UK or with the Saudi Commission for Health Specialities (SCHS) in the KSA.
- Qualified physiotherapists who had worked with patients with urinary incontinence for a minimum of one year and had treated a minimum of ten patients with UI in the past year; the reason for this was that physiotherapists might also have orthopaedic and neurological caseloads due to the low number of patients with women's health issues compared with those who have other diagnoses.
- Qualified physiotherapists with more than two years' women's health experience in either the UK or the KSA but who did not necessarily treat ten patients with UI per year at the time of the study.
- Academic physiotherapists who did not necessarily treat patients with UI in the past year but had undertaken research and/or taught students about UI.

#### **3.7.4.2 Exclusion criteria**

- Physiotherapists were excluded if they were unable to speak English. The interviews and focus groups were conducted in English, in both the UK and the KSA. Saudi physiotherapists study in English at both the undergraduate and postgraduate levels, and they document and communicate in English during their daily clinical practice. The English proficiency levels of the physiotherapists in this study were therefore enough for them to communicate in English during the interviews and focus groups.
- They were also excluded if they were unable to provide informed consent because of mental health issues.
- Those who never worked as a pelvic health physiotherapist in the UK or the KSA, as appropriate where also excluded.

### **3.8 Settings**

The semi-structured interviews were conducted in both the UK and KSA and were in a convenient location to both the participants and the researcher. The researcher travelled to meet the participants in their workplace, as agreed. In KSA, most of the participants live in the central part of KSA. This means the researcher did not have to travel long distances. However, a few participants were from the Eastern and Western provinces of KSA; whilst the researcher was able to travel to the some of these parts, the remaining two participants were invited to a videoconference instead of a face-to-face interview, which they declined. This could have been due to a cultural issue. As a result, the researcher decided to communicate with them through a phone call only, which was accepted. In the UK, most of the participants lived-in South-East England and the researcher decided to travel to the participants who lived within a 130 miles radius. For those who lived further than that, the researcher suggested a video conference using Skype instead of a face-to-face interview. Thus, three participants from the UK attended video conferences and two from KSA attended phone call interviews.

Selecting settings from a wide range of regions in the UK and KSA allowed for a nuanced understanding of the clinical reasoning models and factors influencing decision making, thus rendering findings transferable to a wider range of locations. In KSA, focus groups



took place in a private hired conference room. Two focus groups took place in the UK, one of them in a hotel conference room and the other in a meeting room in one of the London hospitals. The associated costs for the room hires were funded by the Saudi Cultural Bureau. The researcher travelled to the participants' location, except in cases where the participants preferred to travel to the researcher's location for the interviews and/or focus groups. In these instances, a reimbursement for their expenses was made.

All data collection was undertaken either in the participants' working place or in a meeting room in either the UK or the KSA, given that these were the most convenient locations for the participants and the researcher. Care was exercised in following lone-worker safety guidelines before any data collection sessions were conducted, which involved giving a sealed envelope containing both the locations and times of the data collection sessions, as well as the study participants' details, to a responsible third party before conducting any data collection. The researcher also carried a charged mobile phone, took the appropriate public transportation, and prepared a list of emergency telephone numbers. However, as each participant was a health care professional, it was anticipated that there would be no problems encountered.

### **3.9 Ethical approval**

Ethical approval (Appendix C) was sought from the University of Southampton (Ethics and Research Governance), and full approval was obtained in July 2018. As the participants were recruited from different professional institutions (and not from the NHS), the Health Research Authority (HRA) confirmed that HRA approval was not required for this study. Additional ethical approval from King Saud University in the KSA (Institutional Review Board / College of Medicine) was sought, and full approval was obtained in October 2018 (Appendix D)

Ethical considerations were factored into the design and implementation of this study. Matters of confidentiality and anonymity were addressed throughout the research. The associated costs were funded by the Saudi Cultural Bureau (from the data collection fund). The nature of the focus group discussions meant that whilst the researcher could ensure the participants' confidentiality, the researcher was unable to guarantee that participants

would do the same. The consent form, the participants' information sheet (Appendix K, Appendix L, Appendix I) and the ground rules discussed before the focus groups, highlighted this issue to the participants and asked them to maintain the confidentiality of others. Confidentiality and anonymity in the study were maintained by anonymising both the participants and the physiotherapy services discussed in the transcript.

### **3.10 Recruitment**

#### **3.10.1 UK**

The research protocol was presented at a conference organised by the UK-based Pelvic Obstetric and Gynaecological Physiotherapy (POGP), a professional network affiliated with the Chartered Society of Physiotherapy. During the conference, the head of the POGP group was asked about the possibility of cooperating in recruiting participants from their members; the head of the POGP agreed to help. The researcher then sent an invitation letter (Appendix G) to the secretary of POGP to be distributed among their members. Physiotherapists who were interested in taking part contacted the researcher via email to show their willingness to do so. In addition, the International Uro-gynecological Association, and the International Continence Society, who agreed to help, by sending invitations to their members in exchange for a small fee. Likewise, the researcher contacted the Association for Continence Advice (ACA), which encouraged the researcher to be a member of ACA and attend one of their online forums to write about the study and distribute the poster and information sheet (Appendix H and Appendix I retrospectively) in order to raise interest in the study and recruit participants. However, only POGP members showed interest in taking part. Few UK physiotherapists registered with other associations when compared to POGP, which might be the reason for little interest shown by associations.

#### **3.10.2 KSA**

An e-mail was sent to the general secretary of the Saudi physiotherapy women's health association to ask them about the possibility of helping in recruiting participants from their members; the general secretary agreed to help.

### 3.10.3 Recruitment and data collection processes

Recruitment processes are described below and summarised below:

- An email (Appendix F) was sent to the secretaries of pelvic obstetric and gynaecological physiotherapy association, in addition to the Saudi physiotherapy women's health association and other organisations. They were asked to send to their members the invitation letter (Appendix G), the poster (Appendix H) and the participant information sheet that contained the contact details of the researcher (Appendix I).
- The researcher attended an online forum of the association for continence advice and uploaded the poster and information sheet.
- In order to target a wider pelvic health physiotherapist audience, the researcher used Twitter to invite physiotherapists to participate in the study. The researcher sent a tweet to the above organisations' Twitter account (Appendix J). The tweet provided the researcher's email and links to the invitation letter, and the participant information sheet.
- An additional invitation email (Appendix F) was sent to a SOTON (Southern and London) representative at pelvic obstetric and gynaecological physiotherapy after a period of approximately four to six weeks. This was done in an attempt to increase the response rate in places that were closer to the University of Southampton. The second email included the original study information and the researcher's contact details.
- Respondents from Saudi physiotherapy women's health association and pelvic obstetric and gynaecological physiotherapy association interested in participating in this study were able to contact the researcher directly via email.
- The researcher contacted eligible participants by email and discussed the study information sheet. This provided them with an opportunity to ask further questions.
- After the researcher applied the inclusion and exclusion criteria, the eligible respondents were asked to participate in the interview and/or the focus groups.

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- If the respondents were not eligible to participate in the study, they were also informed, and their personal details were deleted.
- The researcher asked the eligible participants for a convenient time and location for the data collection. Following this, the semi-structured face-to-face interviews and focus group appointments were arranged.
- The researcher determined that a venue at the university, a private research laboratory or the participant's home could be used, if the physiotherapists' workplace was not appropriate.
- The researcher booked the room for the interviews and focus groups.
- An email was sent to the participants to notify them about their data collection appointment and to remind them of their right to withdraw from the study.
- To ensure safety, confidentiality and compliance with lone-worker safety guidelines, the researcher followed certain procedures as outlined previously.
- A thank-you email (Appendix Q) was sent to the participants after the data collection was completed. They were also asked if they were interested in receiving a copy of the study findings, which are likely to become available in two years.
- At the end of the interview, the researcher asked the participants if they could suggest any physiotherapists who might also be interested in taking part in the study (snowball sampling). The participants were told that if they knew of a relevant physiotherapist, they were requested to forward the invitation email (Appendix F), along with the participant information sheet and poster, to that person on behalf of the researcher. The researcher did not obtain these new contact details. Instead, if new persons wished to participate in the study, they were requested to contact the researcher directly. The researcher followed the same process as above for new contacts.

### 3.11 Pilot interviews and focus groups

To overcome the limitations of a researcher's lack of experience in conducting interviews and focus groups, Patton (2002) suggested conducting pilot interviews and focus groups. It is often difficult to anticipate how interviewees interpret questions in an interview or a focus group guide. Therefore, Hennink, Hutter and Bailey (2010) recommended assessing several different issues during pilot testing, such as participants' understanding of the questions, adaptation of the concepts and words to the context of the interviewee, rephrasing questions and assessing their logical organisation, as well as determining the practical length of the interview or focus group guide. Hence, the first two interviews conducted by the researcher were considered pilot interviews. This allowed the researcher to improve her experience, confidence and time management during the data collection sessions and make modifications to the interview schedule; for instance, one of the interview questions was misleading: Question "how did you confirm the diagnosis?" led pilot participants to give responses related to hypothesis testing and was reframed to "how did you come to this decision?" For more details, check Appendix Appendix O. The data collected from the pilot interviews and focus groups were included in the study in addition to the main study participants.

At the end of the planned questions, the researcher asked the pilot participants for their feedback regarding the interview and focus group questions, as well as the delivery and structure of the interview, to assess the appropriateness of the questions and identify any areas of improvement (Kvale, 2008). The importance of conducting a pilot study has been highlighted in the literature; Kvale and Brinkmann (2009) explained that it is fundamental to any research, as it assists in determining possible flaws and areas of improvement. The literature highlights the importance of skilled facilitation. It offers extensive advice on conducting focus groups, including preparing for the session, managing the discussions, encouraging quiet participants to share their thoughts and probing for participants' reactions (Millward, 1995 p.281-285; Finch and Lewis, 2003p. 180-189).

### **3.12 The interview and the focus group topic guide**

It has been suggested that a novice researcher could use a topic guide to assist in the flow of discourse and increase confidence during interviews and focus groups (Turner III, 2010). Using the framework approach in the present study suggested that the topic guide tends to be slightly more structured than would be the norm for most qualitative methods (Pope, Van Royen and Baker, 2002). There are contradictory opinions in the literature as to how structured focus group discussions and interviews should be conducted. In the present research, the interviewer followed the interview and focus group topic guides (Appendix Appendix O and Appendix Appendix P), which consisted of general areas for discussion, prompts and a possible order in which topics might be discussed, although this was considered flexible and not rigid. The questions in the interview were initially general and open ended (e.g., what assessment did you do for your UI patient?), followed by prompts (e.g. How did you come to this decision?). During the focus group discussions, the questions were also initially broad and open ended (e.g., in your opinion/experience, what are the main differences between the factors that affect physiotherapists' decision making compared with other physiotherapy specialities?), followed by prompts (e.g., Why are there differences?) to track factors not routinely raised. During the focus groups, this allowed the facilitator to both identify the physiotherapists' obvious explanations and to explore issues in depth.

### **3.13 Conducting the interviews and the focus groups**

Different methods might help approach the research questions from different perspectives or in greater depth, and they may enable some form of methodological triangulation (Mason, 2002). The participants chose whether they wanted to participate in both the interview and the focus groups or just one of them.

The interviews and focus groups were recorded using two digital audio voice recorders (in case one of the recorders was not working during the data collection). An external disk mic with built-in memory was used for the group interviews. These audio recordings were used to make verbatim transcriptions of the interviews and focus groups. The researcher ensured that the digital recorders were working.

At the beginning of the interviews and the focus groups, the participants were greeted by the researcher and/or note taker, were given a name badge and were offered refreshments (Millward, 1995). The study was explained, and the participants were encouraged to ask questions. The participants were also reminded of their right to withdraw from the study up until the data analysis of the interviews or until seven days into the focus groups.

It was considered important to establish rapport and avoid rushing when starting the interviews and the focus groups. Rapport was established through small talk, chatting about the weather, drinking coffee or tea, or engaging in other types of conversations. As the researcher is from the KSA who is studying in the UK, it might have been deemed an outsider by the UK participants; hence, at the start of the UK interviews and focus groups, the researcher stated that she was from a different country and culture whilst also explaining that she was partially familiar with their own norms because her education in the UK. Likewise, as a physiotherapist practitioner, emphasising existing commonalities (insider–outsider considerations are discussed in detail in section 3.22 and 6.5 ). Therefore, an atmosphere was created in which the interviewees were encouraged to talk more about clinical reasoning and their work culture. When rapport is established, interviewees can feel more comfortable sharing their opinions or personal feelings.

The aim and objectives of the interviews and/or focus groups were explained, and ethical considerations were reiterated, including obtaining consent to participate, ensuring confidentiality for participation as well as data use and storage. The researcher confirmed that all participants were fully informed of the study and had all their questions answered. Each participant then signed a consent form, which they received a copy of an Appendix Appendix K and Appendix Appendix L. Participants also completed a demographic data form (Appendix Appendix M and Appendix Appendix N) before taking part in an interview or in the focus groups. Skype and FaceTime were considered for interviewing participants in case of difficulties travelling around the UK or the KSA (Iacono, Symonds and Brown, 2016). This was useful because three participants were living more than 130 miles away from the researcher. Iacono, Symonds and Brown (2016) Comparing face-to-face interviews and Skype interviews they stated that Skype and FaceTime could not

replace face-to-face interviews. They found that it might be difficult to establish rapport, follow ethical considerations, observe non-verbal cues such as body language, and clarify the participant's identity in a Skype interview. However, Iacono, Symonds and Brown (2016) claim that voice-over-the-internet protocol worked well as a practical substitute or complementary data collection instrument for qualitative researchers. The advantages of Skype interviews were time efficiency, maintenance of visual cues and financial affordability, which could increase the variety of participants.

### **3.13.1 During the interview**

The interviews focussed on asking participants to describe the processes they had used when assessing and determining treatment choices for a specific patient from their recent caseload.

The participants in the UK were asked either to recall a typical case or complex case. In the KSA, experienced participants were asked to recall a complex case while participants with a few years of experience were asked to recall a typical case to allow them to be comfortable and confident during the discussion. I surmised that participants in the KSA may feel that, as the researcher, I was assessing their knowledge, so it was explained upfront that the aim of the discussion is to understand the participants thinking process and not to assess their knowledge level.

Participants were asked to recall their process of managing one of their patients with urinary incontinence and to explain their clinical reasoning processes to the researcher. The interviewer asked the participants a number of questions regarding the process of clinical reasoning that they had used during the assessment and treatment of the specific patients with urinary incontinence (the interview guide, including the questions asked, is found in Appendix Appendix O. I tried to follow the assessment and treatment order but sometimes participants answered the questions before I had the opportunity to ask. In these instances, awareness of the topic guide helped in asking other questions relevant to participants' answers and avoiding repeating the same idea.

The dialogue within the interviews allowed for depth discussion of a very specific case to facilitate understanding of the complexities of clinical reasoning processes, encouraging



complex topics to be discussed, such as addressing ethical dilemmas and discussing sensitive issues that may be difficult to raise in a focus group setting.

Open-ended questions and prompts were used to encourage the free flow of information and avoid pre-conceived answers (Corbin and Strauss, 2008). Appendix Appendix O and Appendix P presents the different open-ended questions, follow-up questions and prompts used during the interviews and focus groups; these were based on those used in previous physiotherapy clinical reasoning studies. It was also useful to apply different motivational probing techniques, such as the use of 'ah-ah', 'mmhm' or 'OK', to encourage the participants to continue talking. In addition to body language, nodding and eye contact were important. Another strategy applied to motivate the participants was reflective probes, which involved repeating or paraphrasing an interviewee's comments to ask for further clarification (Silverman, 2015).

A substantial characteristic of qualitative data collection is that it facilitates identifying the key issues emerging from the interview to refine questions and topical probes in the subsequent interviews. Using this approach, the researcher was able to make inductive inferences and thus go deeper into the topic in the subsequent interviews (Hennink, Hutter and Bailey, 2010). Field notes were also used to record the nonverbal interactions, techniques, positions or actions that the participants showed during the interview (Birks and Mills, 2011). In addition, field notes were used to write feedback after each interview related to what kind of questions needed to be added or changed and if there were any positive or negative thoughts that could help in improving the subsequent interviews. This type of field note seemed useful during the KSA data collection due to the fast nature of it, and it helped to improve the following interviews (Birks and Mills, 2011).

Each interview was transcribed after interview completion to recognise key issues and make inferences, which were used to enrich subsequent interviews (Mason, 2017). Making inferences and analysing notes after each interview helped the researcher make small changes in the interview guide (Hennink, Hutter and Bailey, 2010; Silverman, 2015).

### 3.13.2 During the focus groups

In this study, the goal of the focus groups was to obtain a broader range of information to address the research questions and objectives, including discussing the factors that might affect the participants' clinical decision making, as well as the problems they faced during their assessment and treatment of patients with urinary incontinence. Focus groups were conducted in both the UK and the KSA to gather data for this research.

Prior to conducting the three focus groups, participants were offered light refreshments. This was a good opportunity to talk to the participants, establish rapport and be familiar with the dominant and/or quiet participants. The researcher helped to ensure the participants felt welcome. At the beginning of each focus group, the observer was introduced, and her role was explained. A Power Point presentation was used to remind the participants that the discussion would be digitally recorded. Ground rules were established which included that everyone should have a chance to speak and give their opinions on the issue raised. Participants were asked to speak clearly, avoid talking at the same time and feel free to contradict with one another's opinions. It was important for the researcher to manage group dynamics (for example, quiet and dominant participants). The researcher made sure to talk to the quiet participants during the dinner to encourage them to feel more confident to speak later on. The quiet participants were directly asked to give their opinions, and the researcher kept making eye contact with them (Goldenkoff, 2004). While body language was used to manage the dominant participants, probing and listening was used to gain in-depth responses on issues raised to prompt the discussion. The researcher also ensure the discussion remained on the research topics, whilst monitoring the time and pace of the discussion (Hennink, Hutter and Bailey, 2010).

Goldenkoff (2004) suggested the use of tools that help the researcher and the participants to think deeply in the focus group topic. For instance, using games or writing on a board. The participants were asked to take a minute to think about the factors that influence their decision making as a pelvic health physiotherapist and write them down. Participants then used those points during the discussion; at the end, the participants were asked to hand their notes to the researcher in order to see if missed any discussing points were missed.

A range of probes was used during the focus group discussions, like the ones applied in the interview. In this group setting, the researcher was able to use different types of probing in order to obtain additional information. Examples include using explanatory probes where participants were asked to explain the reasons behind their opinions; using participants' gesture probes; and probing for diversity by asking if anyone has a different opinion. A focus group guide was used to direct the discussions (see Appendix Appendix P). The participants were invited to talk about their multidimensional knowledge base, their experiences, their understanding of their patients' problems, patients' goals, preferences and perceptions towards the assessment and treatment, and the cultural constraints or considerations they faced. This opening invitation was broad to encourage the participants to talk about the most important issues to them. The discussion was directed to include all the key parts of the topic guide, but it did not follow any specific order of questioning. A less rigid focus group topic guide enabled the discourse to flow more naturally and to focus on matters of particular significance to the group. The focus groups had low facilitator involvement which gave the researcher an opportunity to change the contents of the questions as the discussion progressed (Morgan, 1996). The degree of diversity and consensus was explored, and participants were asked to clarify details and to reflect on interesting issues raised during the discussion, where necessary (Finch and Lewis, 2003).

Each focus group typically lasted around 1 to 2 hours, depending on the complexity of the research topic, the number of questions raised and discussed, and the number of participants. At the end of the discussion, the digital recorder were switched off, the participants were thanked for their contribution and time, and asked if they had any questions. Appropriate salutations were given to show appreciation for their time spent during the focus group discussion (Morgan, 1996; Green, 2007). Following each focus group, the focus group discourse were discussed immediately with the observer and reflective field notes were written. These recorded the main topics discussed and areas of interest to delve into deeper in the following focus groups. The main researcher and the observer also noted the communication style, the language used and the emotional disposition of the participants. Reflection on the pros and cons of the facilitation

techniques and possible adjustments to them were undertaken after each focus group. The observer likewise wrote field notes, and these were added to those of the researcher.

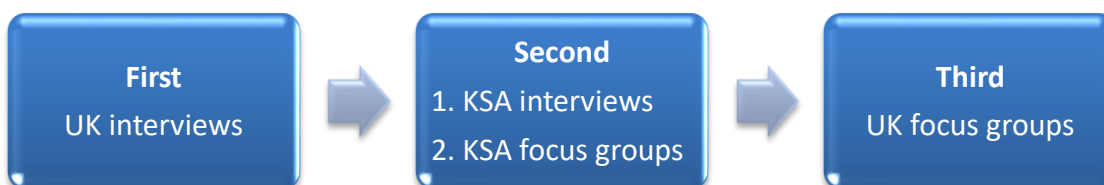
It was clear that culture was not discussed in detail in the KSA focus groups and the 1<sup>st</sup> UK focus group. Therefore, the main researcher decided to expand on it in the follow-up groups. The definition of culture was included in the Power Point presentation at the beginning of the 2<sup>nd</sup> focus groups and participants were encouraged to give their opinion on culture as a factor that can influence their decision making. Using the participants' opinions on culture from the previous focus groups were useful to elicit the discussion and motivate the participants to talk. This pattern of reviewing the direction of the research as the data gathering and analysis continued is in line with the general approach of grounded theory (Charmaz and Belgrave, 2007).

During the focus groups in the UK, the researcher compared the factors that affect the decision making and clinical reasoning process in the UK and the KSA. The participants contributed to the data analysis during the focus groups by providing their views and opinions regarding the differences between UK and KSA clinical reasoning among physiotherapists prior to the actual data analysis. In addition to establishing the factors that influence the decision making and clinical reasoning process, this technique allowed for further exploration of the cultural impact on clinical reasoning among physiotherapists.

### 3.14 Different Phases of Data Collection

The first phase of data collection involved interviews conducted in the UK see Figure 3-1.

Figure 3-1: Different Phases of Data Collection in the UK and the KSA



The second phase comprised interviews and focus groups that took place in the KSA following ethical approval (Appendix Appendix D**Error! Reference source not found.**), granted by King Saud University (where Saudi physiotherapy women's health association is registered). The third phase of data collection involved focus groups that were conducted in the UK. Beginning the interviews in the UK meant the researcher was in close contact with the supervisory team and colleagues when advice or guidance was needed. This gave the researcher experience and confidence in conducting interviews. Also conducted interviews and focus groups in the KSA, which allowed the researcher to practise the skills required to conduct productive and useful focus group discussions with Saudi physiotherapists first.

The researcher was an integral part of pelvic health physiotherapy professional networks in KSA. In contrast, the researcher did not know any of the participants from the UK prior to the study. There were advantages to be an insider within KSA institutions. For example, the researcher could arrange and organise the focus groups easily because of the participants' superior understanding of the local culture and ability to interact fluently within the group. In addition to these advantages, the researcher had greater relational intimacy with the group from the KSA (Bonner and Tolhurst, 2002). However, the researcher did acknowledge the need to maintain a facilitator relationship with the participants in order to avoid leading them to specific answers and to encourage them to talk freely. This was a good opportunity to explore the cultural effects of UI on KSA patients and increase the researcher's experience before conducting the focus groups in the UK.

By concentrating on the interview and focus group processes, the researcher avoided reflecting upon the personal nature of the collected data (Kanuha, 2000). As such, the

researcher was engaged in reflexive processes, allowing a critical self-evaluation of the researcher's positionality (Bonner and Tolhurst, 2002).

### **3.15 NVivo**

There are many tools used to assist the data analysis process of qualitative data and could be used for data management and provide easier access to codes and transcripts rather than pen and paper. These tools can vary from Microsoft word, Excel spread sheets or involve other qualitative data analysis software, such as NVivo or ATLAS. Each one of the tools has advantages and disadvantages, for instance, the limitations to using Microsoft word and Excel are the spreadsheets can be unwieldy when working with 48 participants and unwieldy when trying to review the coding of the entire dataset. In a study by Woods *et al.* (2016) ATLAS and NVivo were used to conduct a pilot analysis of previously coded articles to determine which program better supported the qualitative analysis approach and overcome the limitations of Microsoft word and Excel. Woods and colleagues found that coding with NVivo provided different advantages such as indexing of data categories and charting of the data, which is part of framework analysis. In addition, the University of Southampton offered training on how to use NVivo and it was a good opportunity to practice in a safe environment and with excellent support. As a result, NVivo was chosen to support the data analysis in this thesis.

NVivo is a computer-assisted qualitative data analysis software that can be used for a wide range of qualitative research designs and data analysis methods and is not methodologically specific. It is used for qualitative data processing, management, analysis, and demonstration. The main function of NVivo is not to analyse data but to help in the analysis process, whilst the researcher remains in control of the qualitative data. Often, qualitative data are manually handled by pen and paper. NVivo aids in easily finding answers to research questions in the qualitative data. In manual qualitative analysis using a large sample size, the probabilities of obtaining an accurate answer within a short period of time are limited. It is difficult to obtain insightful answers with manual analysis. Carrying out an electronic research using NVivo can lead to more reliable results because of the elimination of human error (Zamawe, 2015).

In the present research, NVivo facilitated the researcher, after importing data, to classify similar information to different nodes and apply coding, bringing the information either manually or automatically together under common themes. The software also allowed the researcher to write memos in the programme rather than in a notebook, and different pieces of data were linked together through electronic memos that were used in building themes within the data (Welsh, 2002). The searching process in NVivo added rigour and credibility to the analysis process by enabling the researcher to carry out fast and precise searches of a particular type, and it enhanced the credibility of the results by ensuring that all cases of a certain participant were found; this searching process might need to be combined with manual search techniques so that the data are examined thoroughly (Hinchliffe *et al.*, 1997). It is imperative that researchers identify the importance of both electronic and manual tools in qualitative data analysis and management, as well as avoid relying on one tool over the others; researchers need to be open to and make use of both tools (Morison and Moir, 1998).

### **3.16 Framework analysis**

Framework analysis was therefore selected for the data analysis process. The framework analysis method, often similar to thematic analysis or qualitative content analysis, is part of broader analysis methods (Ritchie *et al.*, 2013). However, it is different to thematic analysis because it tends to be more explicit, more strongly informed by prior reasoning and development of the matrix-based method of analysis (Pope, Van Royen and Baker, 2002). In addition to the different steps of analysis, it includes the creation of a theoretical framework that is usually inductive and driven by the data rather than being deductive and driven from the literature review (Gale *et al.*, 2013). In addition, there is summarisation of the codes and themes and subthemes, which may include a description of what the participants have mentioned in that code rather than using the participants' quotes only. This is useful in finding the meaning of the codes and subthemes in the early stage of the data analysis that helps in building a good understanding of the data.

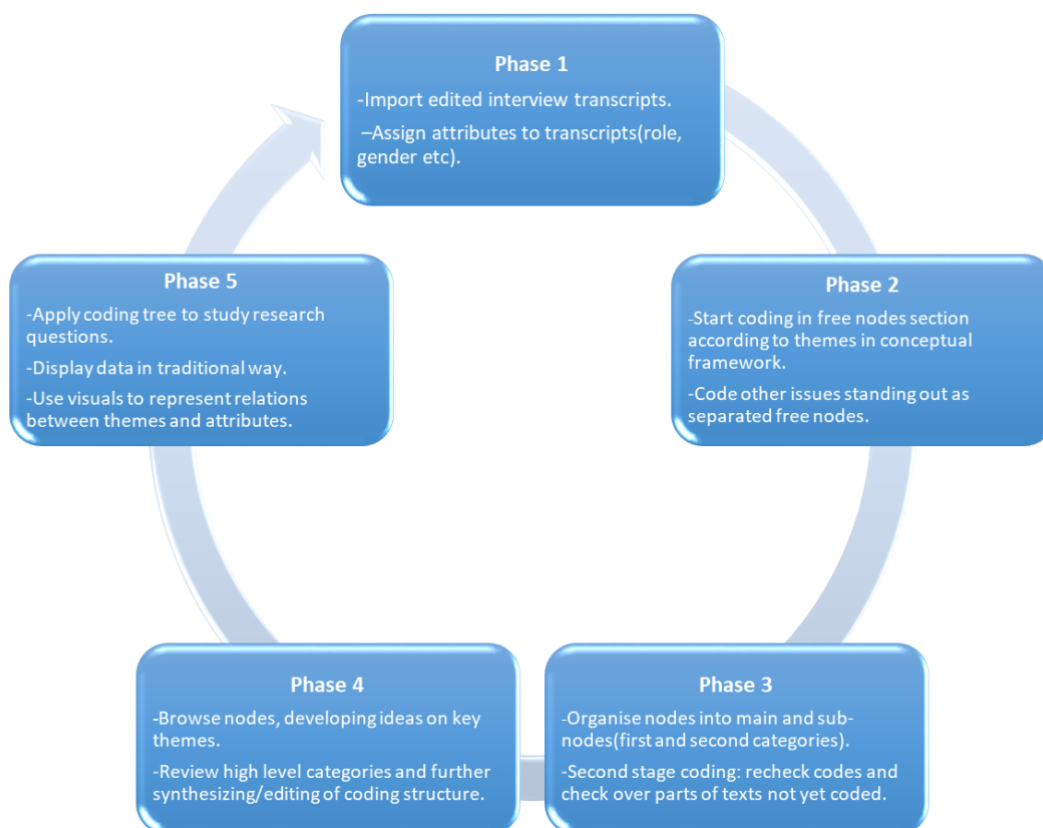
The framework analysis method identifies similarities and differences in qualitative data before concentrating on the relationships between various parts of the data, thereby trying to make explanatory and/or descriptive conclusions grouped into themes. This method is

flexible during the analysis process in that it allows the researcher to both collect all the data and then analyse them, or to conduct data analysis during the data collection, which was the case for the semi-structured interview transcripts in this study. However, framework analysis can also be utilised for other data sources, such as focus groups, field notes or other documents. The framework analysis method also allows the use of constant comparative techniques by reviewing the data across a matrix. The other unique aspect of framework analysis is that whilst it uses a thematic approach, it enables themes to develop both from the research questions and from the research participants’ narratives. Moreover, the findings derived from framework analysis are reflective of the participants’ true beliefs and values. More details regarding how framework analysis was applied in the current study are presented in the next section.

### 3.17 Data Analysis

Framework analysis was used to analyse the data following the process outlined below in Figure 3-2 adapted from (Ritchie *et al.*, 2013).

Figure 3-2: Framework analysis phases outlining the processes of data analysis





The initial interview and focus group data were transcribed verbatim. Interactive methods of data generation, i.e., interviews and focus groups, were used. It was important to consider the role of this interaction within the context of the analysis because of its effects on data collection.

In the formal analysis, the researcher was conscious of the analytical process, using concepts and themes directly from the data and using ideas from the literature. The rationale for the analysis was to examine the transcript and identify any patterns that existed, as well as to compare these with those in existing clinical reasoning models in physiotherapy (Gale *et al.*, 2013; Bonello and Meehan, 2019). Comparing and contrasting data were important in the qualitative analysis of this study, with a particular focus on comparing findings within and across individual cases, which was a part of the framework method. This type of analysis cannot accommodate highly heterogeneous data, which means the data must have similar subjects or content so that they could be categorised (Heath *et al.*, 2012). This substantive and cross-sectional approach involved interpreting meaning in the data, with a focus on what the transcripts said. The framework analysis procedure (Figure 3-2) involved familiarisation, identifying a thematic framework, indexing, charting data into the framework matrix, as well as mapping and interpreting the data.

**The first stage of the process** was referred to as familiarisation, which involved the researcher becoming familiar with the data by thoroughly listening to the interviews and focus groups on numerous occasions, reading transcripts and discussing emerging issues in the data with the supervisors. This stage of framework analysis aims to identify the data widely - from individual interview and focus group to its overall '*decision making processes*' (Ritchie *et al.*, 1994 p.179).

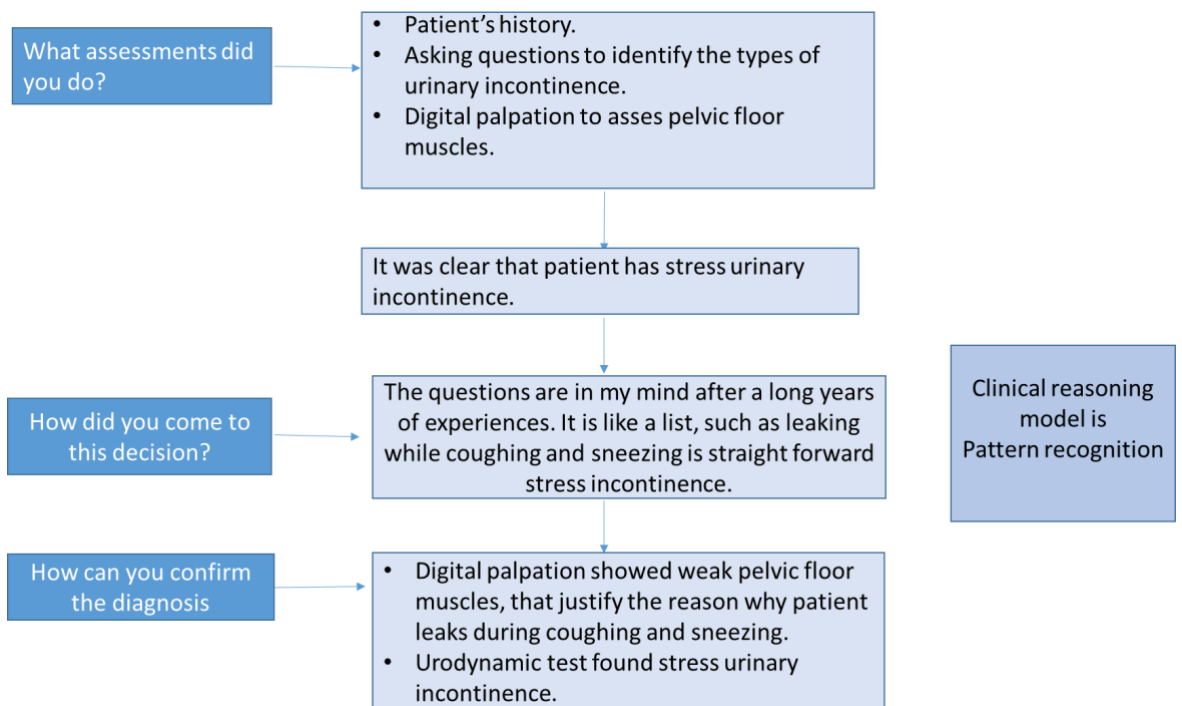
Transcripts were read whilst listening to the recording and referring to the field notes from the interviews (Phillippi and Lauderdale, 2018). This provided detail on the participant's body language, confidence level and researcher's responses. In addition, any negative and positive feedback after each data collection contributed to the change in interviews or focus groups topic guide. This may influence the depth of data, which changes from one interview to another. For instance, one of the field notes stated;

*“I believe I was trying to encourage the participant to follow Hypothetico-deductive reasoning by asking her: How do you confirm the diagnosis? Some participants said by re-assessment, others mentioned I do not have to confirm it because I am treating the symptoms. I realise maybe I was influencing the participants to think about confirming the diagnosis, and I should try to reframe the question in the next interviews.”*

In this 'familiarisation' process, the data were coded using NVivo.12. This helped establish a group of initial codes for different aspects of the participants' clinical reasoning process and the factors that influence physiotherapists' clinical reasoning. After several interviews, the group of initial codes was reviewed. There were a group of 150 initial codes relating to the clinical reasoning process. At that time, the researcher felt submerged in the factors that influence physiotherapists' clinical reasoning and understood the significant issues that emerged when participants spoke about their assessment and treatment of patients with UI. For instance, where the researcher was unsure about the participants' model of clinical reasoning that lead to analysing individual participants to understand the process of their decision making. A diagram was made that represented each participant to justify the model of clinical reasoning used by everyone. Figure 3-3. Then the researcher returned to the transcript and read it through to justify the analysis process. The reasoning models were discussed with one of the supervisors when agreement was made to some of the models and asked to change some of them. Members checking is a method to check for rigour to ensure that the most suitable models of clinical reasoning for participants were found.

Figure 3-3: A diagram used to identify one of the participant's clinical reasoning models.

The main researcher raised the questions, and the answers were given by the participant.



**The second stage involved identifying an initial thematic framework.** The purpose of this stage was to systematically organise the data in a significant and controllable way for subsequent retrieval and analysis in the final stage that included mapping and interpretation. This stage helped in hierarchically arranging the themes and subthemes, which allowed the researcher to get to grips with the overall structure instead of being lost in labelling (Bonello and Meehan, 2019). The researcher found it helpful to write the meaning of each theme and subtheme and how it could be used. During this step, descriptive statements were formed. Ritchie *et al.* (1994) recommended that the process of developing framework categories is informed by prior knowledge and emergent issues arising from the data in the familiarisation stage. The researcher used previous knowledge in clinical reasoning to guide the thematic framework and include issues emerging from the data to answer the research questions. Ritchie *et al.* (1994) stated that the thematic framework is tentative, encouraging further refinement at different stages of the analysis.

The benefit of using both prior knowledge and issues emerging from data is that it focuses the framework on the research questions but gives flexibility to integrate the researcher's interests, in addition to the disputes most relevant to the participants, the researcher decided to base any framework categories around the main areas of attention in the

interview guide (physiotherapists' central skills, physiotherapists' knowledge and experience) (Bonello and Meehan, 2019). As the framework need to be driven by the data and participants' positions and opinions, the researcher checked with the supervisory team on one random interview to refine the initial categories based on the data. Each member of the supervisory team coded the interview by hand, marking the categories that each part of the transcript applied to. The researcher used this to check against any initial coding and categorisation, and found them to be quite similar to the marking of the supervisors (Gale *et al.*, 2013).

Since there were some differences, the researcher and the supervisory team discussed the importance of revisiting the research questions and asking various questions: Why does a specific part of the transcripts interest the researcher? Is it related to the topic, and how can it fit the aims and objectives? This helped the researcher to revise the initial framework to ensure it fits with any emerging topics in the data (Gale *et al.*, 2013; Bonello and Meehan, 2019). For instance, the researcher found that physiotherapists participating in the study discussed at length their relationship with their patients, the effect of that relationship on them and the importance of debriefs. As a result, a category was added for 'physiotherapist being vulnerable'. This allowed the researcher to manage the complexity of the data while maintaining the ability to manage unanticipated new ideas.

The final framework used in this study about the factors that influence clinical reasoning is as follows:

- Patients' characteristics, beliefs, behaviours, compliance with physiotherapy programmes and consent for vaginal examination.
- Physiotherapists' knowledge, experience, central skills, encounters with ethical and sensitive issues and consideration of patient's culture.
- Organisational factors such as health care systems, resources, and time.

Based on analysing each participant's thinking processes, the researcher determined the most common models of clinical reasoning that were used (as reported by the individual). Then, looking back at the definition of each model, the researcher returned to the transcripts to find the most suitable model to best illustrate the thinking processes of each participant. This helped in understanding the most common models of clinical reasoning and contributed to the development of a theoretical framework.

Developing the framework, though time-consuming, but was important because it started with category development, followed by members checking the categories on a small part of the data to refine them, in parallel with the newly emerging data (Gale *et al.*, 2013; Bonello and Meehan, 2019). When analysing the UK and KSA data, the challenge of generalising the framework to suit both countries became evident. Despite this, after reading a few of the KSA interviews, the researcher decided to use the same framework for both countries but be open to any emerging issue in the data. The supervisory team was involved in developing the framework through regular meetings to test and refine the framework.

**The third stage of the process was indexing.** Indexing aims to arrange the transcripts into the theoretical framework. This is the first stage of coding an interview and focus group transcript before moving to ‘charting’ the interview. This involves applying the framework to each interview or focus group transcript systematically. It means showing the themes or subthemes related to a specific data section (Gale *et al.*, 2013; Bonello and Meehan, 2019). Ritchie *et al.* (1994) suggested using software for indexing references. NVivo, a qualitative data analysis tool, was used in the present study.

While doing this, the researcher found herself coding data to a new category to capture the interaction between the researcher and participant, which was not caught elsewhere in the framework but could reveal something interesting about physiotherapists’ clinical reasoning model. For example, physiotherapists are sometimes exposed to horrible patients’ stories, where they find themselves vulnerable and need time to debrief and talk with other colleagues. It was essential to capture this, resulting in the addition of a category labelled “being vulnerable”. Thus, during this process, the researcher was open to unexpected issues that emerged from the data and used the supervisory discussions to determine how to respond to these issues. The development of the theoretical framework is an ongoing process that may continue to be modified, even at the later stages of the framework analysis (Bonello and Meehan, 2019). There is a risk that the indexing stage (Figure 3-4) can become an automated process, especially when having both UK and KSA participants. Further refinement can ensure that the framework remains a thoughtful process. It was helpful to write the analysis diary Table 3-1 to document the changes made

### Chapter 3

to the theoretical framework and the researcher's feelings toward indexing as an automated process.

Figure 3-4 An extraction from NVivo to show the indexing process

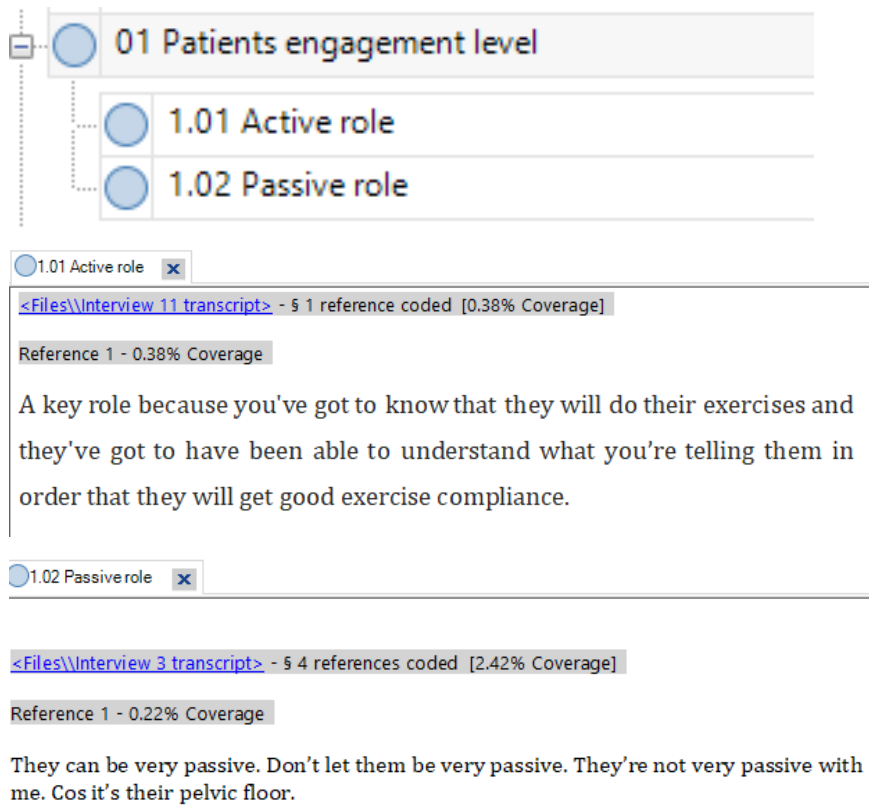


Table 3-1: the data analysis diary

Progress of data analysis diary that helped in organising the researcher's thoughts and report

<b>16/07/2019</b>
I printed the theoretical framework and made sure that I covered all the categories and subcategories with each participant. This will help me to do the charting and indexing. If participants did not cover explaining how significant internal examinations were to patients, then I wrote a memo that participants did not mention it. This helps to save time when it comes to reading the transcripts again, looking for certain categories and subcategories. Also, my supervisor encouraged me to write the assessment process for each participant.
<b>22/08/2019</b>

I decreased the number of codes but until this point, I did not get to the final step of realising the categories and themes. I worked on KSA interviews and UK focus groups. In order to understand the process of clinical reasoning, I wrote the process of clinical reasoning for each participant in the KSA, and I am planning to do the same for the UK. Then, at the end, I'll be able to understand the clinical reasoning model for all the participants in general. I must understand the factors that influence clinical reasoning from the focus groups first; then add the other factors from the interviews.

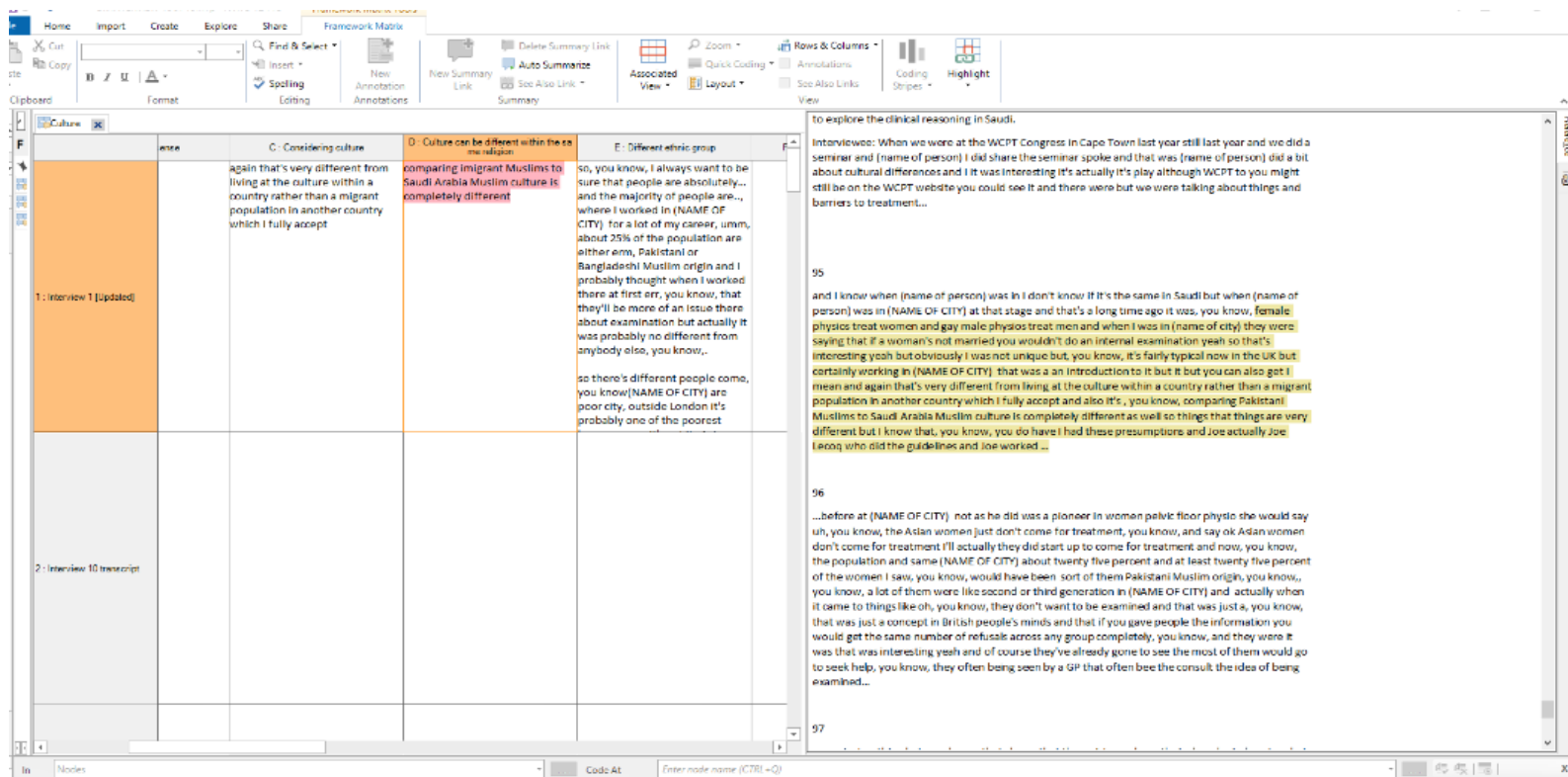
**The fourth stage involved charting the data into the framework matrix.** The purpose of the charting is to arrange the data into a more organised format to assist in the analysis process at a later stage of framework analysis. It included summarising and indexing the data that had been working on and arranging the summaries in chart form (Appendix Appendix E). The chart columns show the categories from the framework, with participant data shown in raw format (Gale *et al.*, 2013; Bonello and Meehan, 2019). This summarises each participant's thoughts that relate to each category. NVivo allows summarising each category related to individual participants automatically. This is not always relevant and might not include all the critical issues. However, this feature helped link participants' quotes in the primary transcripts to a summary of the main points that reflect the code using a link (See Figure 3-5 below). This was undertaken manually to ensure that the most relevant ideas were covered (Bonello and Meehan, 2019).

In some instances, participants' quotes illustrated the categories, eliminating the need to summarise them. In this case, italics were used to highlight that the summary was the participant's quotes. The researcher was aware that some of the participants' reasoning might be lost, so the supervisors were asked to compare the chart to the original text to ensure that the original, whole meaning was not lost. At the same time, it was necessary to make sure that the summaries were not simply duplicating all the text in the transcripts as it would defy the aim of reducing the data into a more controllable way (Gale *et al.*, 2013; Bonello and Meehan, 2019), useful for analysis of the 48 participants. Although this data management process can be slow and time-consuming, having well-labelled and refined data provided a strong foundation for starting the interpretive analysis.





Figure 3-5: Framework matrices in NVivo that summarise each participant's quotes related to each category and subcategory



**The fifth stage was abstraction and interpretation, which involved analysis of the key findings.** The purpose of this stage of framework analysis is to move away from data organisation to understanding it. In this stage, the researcher began to identify what might become the main findings of the research. The mapping process typically involving from the superficial features of the data to more analytic properties (Ritchie *et al.*, 1994; Ritchie *et al.*, 2013). This stage allowed the researcher to make sense of the data by moving back and forth between the different stages of abstraction – without losing sight of the raw data or the cross-case and within-case analyses – to create more analytical concepts or themes. At this stage, if the data supported it, the researcher developed specific forms of classification, such as typologies (Bonello and Meehan, 2019). Ritchie *et al.* (2013) described typologies as a classification system that generates categories and classes, a particular type of classification where categories are independent of each other (so that each case can only fall into one type).

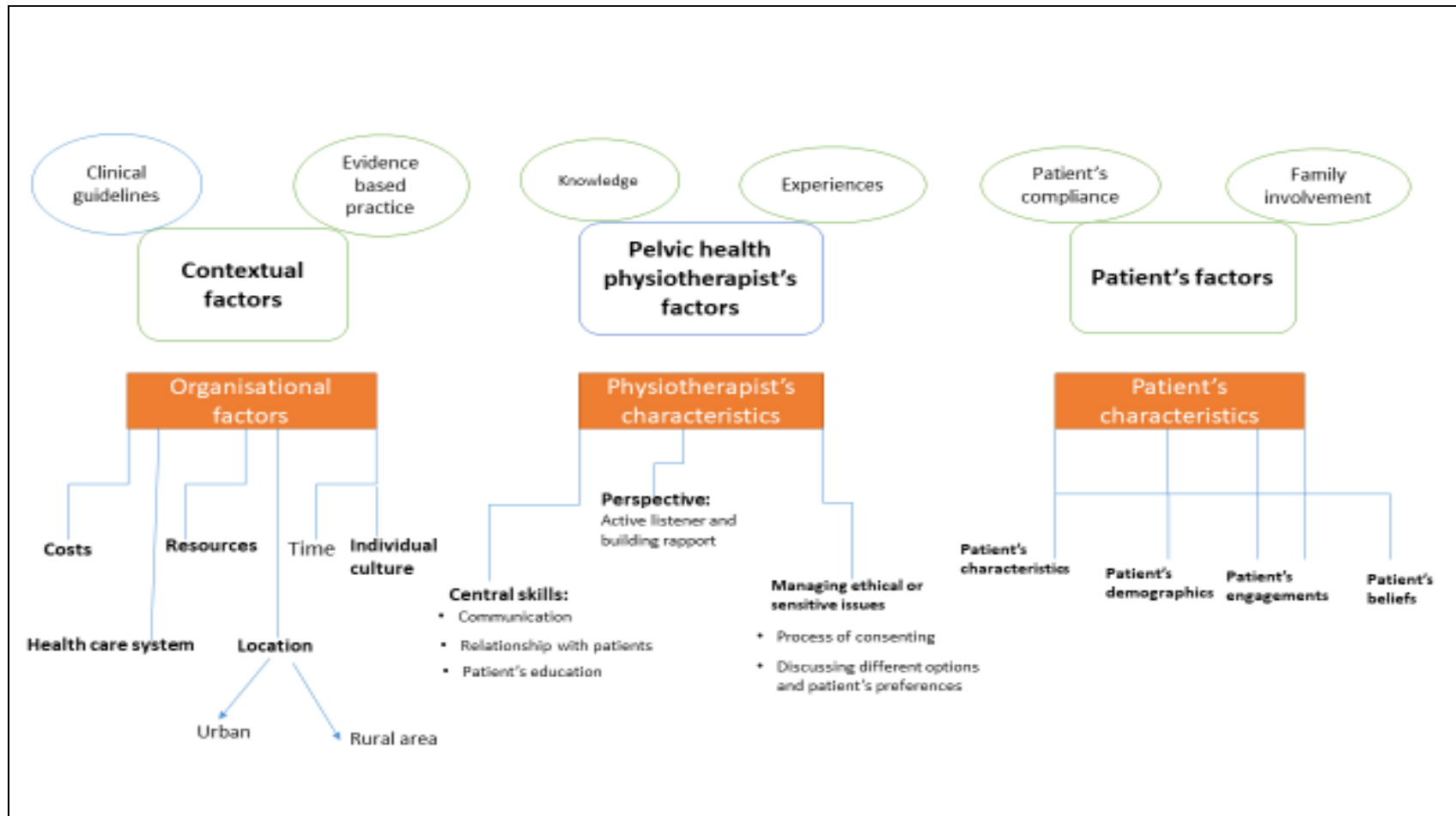
The next part of the abstraction and interpretation process was mapping. This involved comparing the responses to understand the relationship between the quotes and the links between the data, as well as creating a set of categories or classes about key analytic themes. In this process, the investigator might want to explore how these separate features of the data are interrelated (Dey, 2003). Mapping and interpretation included finding patterns and expressing the researcher's sense making of the data, about the research question. This step was the most challenging part, however, since the process of interpretation is often gradual, the researcher tried to make sense of the data gradually after discussing it with the supervisory team over time (Gale *et al.*, 2013; Bonello and Meehan, 2019). There were limited descriptions of the interpretive process in the literature. It was helpful to use a schematic diagram (Figure 3-6 below) to guide any data interpretation, as Srivastava and Thomson (2009) suggested. Also, Swallow *et al.* (2011) found the work very useful in helping the researcher move from abstraction to more interpretive ways of thinking. This stage took longer than expected; and required some modification of the main findings quite a bit by going back and forth to the raw data. Writing memos and diaries were very helpful in keeping track of any changes that have been made in Table 3.1

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Figure 3-6: A schematic diagram illustrates the process of data analysis in interpreting and abstracting the findings.



**The final part of abstraction included explanation** and occurred in the subsequent stages of the analysis process when most of the descriptive and typological work was already carried out. When explanations were established, instead of hypothesis testing like in a quantitative study, the researcher looked for the key factors or processes that reflect a pattern of data connection and attempted to find common-sense and fitting features between the data (Gale *et al.*, 2013; Bonello and Meehan, 2019). In addition, the researcher looked at other high-quality qualitative studies or existing theory within the literature for inspiration (Ritchie *et al.*, 2013).

During the data interpretation process, the researcher considered the following headings as a framework for interpreting coded data: words, context, internal consistency, frequency and extensiveness of comments, specificity of comments, intensity of comments and big ideas (Krueger, 2014). It was important to consider the actual words used and their meaning, as well as to reflect on the context of the language of the facilitators' enquiries and the consequent comments made by others in the group, which might affect the context within which the comments were made. Likewise, it was necessary to consider the repetition and breadth of comments. Repetition or frequency relates to how often a view or comment was made. The intensity of comments in the transcripts was also observed by looking at the depth of emotions in which views were said or feelings were made evident (Gale *et al.*, 2013). Internal consistency was tracked by considering any changes in views or positions by the participants. The specificity of the participants' responses was noted by placing greater attention to responses relating to personal experience (Ritchie *et al.*, 2013). Big ideas related to the larger theories or models that appeared from an accumulation of signals and evidence across the transcripts. The analytical processes described above were presented with respect to the data generated through the face-to-face interviews and focus groups. However, focus groups might have distinctive characteristics that warrant additional consideration during the analysis process. The different types of focus group analysis will be discussed in the following sections.

### **3.18 Analysis of Focus Groups**

A one-hour focus group discussion could easily take five to six hours to transcribe in full, generating approximately 30 to 40 pages of transcript. Thus, a central goal of data analysis, according to Robson and McCartan (2016), is to reduce data volume needed to carry out

analysis. It is important to begin by going back to the purpose of the study. Following this is helpful for managing the data and discarding irrelevant and additional information (Krueger and Casey, 2000).

### **3.18.1 Two main ways to analyse focus group data**

A whole-group analysis was used in the present study, which considered the data created by the group without explaining individual contributions. The group became the basic unit of analysis and was handled in the same manner as a unit of individual data. During the data management stage, data were abstracted and indexed in the form of raw in the matrix for each group (Appendix Appendix E). If there was a debate between the participants within the group, then an individual participant was highlighted.

There are advantages and disadvantages to each type, and there is debate on the validity of each type. The advantage of doing participant-based analysis is that it is easy to observe the similarities and differences between the members of each group and across all groups in the sample. In terms of disadvantage, whole-group analysis might take longer to carry out because the points made by each member needs to be traced throughout the transcript. For a focus group, it is not like a one-to-one interview, as it does not allow for full exploration of a participant's views and opinions; the data might therefore be insufficient for data analysis, as discussion needs to be placed in context of how other group participants have responded (Ritchie *et al.*, 2013)

The decision on which approach to use depends on the level of detail available for each participant, in addition to the objectives of the research and the types of outcomes required. In this study, the aim of the focus groups was to explore the factors that might affect clinical reasoning and decision making among physiotherapists. Therefore, it was deemed useful to analyse the data produced by the whole group in order to understand the different factors that can affect their clinical reasoning and decision making. However, in some cases, the researcher identified a unique factor, such as patient culture, which was raised by one participant only. In this case, it was considered interesting to explore this participant individually and evaluate the influence of the participant's experience, knowledge and other factors that might have affected her clinical reasoning and decision

making (Ritchie *et al.*, 2013). It was important in both types of analyses to consider the interactions and collaboration between group members, such as their areas of conflict, non-verbal communication, the characteristics of the participants who contributed more or less than the average, and the construction of opinions over the course of the group discussions. Data from the interviews were combined with that of the focus groups using NVivo following the processes outlined above.

### **3.19 Methods to ensure rigour**

Researchers who use interpretivist frameworks engage in reflexive analysis to ensure rigour. Lewis-Beck, Bryman and Liao (2003) stated that credibility, confirmability, and transferability are the three main standards of rigour that are common to qualitative methods, in general. Within interpretive approaches, a 'reflexive stance' is recommended because it informs 'how the researcher conducts his/her research, relates to the research participants and represents them in written reports' (Charmaz and Belgrave, 2007).

#### **3.19.1 Credibility**

Credibility is sometimes used in qualitative research. Hammersley (1990 p. 57) stated that 'credibility means the extent to which an account accurately represents the social phenomena to which it refers'. Credibility relates to the trustworthiness of the findings of a study (Barbour, 2001). Ritchie *et al.* (2013) explained that 'credibility in qualitative research has focused on evaluating how well a participant's meaning has been captured and interpreted'. There are several different approaches to improving the credibility of qualitative data, such as triangulation and members checking. Triangulation is the use of different sources of data, which helps improve the clarity and confirmability of a research outcome. In the present study, triangulation involved two different methods of data collection that will answer the research question, for instance, interviews and focus groups.

Patton (2002) highlighted the importance of triangulation in data analysis: it provides a comprehensive and diverse way of exploring the same phenomenon, and its use strengthens confidence in the conclusions and thus adds to the credibility of the findings. The assumption is that if the findings obtained with all these methods are consistent and draw the same or similar conclusions, then the credibility of the findings and conclusions



has been established (Moisander and Valtonen, 2006). However, the absence of similar findings from different approaches does not necessarily provide grounds for disproof of the results. This is because each method used in qualitative research can provide a limited view of the whole picture (Barbour, 2001). In the present research, credibility centred on whether clinical reasoning was accurately identified and described from the perspective of physiotherapists.

There is some argument about the use of triangulation in qualitative research; a number of researchers argue that triangulation can play some part in validating findings (Barbour, 2001; Flick, 2004; Fusch, Fusch and Ness, 2018). However, the aim of this qualitative study is to explore participants' viewpoints and opinions. Physiotherapists' opinions related to the factors that influence their clinical reasoning can vary from one participant to another. Using different data collection methods in this research enabled the researcher to dig deeper and understand the factors influencing the physiotherapist's clinical reasoning and the participants thinking processes. It is not essential to validate the findings or test their probability like a quantitative study. Proving the rigour of the findings could be guaranteed through different aspects, such as using data collection methods that answer the research question and including clear data analysis processes in addition to members checking. Hence, triangulation adds a depth of understanding and adds to the credibility of the findings rather than validation.

Barbour (2001) claimed that there are different ways to promote rigour in a qualitative study, such as purposeful sampling, multiple coding, triangulation, and respondent validation. However, Barbour (2001) argued that these techniques might strengthen the rigour of the research only if they are embedded in a wider understanding of the qualitative research rationale, design and data analysis. Barbour (2001) suggested using a constant comparative method to compare the opinions and experiences of purposely selected participants to highlight important differences and decrease potential research bias. This is in addition to the use of multiple coding that concerns the same inter-rater confirmability in qualitative studies. Although multiple coding does not necessarily mean accurate replication of coding, it involves the cross-checking of coding approaches and clarification of data by independent researchers; in this study, these were the researcher supervisors. However, the level of concordance between researchers was not really significant; what

was of importance is the content, which provoked disagreements and the insights that resulting discussions can yield for refining theoretical framework (Barbour, 2001; Silverman, 2015).

### 3.19.2 Confirmability

Confirmability, also known as dependability or auditability, is sometimes a more preferred term in qualitative research over reliability. It refers to the ability of another researcher to follow the methods of a study and reach the same conclusions as the original researcher (Patton, 2002).

The confirmability of the study can be achieved by following a transparent research process—describing the research strategy and a clear process of data analysis—so that the procedure is clearly documented and understood. This step would allow another researcher to verify the findings. Furthermore, it is important to show explicitly the theoretical stance of the researcher in which the data interpretation takes place (Moisander and Valtonen, 2006). Regarding confirmability in studies involving interviews and focus groups, Silverman (2015) highlighted the importance of each participant's understanding of the questions in the same way so that answers can be coded without ambiguity. This was accomplished through several resources, such as pilot testing the interviews and focus groups, improving the interview skills of the researcher by attending specialised training courses, and conducting inter-rater confirmability checks on the coding of the transcripts with the researcher supervisors.

Nonetheless, when an interview or focus group is digitally recorded and transcribed, the confirmability of the transcripts' interpretation might be compromised by a failure to transcribe critical pauses and overlaps. Silverman (2015) suggested using transcripts that do not try to eliminate such structures of spoken English as hesitations ('er'), breaths ('hh'), non-dictionary words ('yer') or pauses. It would result in a more reliable recording of the data because of the amount of detail given by the method (Heritage, 2013). This method involves observing the small and less obvious details of naturally occurring talk, which may reduce the interpreter's possibility of misunderstanding the transcript and may improve research rigour, therefore this method was used in this study.

### 3.19.3 Transferability

This is also referred to as resonance and generalisability. Transferability pertains to the probability that the research findings hold meaning to others in similar situations (Patton, 2002; Charmaz and Belgrave, 2007). Transferability is not easily achieved in qualitative research. It requires strategic planning throughout the research process and not just during the write-up at the end. The methods used to organise the data can influence transferability. Many researchers use different strategies to promote transferability. The type of analysis has a significant impact on better supporting the development of an argument. This might contribute to the transferability of the results and can improve the rigour of the study. On the other hand, using a sampling strategy (for instance, the number of participants and a representative sample of the population) to allow empirical generalisation is not supported in a qualitative study. However, theoretical generalisation can be supported by purposeful sampling. The sampling strategy could provide an important background in which the researcher can read and interpret (Mason, 2002). Furthermore, writing a detailed description of the sample's demographic information is important. The aim of purposeful sampling is to reflect diversity in a given population. For example, in the current study the UK participants came from different regions, such as the Southwest and East, North of England, Scotland and Wales. It also included different settings, such as private, NHS and community services. On the other hand, in KSA, twelve participants came from the Central region only, where all the big tertiary hospitals with good facilities are located. Therefore, another three participants were recruited from the Eastern and Western regions of KSA to ensure the transferability of the data within Saudi.

Furthermore, deviant case analysis involves actively recognising cases that do not fit with the research question and objectives. These cases can lead to a change of initial ideas but, more frequently, to a deeper analysis that accounts for a wider variety of conditions (Seale, 2012). Complete data coverage with attempts to consider deviant cases altogether through a clear and systematic analysis can increase transferability (Ritchie *et al.*, 2013). Furthermore, showing the participants' own accounts can assist other researchers in judging how closely the interpretations reflect the data. This can enhance transferability by making effective use of the original data that support the research questions studied (Ritchie *et al.*, 2013).

Using computer programmes, such as NVivo, helps to manage data and thus helps qualitative data analysis and supports the inclusion of typical and deviant instances of data, potentially improving the systematic analysis of data (Weitzman and Miles, 1995; Miles, Huberman and Saldana, 2013). Furthermore, recording data accurately and comprehensibly, such as through the use of audiotapes and variable levels of detail in the transcription of data can increase research rigour (Silverman, 2015).

### **3.20 Ethical Considerations**

If sensitive issues are raised, an interviewee may become emotional; therefore, the interviewer needs to show empathy, offering the interviewee a break from the interview so that he/she can gain his/her composure, stopping the interview altogether if needed (Hennink, Hutter and Bailey, 2010; Creswell and Poth, 2017; Mason, 2017). In the present study, the researcher mentioned to the participants that their information, obtained through their participation in either the interview or the focus groups, would not be disclosed. However, as focus groups are group discussions, other physiotherapists in the focus groups would evidently know the participants who attended and would hear any comments made during the discussions. Nevertheless, all physiotherapists who attended the focus groups were asked to respect the confidentiality of the other participants.

It was difficult to end some of the interviews after establishing rapport with the interviewees, so repeating some of the research aspects covered in the introduction part was useful. Examples are repeating what will be done with the data or emphasising the clinical implications of the research, as these helps create some distance between the researcher and the interviewees; consequently, the researcher felt comfortable leaving the interviewees.

### **3.21 Data management and confidentiality**

Unidentifiable data will be stored for 10 years in accordance with the University of Southampton's research data management policy. Personal data, on the other hand, are to be stored until completion and award of the researcher's PhD degree. Data collected in the UK in paper format (demographic details and consent form) were scanned as PDF files and uploaded to a secure file store in line with the University of Southampton guidelines;

these data can only be accessed by the researcher and her supervisors. Written and digitally recorded data were stored in a password-protected computer that was kept in a secure environment. The original written papers were shredded by the researcher. In the KSA, the researcher accessed the University of Southampton's Windows-based desktop, which can be done remotely from any device in any location via a password (Southampton Virtual Environment). The researcher followed the same processes regarding data management for both the UK and KSA participants.

Anonymised electronic data were transferred to NVivo for analysis by using the University of Southampton's secure transfer system 'drop off'. These electronic data did not include identifiable information and instead used identification numbers to anonymise. At the end of the study, these data—both physical and electronic—were stored according to the University of Southampton's data management policy (Southampton, 2021).

As for confidentiality, the researcher's contact details were provided to the participants should they have any questions or wish to withdraw from the study. Confidentiality was maintained throughout the interviews and focus groups. For instance, at the beginning of each focus group, the researcher asked all the participants to be mindful of the importance of confidentiality and requested them not to discuss outside what was said during the focus groups. All physiotherapists who attended the focus groups were also asked to respect the confidentiality of the other participants.

Finally, the interviews and focus groups were coded, and real names and places were altered to preserve confidentiality. Any e-mails sent to the research participants had their content coded and preserved in a password-protected Word document, but the contact details and original emails were deleted. All participants who took part in the research were given a code, which was used instead of their name, to identify them during the analysis and write-up of the study.

### **3.22 Reflexivity**

Parahoo (2014) defined reflexivity as the extended procedure of the researcher's reflection on his/her principles and views, presumptions, behaviour or position and those of the

participants, which can influence the clarification of responses in the research or with participants. Awareness of the reciprocal effect of the participants' and researcher's relationship with the research process and outcome is an important part of ensuring rigour and credibility in qualitative research. Reflexivity is critical in physiotherapy research in which the researcher often knows the participants. Primeau (2003) indicated that reflexivity increases the quality of research through its capability to prolong our understanding of how our values, beliefs, experience, personal involvement and positions as researchers influence all steps of the research process. Dowling (2006) clarified how undertaking the reflexive process helps researchers develop insights into how physiotherapists make their clinical decisions, explaining that it involves being aware in the moment of what is affecting the researcher's internal and external responses while at the same time being conscious of the researcher's link to the research topic and the participants. The key is to be explicit regarding the influence of the research process on the relationship between the researcher and the participants in a detailed reflexive stance at the beginning of the data collection process and during the data analysis.

### **3.22.1 Engaging in critical self-reflection**

Koch and Harrington (1998) believed that a researcher should engage in continuous self-critique and self-appraisal, as well as explained that previous experiences may or may not influence the research process. I realised that my experiences as mentioned in section 1.2.2 were focused on dedicated teaching about the clinical reasoning process, and my practice was based on the model that I believed physiotherapists should use in 1.2.2. Reflecting on my previous experiences, I asked myself the following question: Why did I value the HD clinical reasoning approach? I then began to reflect on how my past experiences as a student, pelvic health physiotherapist and lecturer affected my future research work. I decided to accept that my past would guide my interpretation of a specific reality. Knowing more about myself helped clarify my expectations and biases, which was essential in the interpretive process.

This perspective changed the way I saw the participants in my study. I believed that building a good relationship with them during the data collection process instead of considering them as data sources is important. During my interaction with expert physiotherapists, I encouraged them to bring life to the experiences that we were

exploring; they should move from certain parts of their experiences to the entirety of it in order to increase the depth of engagement involved.

My personal experiences as a physiotherapist and an educator provided me with important knowledge on clinical reasoning in pelvic health physiotherapy, which was used to inform my study. This knowledge represented previous experiences at the start of the study. New knowledge was gained through the interpretation of the data collected, which eventually led to an in-depth understanding of current clinical reasoning among physiotherapists using a methodological framework. I used an interpretive, framework analysis approach to discover meaning within clinical contexts of practice in the UK and the KSA.

### **3.22.2 Positioning the researcher in the study**

Reflecting on my past is essential to the success of the entire process. For instance, awareness of my previous experiences, beliefs and prejudices was necessary. Knowledge of pre-understandings helped in accessing my participants' world and allowed such understandings to be argued with the use of the participants' stories (Dowling, 2006).

My role as the researcher was dominated by the ontological and epistemological assumptions taken from the interpretive position, as stated in Section 3.1. I conducted the interviews and asked questions without taking a privileged position. My previous experiences in physiotherapy practice and reasoning may have influenced both the content and the process of enquiry. Therefore, open-ended questions and prompts were used to address this issue. Furthermore, having solid knowledge of what the participants were talking about enriched the discussion without influencing their opinions or committing interviewer bias. I ensured that I did not search for a particular type of answer. A researcher's knowledge should not create researcher bias and result in leading questions.

In this way, a collaborative, non-hierarchical relationship between me as the researcher and the participants was encouraged, and the participants played an active role in the creation and justification of knowledge (Fontana, 2004). In this study, I, the researcher, was a physiotherapist and a colleague of the participants. This factor facilitated the achievement of the research outcomes. Familiarity with one another allowed us to create a relaxed

atmosphere in which we could comfortably communicate. As a result, we were able to explore the subject deeply.

Furthermore, exploration of my personal beliefs made me more aware of the possible judgments that can occur during data collection and analysis based on my belief system instead of the actual data collected from the participants. This process was used to separate my personal opinions and presumptions from the phenomenon under study. This process is called bracketing and requires reflexive thinking (Jootun, McGhee and Marland, 2009).

Rolls and Relf (2004) suggested that a principal researcher needs to bracket or to set aside his/her assumptions and previous experiences during data collection. In the present study, this process assisted me in understanding how my assumptions may have influenced the data collection and analysis process. Furthermore, it was important to ensure that I did not assume that I knew what the participants were talking about. Doing so might have led to losing opportunities to obtain valuable insights from the participants.

During the data analysis process, the data gathered from the participants may have been combined with my experiences and placed in a specific context. To minimise this, I stepped back during data analysis to avoid having my opinions and beliefs bias my interpretation of data from participants' transcripts. The interpretation of the data involved a combination of data analysis techniques. In the interpretation, I consciously used my experiences as a reflexive tool to acquire new knowledge of and insights into the clinical reasoning of physiotherapists in the UK and KSA.

### **3.22.3 Reflection in action**

Data were collected using semi-structured interviews and focus groups, which were conducted in the UK and the KSA. To determine the social significance of actions in a study, a researcher must create an account of how participants see the phenomenon in question, which needs analysis to understand participants' perceptions (Schatzman and Strauss, 1973). The production of the participants' viewpoints and perceptions depends on the researcher's knowledge of the social setting. In the present study, I was, to some degree, familiar with the setting in which the physiotherapists socialised. I had practised as a pelvic health physiotherapist and worked as a physiotherapist–lecturer, so I was familiar with physiotherapists' jargon and hospital practices and techniques, in general. Although the



approach I used was interpretivist, I was aware of the potential biases that could occur during this study. I found it useful to keep research diaries to raise awareness of the effects of bias on my interpretation and clarification of the data and on my relationship to the research topic and the participants (Koch and Harrington, 1998).

I used the research diary to log decisions made and write down reflections on the research process to document changes in the thinking (Silverman, 2015). A research diary aims to document all easy-to-forget feelings and decisions made at a particular time in the past. It served as an anchor for my thoughts, feelings, and conclusions. The research diary helped me to realise how my knowledge is created. Examples of reflections on the research processes are narratives on learning points, interesting observations, useful reading texts and responses to actions and events such as resolving data collection anxiety, dealing with difficult feedback, and writing up (Engin, 2011). I found that the diary also became emotional support. The emotional aspect of carrying out research is not well covered in the literature (Borg, 2001); hence emotions can influence the research processes. The content of the research diary was used to remind me about my position and relationship to the topic during data collection, analysis and writing up.

### **3.23 Summary of the research paradigm, methods of data collection and analysis**

An interpretivist paradigm was used as a philosophical underpinning to guide the collection and analysis of the data. The researcher encouraged participants to give their own opinions and views on their assessment and treatment decisions while reassuring them that there were no wrong or correct answers. This was important as some participants came from positivist paradigm backgrounds and were used to answering survey questions rather than qualitative open-ended questions.

To understand the participants' thinking processes, observation of the physiotherapists' management processes while assessing and treating patients with UI was considered as the optimal data collection method; however, it was assumed that this method would not be accepted by the KSA patients due to cultural issues. As a result, semi-structured interviews were used as a method of data collection to understand the participants' clinical reasoning and decision making processes. Focus groups, on the other hand, were used to

understand the factors that influenced physiotherapists' clinical reasoning and decision making.

The processes of data collection started with semi-structured interviews in the UK; then, a quick analysis of those interviews took place using the first few phases of framework analysis. For the practicality of data collection, the researcher travelled to KSA to collect data there using semi-structured interviews first, which was followed up with a focus group discussion. A summary of the UK interview findings was presented to the KSA participants towards the end of the focus group in order to obtain their views and opinions on the findings. This further encouraged the participants to provide rich and insightful data in order to help the researcher to gather meaningful data. After the data collection processes in KSA, a quick data analysis was conducted to understand the KSA participants' clinical reasoning and decision making using the first few phases of framework analysis. Later on, two UK focus groups took place to understand the factors that influence the UK participants' clinical reasoning and decision making. Towards the end of the first UK focus group, a summary of the KSA interviews findings were reported to the participants and they were asked to provide their opinion on these findings. The aim of reporting the findings in both focus groups, was to increase the depth of the analysis and to understand both countries' participants' views and opinions about the similarities and differences between the UK and KSA clinical reasoning and decision making. At the end of data collection, a theoretical framework was created and checked by the researchers' supervisors to improve the credibility of the codes. Further data analysis including charting and matrices were employed to understand the patterns that exist within the data. After long processes of comparing the charts, matrices and the common patterns within the data and the existing literature, different themes and categories were identified. The next chapter presents the participants' demographics and the findings from the current study.

## **Chapter 4 Factors that influence Pelvic Health Physiotherapists' Clinical Reasoning and Decision Making**

### **4.1 Introduction**

This chapter presents the findings of the analysis and interpretation of the transcripts of 28 semi-structured interviews and three focus groups with physiotherapists from the UK and KSA. During the analysis, it became clear that the process of clinical reasoning and the factors influencing the decision making among physiotherapists were both varied, complex, and overlapping. As a result, one of the challenges in analysing, organising, and presenting these data was to create a precise, useful, and meaningful interpretation of decisions influenced by such a broad range of factors. The findings are derived using the perspective provided by the study aim and objectives as outlined in Sections 2.17, 2.18 and 2.19

As described in Sections 3.5 , individual interviews were conducted to understand the process of clinical reasoning by asking each participant to recall one of their patients and to describe the assessment and treatment processes. They also served to explain how participants reached their diagnosis, and how they confirmed the diagnosis – more detail is available in the interview guide in Appendix Appendix O. Interviews were the most appropriate way to understand the models of clinical reasoning used by physiotherapists while assessing and treating patients with UI. In the focus groups, participants were asked to discuss the factors that influenced their decision making and clinical reasoning. The data from these two methods are presented.

This chapter starts with an overview of the demographic details of the study participants, including details of their qualifications, post-graduate courses and number of years worked in pelvic health physiotherapy. The second part of this chapter presents the interpretation of the data through the development of three key themes and associated sub-themes (derived from analysis) related to the factors affecting reasoning and their

associated sub-themes derived from analysis. In addition, one theme on the sense making processes is discussed in the next chapter. A framework of inter-relationships between the themes is presented in Figure 4-1, and the findings for each theme are discussed in turn. Themes are explored in detail with supporting evidence for the interpretations provided via quotations from the participants, as well as how each method (interviews and focus groups) contributed to the theme.

## **4.2 Themes and Categories**

The data from both interviews and focus groups were used to generate the themes. The interviews mainly generated data on the thinking processes of physiotherapists while managing patients with UI, whilst the focus groups primarily generated data on the factors that influence physiotherapists' decision making. However, given some of the overlaps between the data generated from both methods, both contributed towards the themes identified, and were therefore used to understand the objectives of this research. The process of coding, analysis and interpretation described in the method chapter led to the identification of four themes and seven categories of factors and processes that affect the decision making of physiotherapists (Table 4.1). The fourth theme on the sense making processes will be discussed in the next chapter.

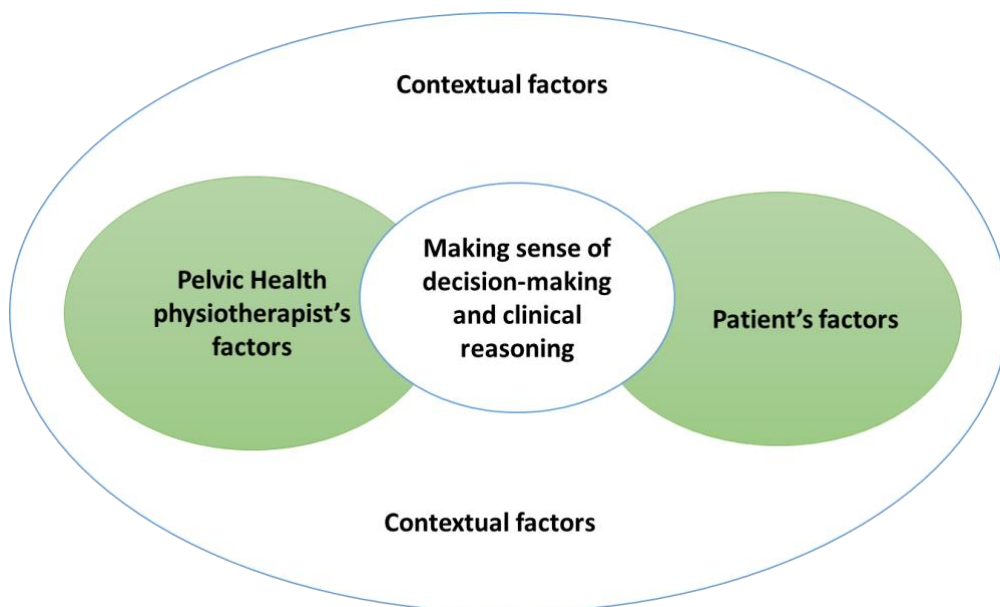
Table 4-1: Themes and categories of the factors and processes that influence pelvic health physiotherapist decision making and clinical reasoning

Themes	Description	Categories
Contextual factors	Factors include cultural context, health systems and other factors that affect physiotherapists' decision making and clinical reasoning.	<ol style="list-style-type: none"> <li>1. Cultural context</li> <li>2. Resources</li> <li>3. Organisational culture</li> </ol>
Physiotherapists' factors	Pelvic health physiotherapists' factors that influence decision making and clinical reasoning.	<ol style="list-style-type: none"> <li>1. Physiotherapists' multifaceted knowledge, training, and experience.</li> <li>2. Physiotherapists' emotional intelligence</li> </ol>
Patients' factors	Patients' factors that is affecting physiotherapists' decision making and clinical reasoning.	Patient characteristics such as age, gender, and comorbidity.
Making sense of physiotherapists' decision making and clinical reasoning	Physiotherapists' sense making of different factors using different properties of sense making theory that guide the decision making and clinical reasoning	Sense making process

There is interplay and overlap between many of the themes and categories above. For instance, the decision to provide patients with different assessment options might be linked to a physiotherapist's training or a patient's individual culture and resources. The categorisation of factors and clinical reasoning models into themes in this thesis provides a way to help simplify and organise the data. This in turn helps the reader to understand the multiple and complex influences on physiotherapists. To reflect this complexity, where there are apparent interactions and patterns between themes, these are highlighted and discussed. Figure 4-1 below shows the correlation between the four themes identified.

Figure 4-1: Illustrates that contextual factors are a strong recurrent theme with pelvic health physiotherapist decision making and clinical reasoning.

Physiotherapists' characteristics and level of training interact with their consideration of the patient in front of them, and their awareness of the available resources, health care systems and cultural context. These factors were utilised in a sense making process to reach a clinical decision for each patient. Different types of clinical reasoning models were evident, with different cues employed from each theme.



### 4.3 Interview Participants

Table 4.2 and Table 4.3 below provide the demographic details of the 28 participants who attended the semi-structured interviews in the UK and KSA. The data are categorised by

demographic factors deemed most likely to impact their decision making: level of education, years of experience in UI, specialised UI courses attended and clinical settings. Participants who attended the semi-structured interviews had various qualifications and experiences, and held different post-graduate courses in pelvic floor rehabilitation. All participants from the UK and KSA were female. KSA participants had an average of six years of experience; most of them were junior, whilst the UK participants had an average of 18 years of experience. The average age of participants in the UK was 52 years old, while the average age in the KSA was 32 years old. Most of the participants in the UK and KSA had achieved a post-graduate certificate in continence care, except for five KSA participants who had obtained the shorter Introductory Postgraduate Continence Care (basic courses). Pelvic health physiotherapy speciality started relatively recently in 2005 among Saudi physiotherapists. This could perhaps explain the differences in the years of experience between the UK and KSA participants. In both countries, most participants were working in government-funded hospitals or clinics, except for three participants in the UK, and five in KSA - they were working in private settings.

Table 4-2: Demographics of UK interview participants.<sup>3</sup>

No.	Age	Qualification	Number of years working in UI	Post-graduate courses	Clinical settings
1	65	Master's degree	31	Certificate in continence care*	Private clinic
2	55	Master's degree	20	Advanced courses**	NHS hospital
3	45	Bachelor's degree	14	Certificate in continence care	NHS hospital
4	55	Bachelor's degree	18	Advanced courses	NHS hospital

<sup>3</sup> \* Certificate in continence Care or women's health is a post-graduate program incontinence management for one year that is provided by the University of Bradford or East of London/UK.

\*\* Advanced courses in continence care and/or women's health that is provided by POGP.

No.	Age	Qualification	Number of years working in UI	Post-graduate courses	Clinical settings
5	56	Master's degree	25	Advanced courses	Private hospital
6	45	Bachelor's degree	8	Advanced courses	Community service
7	55	Bachelor's degree	25	Certificate in continence care	NHS hospital
8	55	Master's degree	12	Certificate in continence care	Community service clinic
9	56	Diploma Physiotherapy	24	Certificate in continence care	Private clinic
10	30	Bachelor's degree	3	Certificate in continence care	NHS hospital
11	56	PhD in Physiotherapy	20	Certificate in continence care	Community service clinic
12	45	Bachelor's degree	16	Certificate in women's health*	NHS hospital
13	55	Diploma Physiotherapy	25	Certificate in continence care	NHS hospital

Table 4-3: Demographic detail of KSA interview participants<sup>4</sup>


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<sup>4</sup> \* Post-graduate diploma in pelvic rehabilitation is an intensive training from a USA institute on pelvic floor function, dysfunction, and treatment. It includes a pregnancy and postpartum course.



No.	Age	Qualification	Number of years working in UI	Post-graduate courses	Clinical settings
1	36	Master's degree	3	Post-graduate diploma*	Tertiary Hospital
2	26	Bachelor's degree	6	Post-graduate diploma	Tertiary Hospital
3	36	PhD level	10	Post-graduate diploma	Tertiary Hospital
4	35	Bachelor's degree	8	Post-graduate diploma	Tertiary Hospital and
5	46	PhD level	13	Post-graduate diploma	Tertiary Hospital
6	35	Bachelor's degree	7	Post-graduate diploma	Private clinic
7	26	Bachelor's degree	3	Basic courses**	Tertiary Hospital
8	26	Bachelor's degree	2.5	Basic courses	Tertiary Hospital
9	35	Bachelor's degree	6	Post-graduate diploma	Tertiary Hospital and private clinic
10	26	Bachelor's degree	3	Basic courses	Tertiary Hospital
11	35	Bachelor's degree	1	Advanced courses***	Tertiary Hospital

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\*\* Basic courses on pelvic floor muscle assessment and treatment.

\*\*\*Advance courses on pelvic floor function, dysfunction, and treatment course in addition to physiotherapy's role in women's health.

\*\*\*\* Certificate in continence care is a post-graduate program in continence management for one year provided by one of the well-known universities.

No.	Age	Qualification	Number of years working in UI	Post-graduate courses	Clinical settings
12	26	Master's degree	10	Certificate in continence care****	Private clinic
13	38	Bachelor's degree	5	Basic courses	Tertiary Hospital and
14	30	Bachelor's degree	2	Basic courses	Private clinic
15	30	Master's degree	6	Post-graduate diploma	Tertiary Hospital

#### 4.4 Focus Group Participants

Table 4.4 and Table 4.5 show the demographic details of the participants in the UK and KSA focus groups, respectively. Twenty participants attended the UK and KSA focus groups, three of the participants in the second UK focus group participated in both a focus group and an interview. Participant recruitment within the UK and KSA was quite challenging because pelvic health physiotherapy is an emerging discipline. As a result, the target number of participants was not reached, particularly in KSA. The original plans were to conduct 2-3 focus groups in KSA, but they needed to be modified because there is a limited number of pelvic health physiotherapists in KSA. As a result of this issue, the number of focus groups was decreased to only one.

Table 4-4: Demographic details of the two UK focus groups Table 4-5: Demographic details of the focus group participants in the KSA<sup>5</sup>

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<sup>5</sup> \* Post-graduate diploma in pelvic rehabilitation is an intensive training from a USA institute on pelvic floor function, dysfunction and treatment, and postpartum course.

\*\* Basic courses on pelvic floor muscle assessment and treatment.

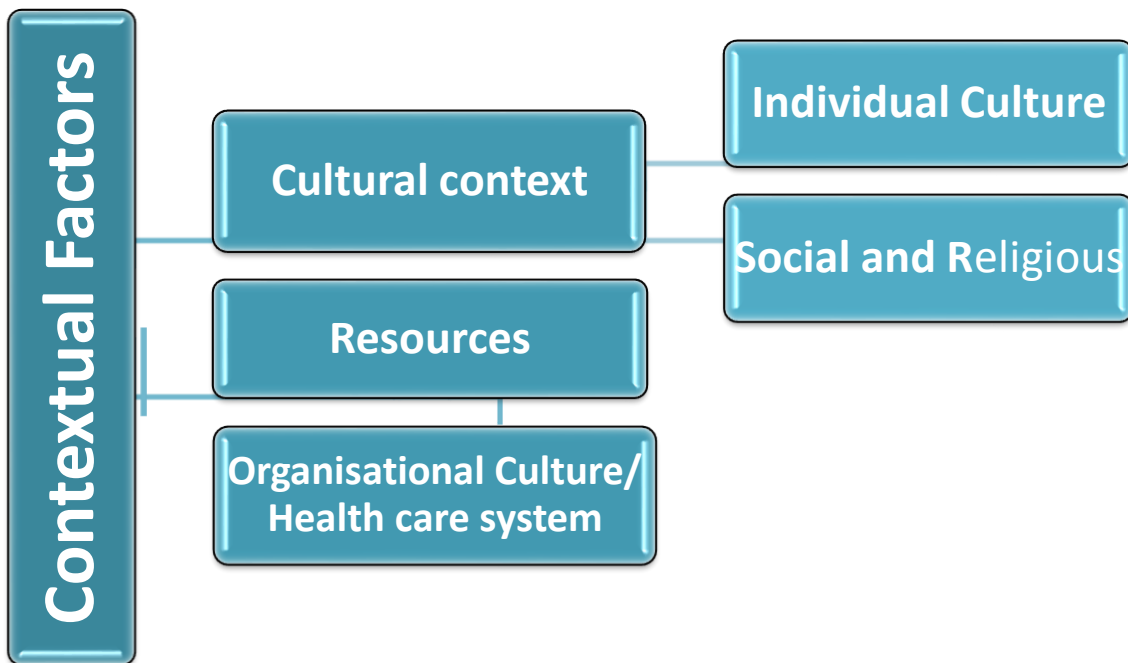
\*\*\* Advance courses on pelvic floor function, dysfunction, and treatment course in addition to physiotherapy's role in women's health.

No.	Age	Qualification	Experiences in UI management	Post-graduate Courses	Clinical settings
1	35	Bachelor's degree	6	Post-graduate diploma in pelvic rehabilitation*	Tertiary Hospital and private clinic
2	32	Bachelor's degree	8	Post-graduate rehabilitation diploma	Tertiary Hospital and private clinic
3	26	Bachelor's degree	3	Basic courses**	Tertiary Hospital
4	30	Bachelor's degree	6	Post-graduate rehabilitation diploma	Tertiary Hospital and private clinic
5	26	Bachelor's degree	1	Advanced courses***	Tertiary Hospital

#### 4.5 Theme 1 - Contextual / Organisational factors

The data clearly identified that it is not only patient health factors that shape clinical reasoning; contextual factors including cultural context, resources and health system are important considerations. Participants discussed the impact of these factors on their assessments and treatment decisions. These are presented in Figure 4-2 and then explored in detail below.

Figure 4-2: Contextual factors impacting clinical reasoning/decision making



#### 4.5.1 Cultural Context

Culture is defined as a group of people who share the same patterns of behaviour, such as language, communication, customs, beliefs, and values, in addition to how this behavioural response is essential to their health (Spencer-Oatey, 2008). This section will present the findings in two sections: first, the influence of the culture of individual physiotherapists and patients; then the wider context of social and religious culture. The supporting quotes are listed in Table 4.6.

##### 4.5.1.1 Impact of individual culture on clinical reasoning/decision making

When referring to individual culture, this includes patients and their family or caregivers as well as physiotherapists. Focus group participants were asked to elaborate in more detail on the effect of culture on clinical reasoning and decision making processes, as the interviews revealed little about this area.

UK participants appeared more aware of multicultural diversity amongst patients and are therefore better able to identify cultural differences and appreciate their impact on clinical decision making. This may reflect the multiculturalism in parts of the country as a whole. It

could also link to physiotherapists' own existing experiences in specific settings. For instance, some who worked in multi-diverse hospitals were able to recall different individual cultural issues.

KSA participants mentioned that their patients tended to be from the same culture, i.e., monoculture, but the main cultural influences on clinical reasoning were health illiteracy and the practice of family centred care. UK participants on the other hand, reported awareness of the effect of managing patients from multicultural background on their decision making by asking questions differently to overcome the language barrier.

Table 4-6: Themes include contextual factors, with a category on individual culture, and different subcategories derived from the data and reported by physiotherapists' participants <sup>6</sup>

Category	Subcategory/	Quotes
<p><b>Individual Culture.</b> When referring to individual culture, this includes patients and their family or caregivers as well as physiotherapists.</p>	<p><b>Awareness of different cultures</b></p>	<p><i>FG2 UK (P5) "regarding culture and one of my patients is over the years, with female genital mutilation, that has an impact on treating a patient because there's often shame behind that. Particularly in cultures here where they feel "Oh if they realize that, people will think of me differently."</i></p>
	<p><b>Family centered care:</b> Family gatherings involving drinking coffee were important among KSA patients. Involving the patient's partner or another family member in decision making can increase adherence to the management programme.</p>	<p><i>P12 KSA "Our culture is a very group-based culture and it is a very family-based culture."</i></p> <p><i>FG1 KSA (P3) "When I ask them to try to do something new, I mean add some other herbs that will not affect their bladder...drink a cup of mint tea or any other herb, it is still a hot drink...and stay with your family".</i></p>

<sup>6</sup> P: Participants, FG: Focus Group, KSA: Kingdom of Saudi Arabia, UK: United Kingdom.

Category	Subcategory/	Quotes
	<p><b>Patients' beliefs in KSA:</b> Considering UI as a normal process of aging and after giving birth. Patients think that UI can be cured by herbal remedies.</p>	<p><i>P15 KSA 'Concerning herbal treatment, I try to talk to them on their level [patient's level of understanding] and tell them that it is an external treatment, like treating the area [vagina] from the outside in order to alleviate the irritation in the area [not decreasing UI]'.</i></p>
	<p><b>Language barrier:</b> Patients speaking different languages, required interpreters. This service is limited and often available via telephone only. UK participants who identified with the same cultural background as their patients noted that it makes them more confident and more equipped to understand their concerns.</p>	<p><b>FG2 UK (P8)</b> <i>'If I were going to see someone from an Asian culture, I feel like I would understand that better because I have worked with Asians and I have an Asian background.'</i></p>
<p><b>Social and religious aspects of culture:</b> Contrary to the UK, religion plays a dominant role in KSA culture, which in turn influences healthcare delivery.</p>	<p><b>Asking questions differently</b> when dealing with patients from different religious or cultural backgrounds, particularly when dealing with sensitive issues and topics.</p>	<p><b>P4 UK</b> <i>'The Trust has a policy of asking for FGM, so we word that [ask questions]. We use the language differently according to who we are speaking to, and we use our common sense to advise us on how we will discuss it.'</i></p>

Category	Subcategory/	Quotes
	Sensitivity about digital palpation: Participants in KSA also reported that they expect their single patients to be a virgin because women are only expected to have sexual intercourse once they are married. Participants in the UK were aware of this issue, but only concerning those who had never been in a sexual relationship before, such as teenage patients.	<i><b>FGI KSA (P5)</b> ‘We face some patients that are virgins, and we cannot do the internal examination on them. Also, younger women are often more open to the assessment and easier to communicate with than older women’.</i>

#### 4.5.1.2 An Impact of Heterogeneous culture in the UK

Participants in both UK focus groups were aware of the importance of cultural competencies while managing patients with UI. The participants in the first UK focus group were working with mainly white British patients whilst the second group were working with multicultural patients from different ethnicities. Some of the participants in the first UK focus group mentioned that they had barely any issues relating to culture while managing patients with UI due to working with monoculture patients. Participants in the second focus group however, reported different issues impacting their clinical reasoning and decision making while working in a multicultural area. For instance, language barriers, family centered care and patients’ beliefs were mentioned. Table 4.6 explains each point and supports these with the relevant quotes.

UK participants living in culturally diverse places were aware of the significance of considering culture in their management decisions, based on their training, knowledge, and experiences of working within a multicultural context; this point is covered in detail in Section 4.5.1. Some participants in the UK also attended a cultural competency program.

However, they questioned the benefit of that programme in helping them deal with different ethnicities.

*FGI UK (P1) 'I think that it is left to us as individuals to understand the population and the cultural issues that are related to them. It will vary from workplace to workplace and depend on the demographics in that area, but I do not think that it is taught well within the NHS. We have a self-appraisal system and part of our appraisal system covers certain topics, such as equality and diversity.'*

#### **4.5.1.3 Homogenous culture in KSA**

Conversely, according to KSA participants, culture had little to no effect on their decision making, as they believed they worked in a monoculture, with slight variations if the patients came from a rural or urban area. Patients' health illiteracy is a common issue in the KSA, and a further influencing factor on physiotherapists' clinical reasoning and decision making. This illiteracy is evident in patients' beliefs that UI is a normal aspect of ageing or after giving birth for example or thinking that herbal remedies can help cure UI. Physiotherapists mentioned that an aspect of their clinical reasoning was attempting to change patients' beliefs without being judgemental. Patients' beliefs are also influenced by socio-economic factors, covered in detail in Section 4.7.

In KSA, participants mainly used their intuition and awareness of their own culture by considering patients' beliefs and the importance of family-centred care only. However, KSA participants who had worked in different cultures were able to understand the effect of culture in decision making in a more explicit way (Table 4.6).

Physiotherapists in KSA used their intuition to manage their patients from the same culture. For instance, they were aware of the importance of family gatherings and drinking coffee, while simultaneously wanting their patients to maintain a healthy diet with a low caffeine intake. They encouraged their patients to drink alternative warm drinks instead of coffee while maintaining their social gathering traditions (Table 4.6).



#### **4.5.1.4 Impact of social and religious factors on decision making**

Compared to the UK, religion plays a dominant role in KSA culture, which in turn influences healthcare delivery. In the UK however, the religious background of patients does influence how physiotherapists decide to provide healthcare to certain patients. The findings suggest that some patients from different ethnic groups or religious backgrounds might be sensitive to digital palpation, and the way physiotherapists ask questions might vary due to different beliefs or understandings. In addition, UK physiotherapists integrated patients' spiritual rituals in their clinical reasoning (Table 4.6).

The findings identified that whilst religion does play a role in clinical reasoning and decision making, it should not be singled out as a key determining factor, as even among Muslim population, religious preferences will still vary. Effective clinical reasoning and decision making is therefore more about understanding what is important for an individual patient and finding an optimal treatment solution that works, while also respecting the patient's beliefs.

The data clearly shows that the cultural context is a broad but influential factor in physiotherapists' clinical reasoning and decision making. Lack of knowledge or awareness regarding a patient' different culture or influence of culture on that patient (especially in a multicultural context such as the UK) is a concern since it might influence the patient's outcome. This is especially the case if physiotherapists are working in a certain organisation that has different policies. This issue of organisational culture is discussed in detail in a later section.

#### **4.5.2 Healthcare system/ Organisational culture**

The data identified that UK and KSA healthcare systems are quite similar in terms of the availability of primary care (GP) and secondary or tertiary care hospitals with more advanced specialities. Physiotherapists are only available in territory hospitals in the KSA but are available in both primary and secondary care services in the UK. Physiotherapists are available in private settings in KSA and the UK in both NHS and private primary and secondary care services.

The result of data analysis identified that culture within an organisation may be related to the way health practitioners, patients and administrations behave, act, communicate with colleagues and make decisions. A country's religious background, patients' beliefs, physician's hierarchy in decision making, family-centred care and health practitioners' identity shape the culture within an organisation in the KSA. The organisational culture varied between two organisations in the KSA, seemingly based on hospital guidance and the socio-economic background of their patients. For instance, the participants working in university hospitals mentioned that they follow international clinical guidelines compared to other military hospitals with a big research centre where they created their own policy and guidance. The data identified that the UK's organisational culture had clear guiding principles that lead participants to make similar decisions to one another, but this was the opposite in KSA. The key differences between the UK and KSA's organisational culture were limited national clinical guidelines and teamwork in KSA, physicians' hierarchy and socio-economic factors. These led to a sense of uncertainty among KSA physiotherapists' decision making compared to the UK physiotherapists. This suggest that organisational culture is an influential factor in decision making. The participants' quotes are listed in Table 4.7.

Table 4-7: Themes include contextual factors, with a category on individual culture, and different subcategories derived from the data and reported by physiotherapists' participants<sup>67</sup>

Category	Subcategory	Quotes
Healthcare system/ Organisational culture: The culture within an organisation may be related to the way health practitioners, patients and administration behave, act, communicate with colleagues and make decisions.	<b>Limited national clinical guidelines:</b> KSA participants used clinical pathway or guidance based on highly available research evidence and agreement from referring physicians to guide their decision making. They used international clinical guidelines.	<b>P1 KSA</b> <i>"I use NICE guidelines for UI and American physiotherapy for post and ante-natal patients"</i>  <b>KSA FG</b> <i>"We created our own clinical guidance based on high quality research and hospital policy; it will be nice to have our own guidance [national guidelines]."</i>

<sup>7</sup> P: Participants, FG: Focus Group, KSA: Kingdom of Saudi Arabia, UK: United Kingdom. PHPTs: Pelvic Health Physical Therapists. DM: Decision making, UI: Urinary incontinence. Niqab: is a face cover used by some Muslim women for religious reasons.

Category	Subcategory	Quotes
	<p><b>Limited multi-disciplinary team:</b> a lack of teamwork and communication within the multi-disciplinary team, leading to KSA physiotherapists feeling lost and unable to find answers. This was not the case among the UK physiotherapists.</p>	<p><i><b>P1 KSA</b> “A lack of multi-disciplinary teamwork is an issue, so the urologist sees the bladder point of view and the surgeon from the surgical point of view.”</i></p> <p><i><b>P9 UK</b> “If I face any difficulties, I usually ask my colleague. We have good, understanding consultants and nurses, and one of them is a specialist Uro-gynecologists.... Also, I can research on the internet...”</i></p>
	<p><b>Physicians' hierarchy and limited awareness of physiotherapists:</b> the hierarchy of physicians and their limited awareness of physiotherapists' role influenced the culture within the KSA healthcare service.</p> <p>Organisational culture may affect KSA physiotherapists' decision making, and some participants were keen to prove the significance of their management programme to change the physicians' and patients' view of physiotherapists' role and identity.</p> <p>Physiotherapist administration in KSA may play a significant part in providing financial support and equipment for physiotherapist management.</p>	<p><i><b>P15 KSA</b> “I gave lectures to the gynaecology team, and this was the reason that I did not receive any patients. They did not believe in it, and they just gave the patients instructions and medications”.</i></p> <p><i><b>FGI KSA (P3)</b> “Some of the doctors don't feel that physical therapy is playing a role especially with the Obstetrics and gynaecology but for the Uro-gynecological they refer all the patients to us. But for the Obstetrics and gynaecology they do not understand what we will do, and they always prefer surgery for those patients, and they don't believe in us.”</i></p> <p><i><b>P1 KSA</b> “I combine the plan of care something active with passive, the passive thing increases adherence...the evidence is not very supportive to the electromagnetic chair...but still it makes patients come and we want the patients to come. We have let say a contract between physio and urology..., after three.... months...follow-up</i></p>

Category	Subcategory	Quotes
		<p><i>appointment in the urology it should be as scheduled, as the physical therapy have set their plan.”</i></p> <p><b>FG1 KSA (P3)</b> <i>“You're not well supported by your admin, and they are not providing you a supply, area and equipment and staff. You cannot treat all those patients, so for me it was a big factor, the priority for the neuro and Ortho cases because they are the majority of our patients.”</i></p>
	<p><b>Socio-economic factors:</b> related to urban and rural areas, transportation and limited specialised services in rural areas with significant deprivation, especially in KSA. Limited awareness of physiotherapists' role was a common issue in the two countries, which led to high or low expectations from physiotherapy.</p>	<p><b>P4 KSA</b> <i>“In the military hospital, some of my patients can not adhere especially if they are not from the “big cities”. If they have transportation issues, some patients said give us the program and we will try to do it at home.”</i></p> <p><b>FG1 UK (P8)</b> <i>‘Sometimes, they have no expectations because they have no idea about what we can offer. Sometimes, they come with high expectations... Therefore, it might be a lack of understanding or a reluctance to talk about it’.</i></p>
	<p><b>KSA physiotherapists uncertain in decision making:</b> Uncertainties regarding decision making when receiving self-referral within private settings. KSA physiotherapists were also possibly unsure of follow-up treatments due to limited clinical guidelines, and sometimes ended up changing the management programme without proper justification. Some KSA participants who worked with elderly and illiterate patients, usually faced disapproval with regards to vaginal examination. This created uncertainties when it came</p>	<p><b>P6 KSA</b> <i>‘The Saudi healthcare system does not support self-referrals. However, the patients are still allowed to come to private clinics using self-referrals. I am not happy to receive patients .... having a contagious disease. I prefer to rule them out because I like to do dry needling. But I would not like to send her back because it is unlikely that she'll seek help again.’</i></p> <p><b>P9 KSA</b> <i>“she was very old lady from a village, during the session, she even refused to take off her Niqab. Some of them [patients] were very</i></p>

Category	Subcategory	Quotes
	to recommend appropriate management options.	<i>religious, they refused it [vaginal examination] from a religious point of view. [Some of them] they refused totally, from a religious background or from village or very old patients.”</i> <b>P12 KSA</b> ‘If that physiotherapist is not confident or comfortable, then the patient will pick up on that and might not accept the vaginal examination’.

UK health care was reported to be more uniform with national guidelines, and to consist of more consistent policies and processes. It was clear that UK physiotherapists’ clinical reasoning was influenced by this more unified guidance. This meant their practices appeared more standardised across the UK, whereas in KSA, policies and procedures, and therefore clinical reasoning, varied across regions. The data suggests that the organisational culture in which the participating KSA physiotherapists operate, is influenced by individual patients and religious culture, communication within a multi-disciplinary team and physicians’ hierarchy. In contrast, in the UK, it is shaped by individual culture, National Institute for Health and Care Excellence guidelines, communication within a multi-disciplinary team and patient-centred care. Resources shaped the organisational culture in both countries. This is discussed in the following section.

#### **4.5.3 Resources**

The data identified clear impact of the available resources on physiotherapists’ clinical reasoning and decision making. Resources may include, but are not limited to the availability of equipment, management time and waiting lists.

##### **4.5.3.1 Influence of the availability of assessment and treatment options on decision making**

Participants from both countries mentioned limited treatment and assessment options for patients with urinary incontinence in physiotherapy in general. Many potential treatments were not always available to prescribe or offer to each patient.

KSA participants mentioned that they regularly used equipment such as electrical stimulation, a functional magnetic chair and biofeedback. They reported that most patients were referred to their service as a last resort instead of the first line of treatment. These patients may have been suffering from severe weaknesses, resulting from pelvic floor muscles; this may relate to the physicians' lack of awareness of the physiotherapists' role, which in turn could contribute to referring patients as a last resort option. Some physiotherapists in KSA reported that their patients were sometimes passive and preferred equipment instead of active exercising. Despite this, physiotherapists usually provided patients with equipment in addition to exercise to increase their adherence and confirm that they are following the treatment programme to see improvements.

#### **4.5.3.2 Differences between the UK and KSA in terms of resources**

Physiotherapists in KSA reported that they may provide their patients with up to 12 sessions, and sometimes more, depending on their patient's conditions and hospital policy. Patients may only attend their sessions to receive electrical stimulation, biofeedback, or Posterior Tibial Nerve Stimulation (PTNS) Some of the equipment, such as vaginal cones and dilators, are not easily found in KSA and some patients were reluctant to use them due to religious culture.

On the other hand, the UK physiotherapists mentioned using equipment less frequently, based on the NICE guidelines. For instance, sometimes they use educators as a biofeedback tool and other affordable equipment that patients could purchase or borrow themselves, in some situations, such as very weak pelvic floor muscles, or to improve patients' motivation to continue doing the management program.

**P1 UK** *“It's nice to know about everything that's available [equipment] and, if people ask about it or if you think this woman's not progressing or she could do with something to motivate her or she wants a gadget.”*

UK participants who worked in private settings sometimes suggested that patients purchase equipment, while the NHS had biofeedback units in a clinic, and had stimulators which women could take home with them, with vaginal cones were given out free of charge, in case they were needed. This varied from one NHS hospital to another.

UK participants mentioned that their patients preferred to do pelvic floor muscle exercises rather than using equipment. They reported providing up to six sessions because UI was considered a chronic problem, which required self-management, as suggested by National Institute for Health and Care Excellence guidelines. There was variation between UK participants when it came to their ability to provide more than six sessions. This depended on their clinical settings and patients' conditions. Participants who worked in private settings mentioned that they could not exceed four to six sessions due to insurance requirements. Another participant, working in the NHS, mentioned a lack of control over her diary, with patients sometimes waiting up to eight weeks until the next available appointment. This could affect the patients' conditions, such as vaginismus and UI, where the physiotherapist needs to build rapport before conducting the vaginal examination. Some UK physiotherapists stated that doing urinalysis was a routine practice to rule out Urinary Tract Infection (UTI) and haematuria in postmenopausal age. This helped in providing certainty and confidence to proceed with vaginal examination and the pelvic health physiotherapist management process rather than having to wait for the urine lab test result. In contrast, KSA participants stated that they did not do urinalysis routinely, which could have led to uncertainty and delays in patients' management (Table 4.7).

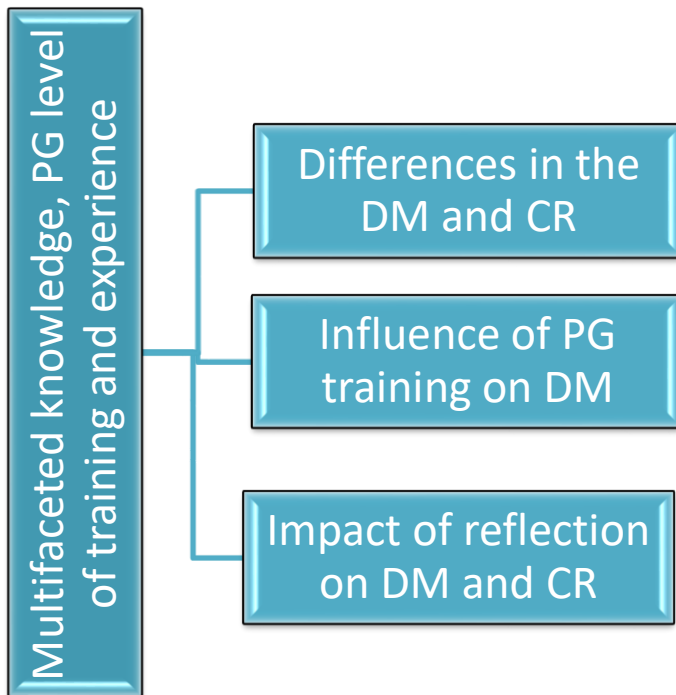
Resources play a significant part in decision making and clinical reasoning process. The resources in the UK and KSA vary based on organisational and individual culture, clinical guidelines, and the severity of patients' conditions, as well as the need to establish rapport. The next sections consider pelvic health physiotherapist and patients' factors.

#### **4.6 Theme 2 – Pelvic health physiotherapist's factors**

Several physiotherapists-related factors were identified as influential to decision making and clinical reasoning when assessing and treating patients with UI, including (1) multifaceted knowledge based on postgraduate level of training and experience; and (2) emotional intelligence. These primary and secondary factors were explicitly discussed in the interviews and focus groups and are shown in Figure 4-3 below.

Figure 4-3: Factors influencing physiotherapists' decision making and clinical reasoning.

PG: postgraduate, DM: decision making, CR: clinical reasoning.



#### 4.6.1 Physiotherapists' multifaceted knowledge, training, and experiences

Despite the importance of this training, physiotherapists only commence training in this specialism at the PG level, even though physiotherapists acknowledged the significance of theoretical and practical knowledge. Within the literature and from the participants' responses it was clear that physiotherapists view their knowledge and experience as unique because of the sensitivity of the UI diagnosis, which can depend on several elements. This includes conceptualisation and implementation of EBP, and reflection-in action skills. Notably, participants from both countries reported that this results from their experience of doing postgraduate training; this means there may be differences in participants' decision making based on their levels of experience and PG training. This will be explored in detail in the next section. A description of each category and subcategory along with relevant exemplar quotes are listed in Table 4.8 below.



Table 4-8: Theme includes physiotherapists' factors, with a category on physiotherapist's multifaceted knowledge, training and experiences<sup>8</sup>

Category	Subcategories	Quotes
<p><b>Physiotherapist's multifaceted knowledge, training and experiences:</b> physiotherapists' knowledge and experience were unique because of the sensitivity of the diagnosis; it depends on an art of PHPT PG training, reflection skills and conceptualisation of EBP</p>	<p><b>Attending PGT:</b> gives novice physiotherapists confidence and advance her clinical reasoning skills.</p> <p><b>Expertise and decision making and clinical reasoning:</b> Expertise in physiotherapy is a combination of multi-faceted knowledge and the ability of the experienced physiotherapists to recall the similarities in patients' current situation compared with previous ones.</p>	<p><i><b>P11 KSA Novice physiotherapist's who attend PGT</b> "Attending advanced courses in pelvic rehabilitation, gave me the confidence of judgement, especially for POP and different level of pelvic floor muscle contraction."</i></p>
	<p><b>Conceptualisation of EBP</b></p>	<p><i><b>P10 UK (experienced mentor with PGT)</b> "I think we accept that's [EBP] not real in terms of what we do in clinical practice so actually the research is more substantial if you have someone [colleague] that's experienced doing a pragmatic approach with that patient."</i></p> <p><i><b>P9 KSA attended introductory PGT</b> "I started with pelvic floor muscle training and bladder re-training for 6 sessions, then I started posterior Tibial nerve stimulation for 12 sessions then biofeedback. I used articles to support my treatment plans"</i></p>

<sup>8</sup> P: Participants, FG: Focus Group, KSA: Kingdom of Saudi Arabia, UK: United Kingdom, PHPTs: Pelvic Health Physical Therapists, DM: Decision making, UI: Urinary incontinence, EBP: Evidence based practice, USA: United States of America, PGT: Post graduate training, POP: Pelvic Organ Prolapse, PFM: Pelvic Floor Muscle, PFMT: Pelvic Floor Muscle Training and CR: Clinical reasoning.

Category	Subcategories	Quotes
	<p><b>Influence of PG training on decision making</b></p>	<p><b>FG1 UK (P1)</b> "I think [that], in the UK, there's not much undergraduate training for pelvic health, so sometimes people come into your rotation, and they've actually never done anything. And it's from the professional guidelines from the Chartered Society of Physiotherapy that vaginal examination, it is a skill that is learned during postgraduate training".</p>
	<p><b>Hesitancy in decision making:</b> KSA physiotherapists who attended introductory PG courses and had minimal experience were quite hesitant to make decisions and usually referred patients for further investigation to overcome any uncertainties or to clarify the diagnosis.</p>	<p><b>P7 KSA</b> <i>"If the patient needs to do the urodynamic.... or to double-check the diagnosis, I will send the patient to the urology and suggested doing urodynamic study."</i></p>
	<p><b>UK physiotherapists confident in decision making:</b> UK participants were confident in making management decisions based on national clinical guidelines. These instilled them with confidence with regards to deciding on the appropriate management, number of sessions, possibilities of getting self-referral and progressing the treatment plan. They were also confident in saying they could not offer something else and discharge patients.</p>	<p><b>P4 UK</b> <i>"I am confident enough to say to the patient who is confusing me, this is a new one, and I have to go away and find a friend and come back to you."</i></p>
	<p><b>Impact of reflection on decision making and clinical reasoning:</b> differences between the UK and KSA participants' reflection levels</p>	<p><b>P1 UK</b> <i>"We do the practical [vaginal] examinations on each other so. It is that's a very personal experience, and you learn from reflecting on that with them."</i></p> <p><b>P10 KSA (attended PGT in the USA)</b> <i>"I am single, and It was kind</i></p>

Category	Subcategories	Quotes
		<i>of my colleague in the USA to let me do the practical [digital palpation] examinations on them”</i>

**4.6.1.1 Differences in the decision making and clinical reasoning capabilities of participants in relation to introductory and advanced post-graduate training and experiences**

All the participants in this study attended either introductory postgraduate (basic courses) or advanced PG courses in pelvic rehabilitation, with the majority from both countries holding postgraduate courses. A small number of participants from KSA attended introductory postgraduate courses only and had limited years of experience. It was evident from the participants’ responses that a combination of both factors, rather than a single factor, may have affected their decision making and clinical reasoning.

During both focus groups discussions, it was evident in terms of the group dynamics that novice physiotherapists were less confident about their decision making and clinical reasoning when compared to more experienced and senior colleagues. Physiotherapists from the UK and KSA with advanced experience, training, or a postgraduate certificate, such as an MSc or PhD, showed a deep understanding of pelvic health rehabilitation practice and were more able to articulate the factors they considered in decision making and clinical reasoning. In addition, an understanding of evidence-based practice (EBP) enabled them to overcome any uncertainties and influenced their daily clinical decisions. For example, a UK participant who attended several advanced postgraduate courses, and held a lead position, found that with experience and knowledge, she did not get stressed if she did not know something or was uncertain, and she felt confident in telling her patients that she had not come across this before Table 4.8.

The UK participants also reported that high quality research evidence to provide clear and pragmatic information on correct exercise intensity and the number of repetitions of exercise per day was limited, which may indicate that the available evidence is not applicable within clinical practice.

#### **4.6.1.2 Influence of postgraduate training on decision making**

Pelvic health physiotherapy is a rare speciality in both countries. In KSA, most of the physiotherapists were junior and lived in bigger cities. Some of the UK physiotherapists had many years of experiences with limited up-to-date postgraduate training. These participants might make their management decisions based on routine practice using previous experiences with similar cases. On the other hand, one of the novices KSA physiotherapists who attended advanced courses in the USA was very confident to talk about her patient and gave detailed assessment on pelvic floor muscle and Pelvic Organ Prolapse (POP). Another UK interviewee mentioned that attending postgraduate courses influenced her decision on the timing of digital palpation. Her tutor mentioned that doing digital palpation in the second session can help patients understand the reason for the examination, and as a result, the patient can be more prepared. This positively enhanced the practice in terms of patient experience and the clinic changed their policy to reflect this. It was clear that physiotherapists' level of postgraduate training influenced their level of knowledge and confidence in their decision making and clinical reasoning. Furthermore, participants suggested that advanced PG training played a more significant role than years of experience. EBP also played a significant role in physiotherapists' decision making and clinical reasoning, but participants from both countries questioned the applicability of it within clinical practice. Some KSA physiotherapists reported that their reason for using certain management decisions was because they were following highly available research evidence rather than following EBP, thus excluding their patients' opinion – a key component of EBP. Sackett *et al.* (1996) reported that EBP involves a combination of highly research evidence, with the health practitioners' experiences and patients' opinion, while some KSA physiotherapists stated that they did not consider patients' opinions.

#### **4.6.1.3 Impact of reflection on decision making and clinical reasoning**

The participating physiotherapists' reflection skills influenced their decision making and clinical reasoning processes. In the UK, participants reported performing vaginal assessments on each other in introductory or advanced postgraduate courses in pelvic health rehabilitation. This provided them with an opportunity to reflect on their experience, highlighting reflection as an important tool for learning and advancing knowledge, and in turn, affecting decision making. Despite this, the data from the current study suggested that

it is a combination of years of experience and postgraduate training that primarily affects decision making.

In contrast, KSA participants had limited access to advanced postgraduate courses in pelvic rehabilitation. This may be due to the nature of digital palpation itself or religious culture. Furthermore, it may be unacceptable for physiotherapists in KSA to practise on each other. This limits access to advanced postgraduate courses for KSA physiotherapists, as they are not provided with the opportunity to reflect on their skills, which in turn, may affect their decision making.

In summary, physiotherapists' knowledge, level of postgraduate training and years of experience play a vital role in their assessment and treatment decisions. It appeared that participants who attended advanced postgraduate courses and had vast clinical experience reported a deeper understanding of UI and engaged in reflective practice more than those who had not. There were differences between KSA and the UK when it came to decision making and clinical reasoning while managing patients with UI. This might be due to the level of postgraduate training, limited reflection skills, and individual or religious culture. Participants from both countries stated that they used readily available evidence to make decisions regarding treatment and to manage patients' conditions. The way they interpret the evidence, however, appeared to be somewhat different. As pelvic health physiotherapist is a relatively new speciality in the KSA, it is not surprising that they rely on evidence rather than clinical experience to make decisions. Very few KSA participants mentioned the importance of reflection, which may be due to the structure of their undergraduate training. In contrast, UK physiotherapists appeared to use their reflective skills, as well as clinical experience, and knowledge when making decisions.

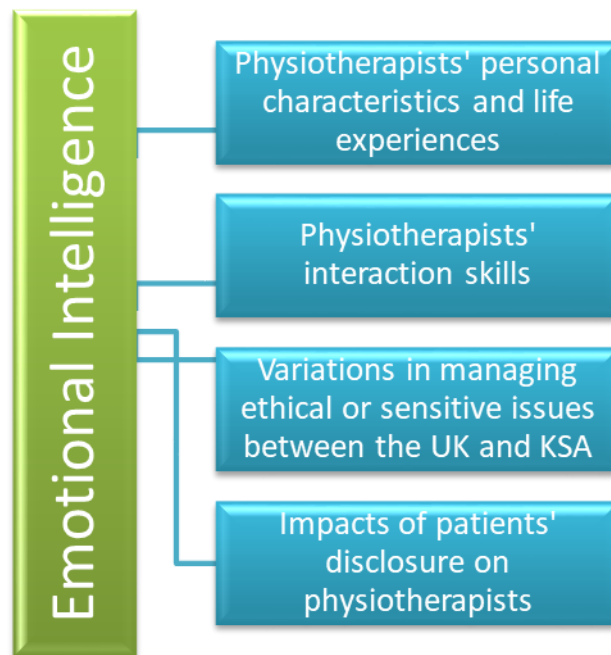
#### **4.6.2 Physiotherapists' Emotional Intelligence**

Participants from both countries showed emotional intelligence (EI), which might be related to their unique personal characteristics, life experience and level of postgraduate training. EI may include being empathetic and providing a safe environment that help patients to disclose ethical and sensitive issues (Marcum, 2013).

*PI UK “I think sometimes you just need to have a bit of empathy with people”*

The elements that demonstrate physiotherapists’ emotional intelligence and influence their ethical and sensitive decision making and clinical reasoning will be discussed in detail with the relevant quotes (Figure 4-4).

Figure 4-4: the elements that demonstrate physiotherapists’ emotional intelligence and influence their ethical and sensitive decision making and clinical reasoning



#### 4.6.2.1 Pelvic health physiotherapists’ personal characteristics and life experiences

According to physiotherapists emotions were a key part of decision making. Participants mentioned that their patients disclosed sensitive and ethical issues to them due to the amount of time spent with them (follow-up sessions can be up to thirty minutes in length), and due to personal characteristics. This includes EI, which can help to build trust and rapport, and differentiate them from physiotherapists in other areas of practice.

The longer duration of physiotherapy sessions enabled patients to disclose issues, such as faecal incontinence and sexual abuse, that they did not mention to the referring physician – perhaps due to embarrassment or the perception that it is unrelated. Participants stated that trust was important as some patients felt inadequate and were only able to talk about their problems with someone they trusted. For instance, one participant mentioned that her patient

had vaginismus, which is associated with UI. She had this problem for a long time, and the pelvic health physiotherapist was the first one to discover that sexual abuse was behind this problem. This suggests that physiotherapists' personal characteristics influence their decision making and clinical reasoning. The following section goes into more detail on the specific interaction skills used by physiotherapists and its significance for decision making and clinical reasoning.

#### **4.6.2.2 Pelvic health physiotherapists' interaction skills**

The participants used specific interaction skills to guide and teach patients. The uniqueness of pelvic floor muscle anatomy and function required participants to spend time in their first session with the patient, explaining the relationship between pelvic floor exercises and UI; this required unique communication skills due to the sensitivities of UI and the complexities of pelvic floor muscle, which are discussed in the following sections.

#### **4.6.2.3 Communication between physiotherapists and patients**

The majority of participants from both countries considered specific communication styles to be significant to decision making and clinical reasoning. In particular, it was essential to maintain eye contact and talk to the patient like a friend by considering the patient's emotions and using their own words. Several UK participants working in private NHS and government hospitals reported providing patients with their email address; in KSA, some participants provided 'professional' phone numbers to patients in order to enable patients to ask questions or report any concerns at a later date or between appointments. This facilitated an open line of communication.

#### **4.6.2.4 Complexity of pelvic floor muscles and lifestyle modification**

Participants from both countries commented that it was challenging to explain pelvic floor muscle exercises to patients, which differs quite significantly from MSK problems, as patients with urinary incontinence cannot observe the movements required. Patients might require several sessions, or they may need biofeedback or analogies and metaphors to explain the exercise adequately, especially with less educated patients or the elderly. These options entailed different forms of decision making and clinical reasoning, such as narrative reasoning.

From the focus groups discussions with the participants, it was clear that interpersonal skills played an essential part in physiotherapists' decision making and clinical reasoning. Specifically, participants reported that lifestyle modification helped their patients to follow healthy bladder behaviour, such as voiding time, frequency, healthy drinking, eating habits, in addition to addressing some wrong beliefs. Physiotherapists' ability to interact with patients to increase their understanding to contract pelvic floor muscles correctly as well as lifestyle modifications were reported to result in improved patient adherence and outcomes. Physiotherapists' unique communication and interaction skills allowed them to provide a personalised management plan, which in turn, affected their decision making and clinical reasoning processes.

### **4.6.2.5 Variations in managing ethical or sensitive issues between the UK and KSA**

Physiotherapists from both countries reported that their patients sometimes disclosed sensitive or ethical issues. It might have depended on physiotherapists' personal characteristics or hospital policy, which led to encourage or discourage patient disclosure. Some of the KSA participants reported that they did not encourage patients to talk about sensitive issues because they did not know how to handle it (Table 4.9).

Others did encourage patients to talk about sensitive topics. In the UK, participants had clear clinical pathways to manage ethical issues. In KSA, it varied from one hospital to another.

Most of the UK participants reported that they discussed the decision making and clinical reasoning of sensitive or ethical cases with a senior colleague or referred these to one of the safeguarding teams. In KSA, physiotherapists reported different decision making and clinical reasoning due to unclear clinical pathways to follow. KSA physiotherapists reported either referring the patient to a social worker or psychologist or signposting them to a domestic abuse hotline in line with the hospital policy. Other hospitals would require them, with the patient's permission, to document the incident and refer them to the emergency department. In KSA, patient resistance regarding disclosure was witnessed and could be due to cultural issues surrounding shame. This may be related to the fact that abuse can be considered to bring a family shame. Therefore, it is apparent that in the UK, physiotherapists had clear uniform clinical pathways to guide their decision making and clinical reasoning, whereas in KSA, physiotherapists had a lack of clear guidance, and they often had varied hospital policies, which in turn affected their decision making and clinical reasoning.



Participants from both countries mentioned that sometimes, patients did not like to formally document their problem in their medical file or share their issues with a professional body, such as their GP or the safeguard committees. This could be due to the nature of the problem; the victims could be worried that others would be influenced by it, and as a result they tried to hide the problem and suffer in silence. The difficulty in documenting ethical or sensitive issues, along with related pathological or psychological problems, could affect physiotherapists' decision making and clinical reasoning and may restrict their ability to work in multi-disciplinary teams. Participants from both countries were in contradiction regarding the influence of patients' sensitive and ethical stories on their own wellbeing and when making decisions. This will be explored in the next section.

Table 4-9: Theme involving pelvic health physiotherapists' factors/ Emotional intelligence and description of subcategories<sup>89</sup>

Category	Subcategories	Quotes
<p><b>Physiotherapists' Emotional Intelligence:</b> this may include being empathetic and providing a safe environment that help patients to disclose ethical and sensitive issues.</p>	<p><b>Physiotherapists' personal characteristics and life experiences:</b> a unique set of skills based on their experience and training, including: (1) tentativeness, (2) active listening, (3) empathy, (4) rapport building, and (5) providing a safe environment. Physiotherapists reported that these factors were influenced by their life experiences, such as their age, marital status, being pregnant or having children.</p>	<p><b>FG1 UK (P8)</b> <i>“You have to be open-minded and non-judgemental; the key difference is empathy, and you need the ability to communicate and not be embarrassed easily.”</i></p> <p><b>FG1 UK (P6)</b> <i>“I had an experience with the patient once who wouldn't do anything I said and she said, 'one day you'll know how I feel because you do not have had children'. And I said, well I have had children, I've got three of them. And suddenly, for her, she seemed to relax a bit and that made me more comfortable being around her.”</i></p>

<sup>9</sup> PHPTs: Pelvic Health Physiotherapists, FG: Focus Group, UK: United Kingdom, P: Participant, KSA: Kingdom of Saudi Arabia, PFMs: pelvic floor muscles

Category	Subcategories	Quotes
	<p><b>Differences between the UK and KSA:</b> KSA participants reported that patients might find it difficult to discuss sexual disorders with single physiotherapists. This was not an issue for participants in the UK. In the UK, older physiotherapists were more positively perceived by patients than younger physiotherapists.</p>	<p><b>P5 KSA</b> <i>“Patients might find it difficult to talk about their sex life, and the first question they would ask me was, whether I was married. If I said yes, they would feel comfortable enough to talk about their sex life.”</i></p> <p><b>P10 UK</b> <i>“One of my male patients said, ‘what is a lovely young lady like you doing putting your finger up men’s bottoms for a living?’ ”</i></p>

Category	Subcategories	Quotes
	<p><b>Physiotherapists' interaction skills:</b> Communication between physiotherapists and patients</p>	<p><b>P4 UK</b> "I rely on talking to them, hearing them and caring about them. I give them my email and work on my instinct rather than anything precise. Being interested in patients will validate their symptoms and make them feel differently."</p>
	<p><b>Complexity of PFMs and lifestyle modification:</b> It is difficult for patients to visualise PFMs.</p>	<p><i><b>FG1 KSA (P4)</b> "[A challenge is] educating patients on how to perform the exercises properly. In other specialities, you can show them how to do the exercises, but in our speciality, it is challenging to explain it to them. Therefore, it needs more than one session, and they might need to use a mirror or a finger as feedback".</i></p> <p><i><b>FG1 KSA (P2)</b>" I explained that their body is like a hammock and that they need to support it."</i></p> <p><i><b>FG1 KSA (P4)</b> "I told a patient that it is abnormal to go (to the toilet) during the night more than once because she was going three or four times. However, I found out that she was taking many fluids before bedtime. [Teaching patient lifestyle modification]."</i></p>

Category	Subcategories	Quotes
<p><b>Physiotherapists' Emotional Intelligence</b></p>	<p><b>Variations in managing ethical or sensitive issues between the UK and KSA</b></p>	<p><b>P1 KSA</b> "I never ask questions that I do not know what to do with their answer."</p>
	<p><b>Unclear clinical pathways to manage ethical or sensitive issues in KSA</b></p>	<p><b>FG1 KSA (P3)</b> <i>"We have committees for abuse, and there is a number in our hospital that you can use to contact them. I faced that once with my patient: her husband abused her, and I asked her whether she wanted me to deal with the problem. I said that I could give the social worker her number, but she refused...."</i></p> <p><b>P3 KSA</b> <i>"Patient said that she had been abused for 5 years old. She could not give detail because she is having many influences that would really put her in a big trouble if she talk about it. [Regarding documenting that] no, because I have not been allowed, I have not been given the permission from her side to talk about it."</i></p>
	<p><b>Using other colleagues to solve ethical dilemmas in the UK:</b> Using safeguarding teams and following a clinical pathway to manage these problems.</p>	<p><b>FG2 UK (P4)</b> <i>"There is an element of what happens in the room remains confidential in the notes. However, we also have a duty, and I think we are much more likely than any other physiotherapy group to be aware of that. We are the first protocol for that: for something like domestic abuse."</i></p>

Category	Subcategories	Quotes
	<p><b>Novice Physiotherapists and patient relationships:</b> KSA novice participants reported having a formal relationship with patients, rather than a mutual one. Furthermore, novice physiotherapists commented that they were concerned about patients sharing additional unrelated problems that fell outside of their practice.</p>	<p><i>P8 KSA “To follow my instructions, my exercise program, to ask and cooperate with me if she has something, to understand what I will do and why I will do that because understanding and being part of the treatment and then understanding what will happen and why we will do that, it is a main rule.”</i></p>
	<p><b>Impact of patient disclosure:</b> patients disclosed sensitive and ethical issues to physiotherapists due to different factors.</p>	<p><i>P10 UK “She disclosed that she had been used within a drug circle where she had grown up and her ex-husband had abused her .... she had never discussed it with anyone before.”</i></p>
	<p><b>Physiotherapists’ own wellbeing:</b> participants expressed intent to empathise with their patients, whilst at the same time trying to manage their own emotions and prevent emotional trauma. One participant described an experience with two known patients.</p>	<p><i>FG2 UK (P3) “It all became murky because I knew what was happening. Someone confessed it to me, and then I knew that the other one was being cheated on, and it was dreadful. People do say things that are sometimes intimate, and it can have an impact on us.”</i></p>

#### 4.6.2.6 Impacts of patient disclosure

This subcategory also includes consideration of how physiotherapists manage their own emotions. When participants were asked how they dealt with emotions after being exposed

to their patients' sensitive and ethical stories, most of the participants in KSA and in the first UK focus group said that keeping professional boundaries helped them to leave everything related to the patient at the clinic door. For example:

***FG1 UK Senior PHPT (P1)** "So if there is somebody who disclosed, sexual abuse to me, if I stopped and thought about it, yes, it could hugely impact on me. But if I know that I've been able to signpost them in and arrange for them to have some follow up contact that they've agreed to, I can close it off my perspective. Dealing with sort of the relationship between you and the patient would be the professional boundary. But in terms of us mentally, for me, personally, it gets left at the clinic door."*

In the first UK focus group, the participants appeared to show unanimous agreement with a more senior pelvic health physiotherapist in the group, who stated the importance of maintaining a professional distance. However, it was possible that participants may have held a different opinion but felt reluctant to raise this due to the circumstances and not wanting to disagree with a more senior pelvic health physiotherapist. The body language of some of the participants showed hesitancy to speak about this issue (for more information on the focus group homogeneity see Section 3.6.3. This hesitancy to admit the impact that patients' stories can have on them personally may have been due to a workforce dynamic with participants unwilling to disagree or show their vulnerability in front of a more senior pelvic health physiotherapist. Only a few experienced physiotherapists admitted that they were influenced by patients' emotional stories from the past when they were novices. They further explained that through experience they had become desensitised, so that hearing an emotional or sensitive story no longer affected them too greatly.

***FG1 UK (P3)** "It definitely gets easier. I find that at the start, it's very hard and it gets easier, I think once you get more experienced to kind of leave it at the door."*

However, in the second focus group, there were some conflicted opinions between physiotherapists with regards to the influence of patients' vulnerability on their own wellbeing and decision making. Some physiotherapists stated that they were affected by patients' disclosure. The quotes of the participants are listed in Table 4.9 above. Differences

in experience levels may explain the variation between participants in both countries; the lack of transparency from participants in the focus groups due to seniority issues may also play a role. These differences could be due to individual cultural issues in KSA in addition to the lack of clear and uniform clinical pathways. Participants who shared the effect of patients' disclosures on their personal or emotional life, highlighted the importance of formal and informal debriefing, which varied across the UK and maybe do not exist in KSA.

Most of the novice physiotherapists in both countries created professional boundaries to protect themselves from emotional distress and to ensure they had enough time in each session to treat and manage the patient. In the second UK focus group, participants admitted that patients' vulnerability could influence their own wellbeing, decision making and clinical reasoning.

This highlights that physiotherapists were not only doing cognitive work, but also doing personal work. More specifically, participants were required to think about how to manage the patient's emotions to help them achieve their own goals, while simultaneously managing their own feelings as well as the patient outcome targets. This could add additional pressure on physiotherapists to manage patients' time and caseload and may present challenges which in turn may impact physiotherapist decision making and clinical reasoning. In addition, it could influence the way physiotherapists strike a balance between being emotionally available to form a bond with patients that enables more effective treatment, and not taking too much of the emotional burden of patients on so that it negatively impacts on their own wellbeing, decision making and clinical reasoning.

Patients' different characteristics could also influence their relationship with physiotherapists and decision making; this will be discussed in the next section.

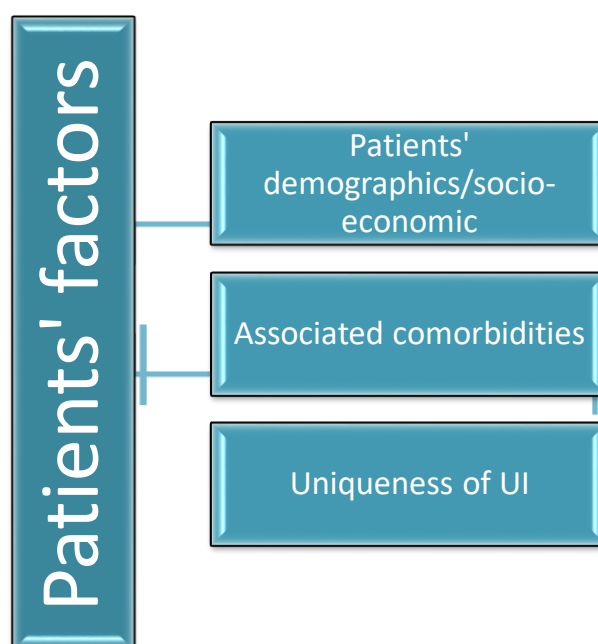
#### **4.7 Theme 3: Patients' factors**

The participants in the focus groups and interviews identified the effect of UI on the patients' lives and explained how this could influence their decision making and clinical reasoning. Although it would be preferable to ask patients with urinary incontinence for their opinions directly, it was challenging to recruit patients from KSA due to the

sensitivity of the UI topic. As a result, the patients' factors discussed in this study have been collected and are based on the reports and statements of physiotherapists and not patients themselves. Hence, the participating physiotherapists in both countries reported the effects of the patients' factors on their assessment and treatment decision. Physiotherapists reported that the patient's behaviour, beliefs, and characteristics are essential factors that can affect the physiotherapists' assessments, treatment decisions and actions. Patients' beliefs and behaviours were covered previously in the individual culture section 4.5.1.

Patients' factors that influence physiotherapists' decision making and clinical reasoning shown in Figure 4-5 varied depending on the patients' demographics, such as age and gender, as well as comorbidities associated with UI, such as diabetes and hip osteoarthritis. Additionally, patients' cognitive and psychological characteristics were also considered during decision making and clinical reasoning. Also, the participants in both countries mentioned the relationship between understanding patients' factors and projecting how those characteristics would influence UI management decisions. Physiotherapists stated that UI had unique features, such as chronicity, that required self-management and required patients' compliance with suggested daily activities, such as exercise and lifestyle modifications.

Figure 4-5: Patients' factors may include patients' demographics, associated morbidities, uniqueness of UI and socio-economic features





#### 4.7.1 Patients' demographics and socio-economic features

The participants from both countries mentioned that they treated patients with different demographics such as age, gender, married status, which could affect their decision to conduct a digital palpation. Socio-economic factors can also affect decision making and clinical reasoning, although this was mentioned specifically by the KSA participants. It was related to the variety of regions from which patients originated and included elderly people with low levels of education as well as more traditional and conservative values and beliefs. For instance, KSA physiotherapists mentioned the need to take into account within their clinical reasoning that they could only do external examinations to assess pelvic floor muscle contractions using specific bony landmarks on some elderly patients from rural areas. As a result, the participants tried to simplify the instructions to ensure that the patients understood them.

*P10 KSA 'I tried to simplify the instructions and encourage the patient to use their imagination when I prescribed the exercise, especially with the elderly'.*

#### 4.7.2 Acceptance of digital palpation

As mentioned, physiotherapists in KSA stated that some of their older patients from rural areas did not accept digital palpation and had low adherence to the management programmes. While some KSA physiotherapists chose to adopt a more prescriptive, less flexible approach, other physiotherapists accounted for these patients' factors within their clinical reasoning in order to provide alternative treatment options.

*P9 KSA "A very old woman from a village did not accept vaginal examination. Therefore, the social worker tried to help me by explaining the significance of vaginal examination to the patient, but she did not accept that. I gave her the exercises and I explained to her daughter to help her."*

In the UK, the participating physiotherapists showed awareness of the sensitivity and intimacy of digital palpation among Asian/Muslim patients, which affected their decision

making and clinical reasoning since they reported providing different management options.

*FG2 UK (P3) 'During the consent process, I talk to them and explain what we can do. It enables you to offer them a scan through the groin rather than the perineum, which means that they can keep their knickers on. Therefore, I do not think about it, and during the consent process, they can then change the treatment plan or assessment plan'.*

#### **4.7.3 Associated comorbidities**

Physiotherapists from both countries reported that some patients with associated problems, such as brain tumours, multiple sclerosis, and strokes, might need extra time to understand the physiotherapist's instructions due to cognitive problems, which were the results of the pathological deformities. In some instances, they also needed a family member or carer to assist them while doing their exercises. The participants sometimes used different tools to assess pelvic floor muscles while maintaining a safe environment for these types of patients.

*PI KSA 'My patient, was disoriented after a brain tumour. I decided to maintain this trustworthy and safe environment and spend more time with the patient to allow her to talk. I did not do the vaginal examination because that might make the patient feel unsafe'.*

Other physiotherapists from both countries reported that patients' psychological problems, such as depression, could influence their management decisions. One KSA participant reported that anti-depressant medications might contribute towards her patient's muscle weakness and her patient did not declare this until the last few sessions as a potential cause of limited improvement in pelvic floor muscles strength.

*KSA FG "One patient did not mention taking anti-depression medication until the 10th session, she just said, 'Oh I didn't improve. Unfortunately, it was not included in the electronic file system that she was taking those medication from [another] private clinic.'"*

Therefore, it is clear that when patients have a comorbidity it can affect physiotherapists' decision making and clinical reasoning.

#### 4.7.4 Uniqueness of urinary incontinence

Participants in both countries mentioned that UI required a commitment from patients for a long time to show improvements, but patients usually wanted quick results. They mentioned that UI is a recurrent problem and encouraged their patients to continue doing pelvic floor muscle training and follow a healthy lifestyle to avoid recurrence of UI. Hence, the method of communication of physiotherapists with their patients could be affected, which could impact on their decision making and clinical reasoning.

Furthermore, due to the chronicity of UI, physiotherapists from both countries reported that patients' anxiety and psychological symptoms usually increased their urgency and UUI. When they were asked about the significance of assessing psychological symptoms routinely and using validated outcome measures, some of the participants mentioned that it is highly important to know how psychological symptoms influence UI as it may affect their decision making and clinical reasoning. For example, they mentioned that working with psychologists in the same team would be beneficial for patients especially for those with sexual issues in addition to UI.

**P10 UK** *“in the waiting area there is a group of iPads and every patient that comes in will have to fill it in ... then that will come up on our system. .... we have an indication of how their psychological state is... .. I also think it's really important (to assess psychological state) with these patients that we're doing internal examinations on, some people are happy and used to them and some people really find it uncomfortable.”*

On the other hand, some physiotherapists from both countries reported that it was not their responsibility to assess psychological symptoms using validated outcome measures. But rather, they claimed that they relied on their experience to decide on the relationship and influence of psychological issues on UI. Then, they would refer the patient to a psychologist if needed.

**P6 KSA** *“I don’t confirm [psychological problems], it is not my job to do, but sometimes we notice some red flags like for example she is still repeating her birth story for example, I don’t know how to react to this unless that I try to tell that I understand and I can’t help them in the psychological part, only by referring them and that’s all.”*

Regardless of the method used to assess the impact of psychological issues on UI, either with validated outcome measures or through experience, it is clear that it affected their decision making and clinical reasoning because it was considered when making decisions about assessment and treatment.

In summary, it is clear from the participants’ responses that patients’ factors can influence physiotherapists’ decision making and clinical reasoning, and can be closely related to patients’ demographics, socio-economic factors, and biomedical problems such as cognitive and psychological levels, in addition to the unique features of UI disease. In KSA, physiotherapists may need to modify their decision making regarding management programmes due to different patients’ socio-economic and cultural factors.

#### **4.8 Summary of the findings of the factors that could influence physiotherapists’ decision making and clinical reasoning in the UK and KSA**

This chapter identified the factors relating to patients, individual physiotherapists, and the organisational/country-wide context that inform and influence the decisions and reasoning of physiotherapists. The impact of these factors on decision making and clinical reasoning varied slightly between the UK and KSA participants due to differences in the cultural and religious context, resources, organisational culture, patients’ characteristics, and physiotherapists’ training levels. Further factors that showed similarities and differences between the countries included patients’ demographics, socio-economic status, comorbidities and preferences for treatment options (for example, equipment versus exercise).

Culture was the biggest differentiation between the two countries. Religion played a key role that tied into traditions and norms to be respected in order for patients to adhere to

treatment. It is important however, not to single it out as a key determining factor in influencing decision making and clinical reasoning. The more diverse cultures in the UK throws up more challenges, such as language barriers and accessibility. Hierarchies within the organisational culture and lack of collaboration between multi-disciplinary teams were seen as more of a challenge in providing effective treatments to patients in KSA when compared to the UK.

It was challenging to separate these overlapping factors. This might be due to the methods of data collection that were used, i.e., semi-structured interviews and focus groups. Concurrent think-aloud interviews could have helped participants to recall data easily and could have decreased the possibility of mixing patients' data. However, in this study most of the interviews took place in the participant's clinic where they were able to access patients' files to remind themselves of details (while strictly maintaining patients' confidentiality), which negated concerns regarding recall. Nevertheless, there can be some limitations with using these data collection methods as it can cause this overlap between the factors and the model of decision making and clinical reasoning. This will be discussed further in the limitations outlined in Section 6.7.

The factors identified are broad and complex and clearly indicate that the decision extends beyond a biomedical understanding of the body, with reasoning influenced by patients, physiotherapists, and organisational factors. How these factors come together to generate a decision is explained in the next chapter.



## **Chapter 5 Theme 4: Making sense of physiotherapist's Decision making and Clinical Reasoning**

### **5.1 Introduction**

The previous chapter explored the factors that influenced and informed physiotherapists' clinical reasoning regarding patients with UI. The general physiotherapy literature tends to focus on the roles of decision making and clinical reasoning in i) confirming the diagnosis, ii) involving patients in the decision making aimed at improving patients' condition and iii) reducing diagnostic error. The accounts of physiotherapists suggest a somewhat different approach of decision making and clinical reasoning. A combination of factors help physiotherapists to come to a decision. Elements of clinical reasoning models are used, but sense making by (Weick, 1995) appears to provide a useful framework for understanding the overall clinical reasoning process. This chapter discusses the fourth theme: making sense of physiotherapists' decision making and clinical reasoning. It examines how sense making concepts provide a framework and presents vignettes to demonstrate 1) How different factors and clinical reasoning models were combined in different situations and 2) How the sense making process is used by physiotherapists to make and justify their decisions. The theme and categories as well as how participants used them during their decision making and clinical reasoning process are described in detail. Evidence for the interpretation is provided through real-life vignettes from individual interviews.

### **5.2 What is sense making?**

Sense making by Weick (1995), was described in Section 2.14.3. Sense making simply means the process of making sense of what is occurring. It is the human ability to retrospectively find patterns in the continual flow of clinical events that health practitioners experience daily in order to give those clinical events meaning (Dixon, 2003). The patterns clinicians identify are strongly affected by their experience and knowledge. Health practitioners do not make sense of events once only, but instead engage in a continuous revision of their understanding based on the interpretation of others (social

context) and on subsequent events (historical). To make sense is not to figure out the right or wrong answer, but to find a pattern that gives meaning to individual health practitioners or groups, reflecting in a manner that provides sense to what has happened as sensible (Dixon, 2003).

The seven properties of sense making defined by Weick and shown in Table 2-1 (Chapter 2) provide a framework for understanding the clinical reasoning process. Each property has practical implications for clinical reasoning, and incorporates action and context, which are vital aspects of sense making. All the properties can be represented as a sequence; people, concerned with identity in the context of others, engage in ongoing events. From these they extract cues and make plausible sense retrospectively, while, enacting more or less order to those ongoing events. This sequence is crude because it omits feedback loops, simultaneous processing and the fact that over time, some steps may drop out (Weick, 1995). In sense making, the ‘work’ of decision making and clinical reasoning is less of an individual cognitive activity, and more of a collection of individuals<sup>10</sup> carrying out components of that activity between themselves in a dynamic fashion (Weick, 1995). The next section explains and provides examples from the data of the seven properties.

### **5.3 Examples of how the seven properties of sense making constructs are used by physiotherapists, including quotes/ descriptions**

#### **5.3.1 Plausibility rather than accuracy**

The meaning of plausibility rather than accuracy is "in an equivocal, postmodern world, infused with the politics of interpretation and conflicting interests and inhabited by people with multiple shifting identities, an obsession with accuracy seems fruitless, and not of much practical help, either" Weick (1995 p.61) .Pelvic health physiotherapist clinical reasoning and decision making were based on an evaluation of ‘possibilities’ such as patient’s symptoms rather than accurate diagnosis.

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<sup>10</sup>Individuals: people who talk with each other about what is going on – the patient, consultant, peers – but also the collective imagined group of individuals whose judgement of ‘is this a good decision’ is part of the grounded in identity, in addition, to other properties of sense making.



*P12 UK “I, as a physio, treat symptoms. So, somebody can have whatever diagnosis somebody else wants to put on them. But I actually treat symptoms. So, if somebody comes with frequency, even in the absence of urodynamic tested overactive bladder, I will treat the symptoms, because that's considered to be problematic for the patient.”*

Most of the physiotherapists, in both countries, reported that their patients' psychological problems caused or increased the severity of UUI. They used their intuition to support their assumption of the existence of psychological problems. They mostly did not use a validated questionnaire to support their hypothesis. They were using plausibility rather than accuracy, such as pelvic health physiotherapist instinct or intuition, rather than questionnaires to validate their patient's psychological symptoms.

*P4 UK “It was probably an anxiety and behaviour-related overactive bladder. I know there is questionnaires but the time constraints.... I think I am generally quite good at picking up patients with these sorts of issue and different personalities. I rely on talking to them and hearing them and working on instinct in that case rather than anything more precise.”*

To summarise, physiotherapists used plausibility rather than accuracy to make sense of patient's UI problem. The participants from both countries were thinking about eliminating the suboptimal choices related to the assessment and treatment using patients' factors, organisational factors as well as their own experiences and knowledge. Sense making was not used to name a medical diagnosis but rather to guide the selection of assessment and treatment approaches (Weick, Sutcliffe and Obstfeld, 2005).

### **5.3.2 Social context**

Sense making is a social activity and the narratives are both individual and shared – an evolving product of conversation, reading and exchanging ideas with others (Currie and Brown, 2003).

In the case of physiotherapists, this included sharing the sense making with the patient. Most of the UK participants avoided imposing their values on their patients. P13 UK encouraged her patient to talk openly about the effect of UI on her life. She said that her patient's anxiety increased her UI symptoms, which in turn was very distressing and affecting her quality of life.

*P13 UK 'As an experienced therapist, you get quite a bit of an idea when you very first meet patients of how they interpret their individual situation....And my colleagues often laugh at me and say that I treat a lot more from the neck up than the waist down. And for a lot of it is giving people confidence because they have had that confidence completely knocked by this problem'.*

The participant was making sense of factors that were important to the patient during her conversation with the patient, i.e. social sense making. The participant used her emotional intelligence to gain the patient's trust and instil confidence in her to speak up. She also tried to reinforce positivity, motivate and empower her patient through conversation.

Most UK and KSA participants reported making conversation with their patients to establish rapport and provide them with a safe environment. In this way, physiotherapists make sense of the other factors that are related to bio-psychosocial issues and could influence their clinical reasoning and decision making.

*P6 KSA "I work on the biopsychosocial way because it is not just the physical and she is not just a cadaver, so I need to see her beliefs as well".*

In addition, physiotherapists sometimes have conversations with their multi-disciplinary team to make sense of a patient's problem and make joint decisions. Sense making is a social activity in that physiotherapists have conversation with patients and others in order to make consensual, joint decisions (Currie and Brown, 2003).

### **5.3.3 Extracted cues**

Participants extracted cues based on a patient's history in order to help them decide on what information is related and what explanations are suitable (Brown, Stacey and

Nandhakumar, 2008). Extracted cues provided a point of reference for physiotherapists, helping them to link ideas of meaning from broader networks (Weick, 1995).

P12 KSA felt that her patient's vaginal tissue did not stretch very well, and she used her experience and ability to recognise cues when considering the patient's complaints of general systematic problems; this led to a discovery of abnormal vaginal tissue. When the participant discussed these issues with the referring physician, he confirmed the same suspicions and did further tests that showed that the patient had cervical cancer.

*P12 KSA "The complicated part was whenever I asked her questions about general health or systematic conditions, she would give me pointers to tell me that there is something else going on. After I assessed her, I felt that there is something that did not feel right, that something did not feel right with her tissues. They did not stretch in the right way; they felt a little hard in certain areas, so I called the Uro-gynecologists and he said that he kind of has the same thing."*

Physiotherapists from both countries were extracting cues from the patient's history, main complaints and further tests to make sense of a patient's condition and to guide the clinical reasoning and decision making of UI managements.

#### **5.3.4 Ongoing**

'Ongoing' is constantly bracketing moments in the flow of life as we seek to reflect on and codify the meaning of things (Weick, 1995).

For example, P12 KSA used 'ongoing bracketing' of her patient's psychological and social issues by making sense of conversations with her patient and exchanging ideas regarding the best ways to implement changes in her patient's behaviour related to UI. For instance, she said that her patient wanted to continue her sunset family gathering that included drinking coffee (Chapter 4, Section 4.5.1.3). This is linked to the family-based culture in KSA, where families make mostly joint decisions. P12 KSA's awareness of her own family-centred care culture informed and shaped her clinical reasoning. However,

she did not force her patient to follow her recommendations; instead, she encouraged her patient to adopt the decision to incorporate pelvic floor muscles exercises and lifestyle modification into her daily routine. Thus, she applied ongoing bracketing to consider her patient's social, emotional, and environmental needs. This helped her to make sense of the best way to implement constant lifestyle changes. This approach allowed the patient to comply with the treatment programme later on.

Participants from both countries used ongoing sense making through constant bracketing of extracted cues. Participants observed their patients for few sessions. This in turn allowed them to constantly evaluate and update the treatment plan based on changes that occur in the patient's condition.

### 5.3.5 Enactment of environmental context

When people talk, and build narrative accounts, it helps them understand what they think, and predict events. This happens when deciding on a domain of activity and consequently taking action. In sense making, they create their own environment for future action (Weick, 1995).

One of the participants mentioned that she received many self-referrals. It was therefore essential for her to rule out serious problems such as cauda equina.

*P3 UK "I go on courses, and I say, what about red flags and what about cauda equina patients that you might see. I have to think about that kind of stuff all the time because we are the first line. People are self-referring, and they are saying, I have found a lump. It could be a simple [prolapse]. It could be something not simple at all."*

The UK pelvic health physiotherapists understood the responsibilities of her environmental context of being the first point of contact as a health practitioner who is managing patients with urinary incontinence. This narrative helped her to predict that patients might have serious issues (or not). This meant she recognised the importance of using ultrasound in order to help her to rule out red flags and take relevant action. Most of

the physiotherapists from both countries were making sense of the environment, and then taking action.

### 5.3.6 Retrospective

A retrospective view affects what people notice and decide (Dunford and Jones, 2000). Physiotherapists were making sense of patients' data by asking about their main complaints, aggravating factors, and past medical history. Going back in time helped physiotherapists notice the pattern of the disease and guide the management decision.

One of the participants reported that her patient was worried about having serious medical problems, which, in her view, may have led to UI. When the physiotherapist dug deeper, and gained the patient's trust and confidence, the patient reported that her best friend died from bowel cancer. She was therefore worried that she might have the same problem. The discussion between the physiotherapist and her patient as well as a retrospective view on the patient's medical history helped her to understand the reason for the low score in the quality of life questionnaire.

*P7 UK "A friend of hers had died recently from cancer and so it transpired that she was very anxious that she might be riddled with cancer. She was insightful to say that she feels that she is hyper alert to her bladder and her back pain. She was probably lonely. All her children have not long left home. So, it felt like I was somebody that she wanted to talk to. That also maybe explain why she got in the Quality-of-Life Questionnaire 12 out of 21."*

Physiotherapists from both countries used retrospective sense making of their patients' problems. This included understanding patients' previous psychological issues, injuries and lifestyles, which may be the predisposing factors that increase severity of UI. Where a previous experience was relevant, physiotherapists incorporated this into their sense making of UI problems and management decisions.

### 5.3.7 Identity

“Who are the sense makers? In addition, how do they interpret events?” (Weick, Sutcliffe and Obstfeld, 2005). “From the perspective of sense making, who we think we are (identity) as organisational actors, shapes what we enact and how we interpret. This affects what outsiders think of us (image) and how they treat us, which stabilises or destroys our identity” (Gilliland and Day, 1999 p.334).

Physiotherapists from both countries reported a clear sense of their collective identity; and a recognition that they have special characteristics that differentiate them from other physiotherapy specialities, i.e., they are dealing with intimate body part and sensitive issues. They have learnt to show empathy, establish rapport and be active listeners. Their emotional intelligence helps them to gain patients’ trust and confidence, which is important for providing patients with a safe environment to talk about personal and sensitive issues such as faecal incontinence and sexual problems. The identity of KSA physiotherapists was clear due to the differences in different organisational cultures. For instance, participants working in military hospitals were quite firm and followed their hospital guidance even if it was against patients’ preferences. While other participants in the university hospitals opted for external assessment if patients did not accept vaginal examination. The hospital policies shaped their identity and practices.

Participants from both countries explained how their identity as physiotherapists helped them make sense of patients’ factors and handle the sensitivity of UI appropriately. Their unique characteristics and above-mentioned traits helped them create a safe environment for patients to talk openly and influenced their management decision.

The preceding sections have defined the different properties of sense making and provided evidence of the participants’ clinical reasoning and decision making demonstrating these properties. The participants’ clinical reasoning showed all or some of the properties of sense making. Vignettes will be used in the following sections to demonstrate the processes of sense making.

#### **5.4 Vignettes to demonstrate physiotherapists clinical reasoning using sense making processes**

Sense making serves as a framework for showing physiotherapists' approaches to clinical reasoning and decision making regarding patients with UI. These vignettes may include patients' background, key influencing factors, clinical reasoning models and how the decision was reached (sense making process). These vignettes are used to clearly demonstrate different properties of sense making, and to show how factors (from Themes 1-3) and other clinical reasoning models combined, are used in sense making. The sense making properties are demonstrated in italics. The vignettes presented are a mixture of both typical and complex cases. However, it is uncommon to have a typical and straightforward case in the pelvic health physiotherapy clinics.

**5.4.1 Vignette 1: Sense making to overcome uncertainty and ambiguity - Social, retrospective and plausibility rather than accuracy <sup>11</sup>**

P1 KSA with a post-graduate certificate in women's health and continence care.

**Overview** of the case (paraphrased account from the physiotherapist's perspective)

X is a 56-year-old patient. Referred with MUI. She had surgical removal of brain tumour a few months ago. She was under urinary catheterisation at hospital and had been discharged with a continence product. She did not acknowledge the problem of MUI when she attended her physiotherapy session and she thought that the brain tumour was more serious than incontinence. She was wearing the continence product during the session. It was challenging to communicate with her and understand her main problems; her family carer was not sure about her physical and mental abilities. The medical file did not cover cognitive impairment or limited mobility as a reason of MUI.

The treatment decision: Follow-up for more than four sessions to ensure adherence to general upper and lower limb exercises and bladder training. Discussion of the treatment plan with the referring physician, and suggestion to the patient to have Botox injection in the bladder

**Theme 1-3 factors: the key influencing factors**

**Patient's factors:** Multiple co-morbidities such as progressive loss of vision, obesity, limited mobility, unaware about her condition due to mild disorientation and health illiteracy. She was living with a family carer at her home.

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<sup>11</sup> MUI: Mixed urinary incontinence, P: Participants, KSA: Kingdome of Saudi Arabia



**Continue Vignette 1/ Theme 1-3 factors: the key influencing factors**

**Organisational culture:**

Limited teamwork because P1 KSA was trying to communicate with the referring urologist and he was not sure about the main reason of MUI. Neither he nor the neurosurgeon were able to report on patient's cognitive level. The information was not clear in the patient's medical file.

**Pelvic health physiotherapist's knowledge, experience and personal characteristics:**

P1 KSA tried to simplify the instructions and treat the patient as a neurological case rather than urology specific. Her goal was improved mobility, fall prevention, bladder training and scheduled voiding every 2 to 3 hours. Her patient liked the gym and the social environment that is missing at her home; P1 KSA tried to build trust and good relations with her patient. Attending the gym improved her patient's adherence to attendance and gave P1 KSA a chance to make sure she understood the bladder training. The participant also encouraged her to use poem recital as an urge suppression technique and recommended lifestyle modification. P1 KSA would have liked to integrate cognitive behavioural therapy but did not have enough training and knowledge to do that.

**How the physiotherapist reached the management decision?**

P1 KSA used analytical, narrative and bio-psychosocial model.

**Analytical:** P1 KSA was collecting all the available cues such as patient's disorientation, MUI mainly urge, patient's main priority, which was mobility rather than UI, to make sense of the reasons for UI and to help the patient.

**Narrative:** The participant took the patient to the gym to see how significant exercise could improve mobility by letting the patient observe other patients and helping her visualise her own success story if she were to adhere to the exercise programme.

**Bio-psychosocial model:** P1 KSA avoided doing digital palpation because of the patient's cognitive level and ability to give full consent, thus providing the patient with a safe environment. The participant did not like to break the trustful relationship with her patient by using digital palpation. P1 KSA treated her patient from head to toe and did not concentrate on the MUI only. She figured out that her patient liked the gym as this gave her a chance to improve her mobility and see other patients there.

### 5.4.2 Sense making process

This vignette demonstrates the participant's uncertainty and *ambiguity* about her patient's medical condition.

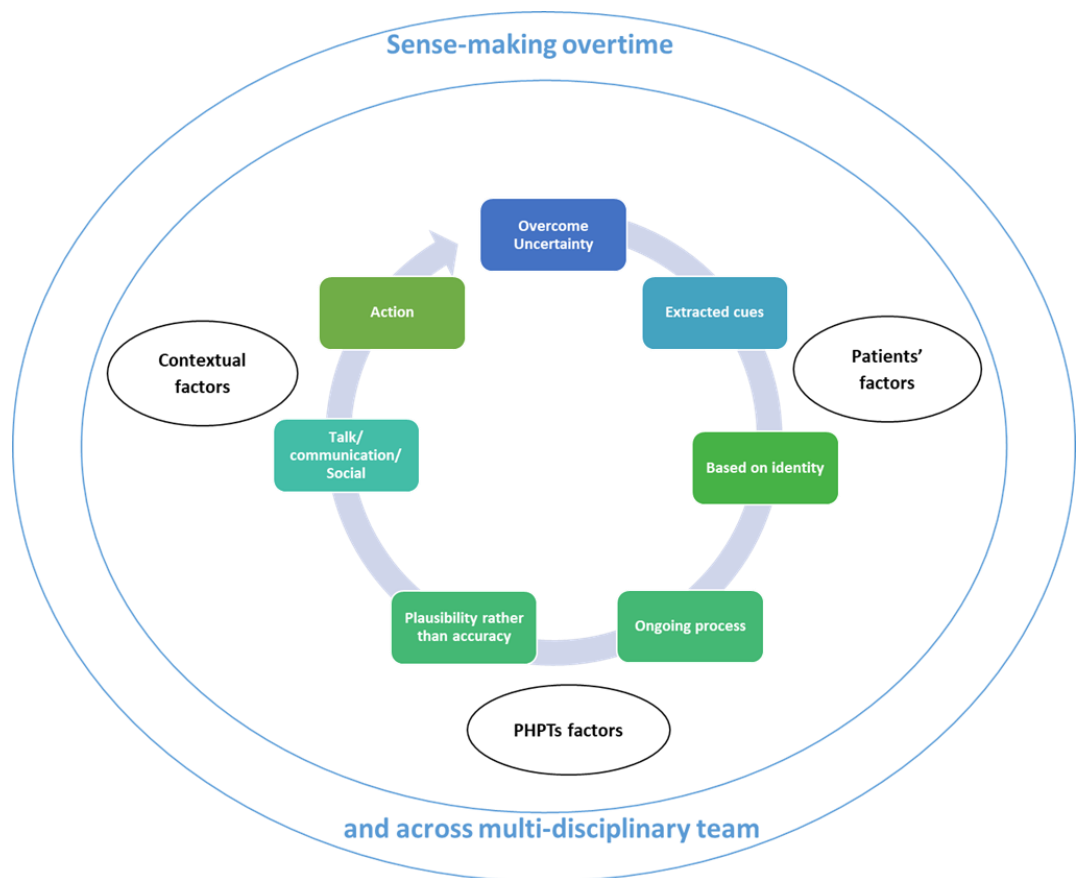
The features of *social, and plausibility rather than accuracy* in sense making were observed in this case. These helped to overcome uncertainty, in addition to different factors, such as patient, pelvic health physiotherapist and contextual factors. Figure 5-1 illustrates the process of sense making using different properties in addition to the factors that influenced physiotherapists' decision making. This will be discussed in detail in the following sub-section:

#### 5.4.2.1 Social context

Social sense making in the above vignette is about talking to patients and making sure the female patient understood the urge suppression technique using poetry recital or other methods from the patient's own culture. Further, the participant supported her patient socially and emotionally by letting her use the gym, which the participant knew motivated her patient to move and exercise. Although the patient was keen to go to the toilet to empty her bowel for cleanliness and prayer reasons, she was unable to do so independently. Her incontinence was partly caused by her immobility; the pelvic health physiotherapists understood that this needed to be treated as well as the direct urinary symptoms. Ongoing interaction (see Figure 5-1) between the patient and the physiotherapist provided an opportunity, over time, to understand the patient's needs, overcome ambiguity, and provide individualised care. However, the physiotherapist was still uncertain how to best manage MUI.

Figure 5-1: this is a pictorial image of what is going on: Sense making process using different proprieties of sense making that include extracted cues, and identity.

It is an ongoing process and based on plausibility rather than accuracy, where social communication is circular and leads to an action. Through sense making, decision making is seen as the result of an interplay between pelvic health physiotherapist perception, patient and contextual factors where decisions occur over time to overcome ambiguity, through a process of multiple interactions (Goodwin, 2014).



#### 5.4.2.2 Plausibility rather than accuracy (Figure 5-1)

The physiotherapists used analytical, narrative and bio-psychological clinical reasoning. She eliminated the sub-optimal choices by making sense of her patient’s cognitive level, psychosocial needs, and approach to managing UI –though she was uncertain about the cause of UI. Analysing the case was therefore not enough; yet, making sense of organisational culture, she reported limited communication between multi-disciplinary

teams. The culture within the organisation was divided, with physicians often having a hierarchical relationship with other health practitioners (Weick *et al.*, 2004). She made the decision to discuss the case with the urologist and suggested that the patient might benefit from Botox injection. In this way, the physiotherapist was making sense of the patient's factors as well as individual and organisational culture to overcome uncertainty and make management decisions.

This is an example where the physiotherapist used plausibility rather than accuracy, highlighting that in sense making there is no one right or accurate answer. P1 KSA considered improving the patient's mobility as it was considered an indirect cause for UI. This decision, though perhaps not the ultimate one, made sense of the patient's factors (i.e., disorientation, limited mobility) as well as organisational and individual culture. This in turn led to plausibility in decision making rather than accuracy. For instance, the choice to improve the patient's mobility and encourage bladder training is the result of identifying the patient's priority instead of focusing on managing the UI only. Further, by sharing the decision with the referring physician (organisational culture) a joint decision was made to provide the patient with Botox injection to control UI.

In summary, this vignette (1) demonstrates how the participant overcame uncertainty using the properties of sense making, particularly plausibility and social cues. Rather than just using the diagnosis and proceeding with digital palpation, the participant used sense making of the patient's factors. The participant's acute awareness of the limitations of her organisation's culture, i.e., poor communication among multi-disciplinary teams meant that she used plausibility to recognise these shortcomings and focussed on treating the symptoms rather than merely the diagnosis. The clinical reasoning and decision making of physiotherapists is a process of sense making where both the decisions undertaken (to gather cues and test them) and the process of clinical reasoning are not only individual but also context-dependent (Weick *et al.*, 2004). The second vignette will show another property of sense making.

#### 5.4.3 Vignette 2: Properties of sense making: Extracted cues, 'social' and 'grounded in identity' <sup>12</sup>

P10 UK with a post-graduate certificate in women's health and continence care.

**Overview** of the case (paraphrased account from the physiotherapist's perspective)

The patient was referred by the urologist who had done many urodynamic studies and flow rate tests; the result had been normal so the diagnosis was a functional voiding problem. The patient seemed a bit nervous when she first saw P10 UK who went through the urodynamic assessment report and said: "There's nothing they can see that is blocking you voiding, so the reason they have sent you here is that they think it might be to do with increased tension in your muscles, which are not relaxing for you to go for a wee,"

The PHPT asked the patient whether there was anything that she thought contributed to the issue, i.e. "Do you suffer from any stresses or anxieties? Have you had any bad experiences before?" In response, the patient revealed a long, complicated history ... she had been used within a drug circle...where she grew up, she has had an abusive ex-husband, though she is now in a more stable relationship. She also was not sure about her sexuality, but had never discussed it with anyone.

**The treatment decision:** P10 UK spoke to the patient about voiding techniques and positions, as well as about breathing and relaxing into her pelvic floor. After a few sessions, the PHPT managed to build rapport with the patient, who agreed for the PHPT to write to her GP and the urologist, and seek referral to a psychologist regarding her sexual abuse.

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<sup>12</sup> P: Participant, UK: United Kingdom, PHPT: Pelvic Health Physiotherapist, GP: General Practitioner

**Continue Vignette 2/ Theme 1-3 factors: the key influencing factors**

**Patient's factors:** Had a psychological problem because of sexual abuse. This factor contributed to developing tension in PFMs and functional UI.

**Organisational culture:** Patient was exposed to many urodynamic tests and no one asked her if she had any history of sexual problems. The focus had been on physiology and no one had undertaken a broader, holistic assessment.

**PHPT's factors:** PHPTs required many sessions to build rapport, then referred the patient to a counsellor.

**P10 UK:** *"We're compassionate and we listen but we don't have the skills specifically to know how to support that patient [psychologically]"*

**PHPT's knowledge, experience and personal characteristics:** PHPT related her patient's PFMs tension to anxiety and stress. She had the emotional intelligence (EI) to build a sensitive rapport with the patient, which allowed the patient to disclose the reason for her tension in PFMs, which she had not disclosed to other health professionals.

**How the physiotherapist reached the management decision?**

P10 UK used bio-psychosocial and ethical reasoning. The physiotherapist explained: "the patient cried a lot the first time we spoke, and then she said that she never wanted a vaginal examination, which was fine. She came back, she was better, and she was like 'I think I just need to talk about it.' P10 UK asked her to tell the GP but she said no. The patient needed professional help from a counsellor who could understand the complexities of how this problem might affect her in the future. P10 UK eventually managed to build rapport with her after a few sessions and told her "Look, are you sure you don't think speaking to someone professionally will be of more help?" Eventually she agreed for the physiotherapist to write to her GP.

#### **5.4.4 Sense making process**

This vignette demonstrates participant's (pelvic health physiotherapists) uncertainty about the reasons for the patient's pelvic floor muscles tension.

*The features of extracted cues, social and grounded with identity were observed in this case (Figure 5-1). The definition of each property is in Table 2-1. The participant's use of the proprieties of sense making in her decision making will be discussed in detail in the following section.*

##### **5.4.4.1 Extracted cues (Figure 5-1)**

Extracted cues are derived from actions around us, we tend to bracket and extract certain elements, which become the targets of the sense making process (Weick, 1995).

Weick and colleagues (2005) argue that the first question of sense making is "what is going on here?" (Weick, Sutcliffe and Obstfeld, 2005). During routine assessments, the pelvic health physiotherapist noticed a range of different cues such as the patient's low mood, pelvic floor muscle tension, a negative result from all the urodynamic procedures, and the fact that something was still missing.

She used 'noticing and bracketing', an initial state of sense making. In this context, sense making means "inventing an interpretation for something that has occurred but is not yet identified, has never been recognised as a separate process, event" (Magala, 1997 p.324). The mental models she had gained through training, life and work experiences guided the physiotherapist's bracketing and noticing (Weick, Sutcliffe and Obstfeld, 2005). Such mental models might be elicited by her patient's low mood and pelvic floor muscle tension that allowed her to notice and make sense of her patient's condition. Sense making is about assumptions (Weick, Sutcliffe and Obstfeld, 2005). P10 UK asked herself what was going on, she assumed that there was something missing which could be the reason for pelvic floor muscles tension. She explicitly stated:

**P10 UK** *“What if I’m missing something? Or she is of low mood? I think I pick up cues.”*

#### 5.4.4.2 Social (Figure 5-1)

The ‘social’ property of sense making primarily considers it an introspective, intrapsychic process. Making sense of things while in conversation with others, reading and exchanging ideas with others (Weick, 1995).

The P10 UK’s sense making was influenced by various social factors. The social factors may include previous discussions with the physiotherapist’s colleagues about the patient’s concerns, making sense of it collaboratively. For example, the physiotherapist in the above vignette was aware of the Organisational culture in the UK and the responsibilities of the GP, which includes referral for psychological treatment. P10 UK understood the importance of distributing medical sense making across the multidisciplinary team, i.e., if knowledge about the cause of UI unfolds and is documented in the medical file, then knowledge of this unfolding event does not just stay in the head of the physiotherapist. Instead, the knowledge becomes located system-wide, and understood by interdependent healthcare professionals. This in turn can influence future sense making (Weick, 1995).

The other important question of sense making is “what do I do next?” (Weick, Sutcliffe and Obstfeld, 2005). This question is about action, as is shown in this vignette, where the physiotherapist’s intuition is interwoven with the essential task of encouraging the patient to agree to document the sensitive issue so that the physiotherapist can take action. The conversation leads to a continuous, iteratively developed, shared understanding with the physiotherapist’s colleagues. This means that discussions with the patient can then lead to action, demonstrated by the “documentation to GP” which is part of organisational action. In sense making, talks and actions are treated as a cyclical sequence – occurring in both early and later stages. Action occurs continuously in sense making until talk brackets it and gives it some meaning (Weick, Sutcliffe and Obstfeld, 2005). Healthcare sense making is a way of thinking that occurs through conversation in the medical world as it is related to the physiotherapist’s knowledge and techniques. When facing routine cases, it is sufficient for physiotherapists to use their knowledge to interpret these; however, when



confronted with uncertainties, i.e., complex, unusual cases, the physiotherapist may require new interpretations. These truths of the moment develop and take shape over time. It becomes increasingly evident that the changes that were correct “back then” are incorrect actions “now” (Weick, Sutcliffe and Obstfeld, 2005). The close fit between processes of organising and processes of sense making illustrates the recurring argument that people organise to make sense of equivocal inputs and enact this sense back into the world to make that world more orderly (Weick, 1969 p.40-42).

The patient in Vignette 2 went through invasive urodynamic procedures that were all negative” back then”, but no one had asked her before if she had sexual problems that might affect the decision to undergo urodynamic tests.

*P10 UK “no one had asked her in urology. She had all invasive tests that she was quite traumatised by, and they were all negative,”*

#### **5.4.4.3 Grounded in identity**

Identity in sense making is the process of figuring out what is going on as a product of, and a process based on who the sense maker is and is becoming (Weick, 1995).

P10 UK was able to gain her patient’s trust and confidence. She reported that some physiotherapists are better at this than others are.

*P10 UK “Pelvic health physiotherapists feel qualified to decide on psychological issues. I think some of us are better at it [addressing psychological issues] than others just depending on your personality and ability to gain patient trust as well.”*

The physiotherapist acted as part of her organisation, i.e., physiotherapy department, and this shaped how she enacts and interprets what her patient thinks and how they react during the treatment session. The physiotherapist’s personal characteristics created an image in

front of her patient, which established her identity as a trustworthy professional, who demonstrated high emotional intelligence.

In contrast, some of the KSA physiotherapists mentioned that they do not have clear guidance in their organisation in terms of ethical or sensitive issues. This meant they avoided asking sensitive questions that could lead to disclosure of sensitive issues, indicating that their organisation and the culture within it shaped their identity and their sense making.

*PI KSA “I avoid asking questions that I don’t know what to do with their answers; if there is, for example, sexual abuse, then what’s the next step? If they talk, I listen, but I never ask questions.”*

Sense making, filtered through issues of identity, is shaped by the recipe “how can I know who we are becoming until I see what they say and do with our actions?”(Weick, Sutcliffe and Obstfeld, 2005 p.416). The patient had gone through different investigations to determine the cause of her UI; no one asked her if she had sexual problems. The pelvic health physiotherapist participant was the only one who discovered this problem. She was making sense of the cues that she extracted from her patients’ low mood, the Organisational action and the importance of communication with the GP in order to understand the patient’s problem. This process of sense making was ongoing, and influenced by the physiotherapist’s identity, which was shaped by emotional intelligence, and clear clinical pathway in managing ethical issues, that encouraged the patient to document the contributing factors to pelvic floor muscles tension. This action helped the patient to get the treatment she required.

In summary, this vignette (2) highlights how the pelvic floor muscle training used sense making properties to reduce diagnostic ambiguity, notably by adopting the sense making properties of ‘extracted cues’, ‘social’ and ‘grounded in identity’. Rather than just relying on the referral by the urologist and the multiple urodynamic tests, which revealed the tensions in pelvic floor muscle, the participant applied sense making to understand the underlying issues. Instead of being content with improvements seen after a few sessions, the pelvic health physiotherapist in Vignette 2 used ‘extracted cues’ bracketing to build rapport with the patient and extracted social cues that pointed to deeper psychological

issues. These actions, on top of the participant's emotional intelligence and ability to successfully build a trustful relationship with her patient (grounded in identity), meant that the patient was able to open up, reveal her complicated sexual history and agree to be referred to receive further support.

#### 5.4.5 Vignette 3: Ongoing extracted cues, enactment of sensible environment and sense making process to overcome uncertainty and ambiguity<sup>13</sup>

P11 UK with a post-graduate certificate in women's health and continence care.

**Overview** of the case (paraphrased account from the physiotherapist's perspective)

This patient is 84-year-old; a widow with SUI, proven by urodynamic studies. She had complained of SUI for 15 years and it was self-managed while her husband was alive. Her symptoms increased after her husband died. She had two normal vaginal deliveries. The urodynamic study showed no evidence of urgency, UUI and detrusor muscle over activity. The urology surgeon offered a bulking agent, but the patient preferred to manage the problem conservatively as she did not want a general anaesthetic. She admitted to faecal incontinence that happened twice in the last year. She also reported constant seepage, i.e., leaking that she could not feel was happening until she stood up and saw her clothes were wet. In addition, she had bed-wetting (nocturnal enuresis) since her husband died. Perineal ultrasound revealed a poor PFM lift the first time; the patient performed it incorrectly, with her legs going up, her pelvis tipping back and little use of many accessory muscles. After helping the patient to calm down and instructing her to avoid moving her legs, she got a better result in ten seconds – though on the third one, she started moving her legs again.

**Treatment decision:** Perineal ultrasound as a biofeedback to do PFM exercise. In addition, advice was given to overcome faecal incontinence, which entailed starting to use public loos if needed to relieve herself and use of air fresheners to overcome embarrassment when using public loos.

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<sup>13</sup> P: Participant, UK: United Kingdom, SUI: Stress Urinary Incontinence, UUI: Urge Urinary Incontinence, nocturnal enuresis complaint of intermittent incontinence (wetting) that occurs during periods of sleep, NICE: National Institute for Health and Care Excellence guidelines. Knack: is part of functional PFM training.

**Continue vignette 3/ Theme 1-3 factors: the key influencing factors**

**Patient's factors:** An elderly woman who prefers conservative treatment. She is widowed but had been married for over 60 years. She is now on her own. There is probably some anxiety related to this.

**Organisational culture:** NICE guidelines were guiding PHPT's decision.

**Resources:** The treatment session took up to 30 minutes to encourage the patient to talk openly about her medical concerns and embarrassing issues such as faecal incontinence that she had never exposed to the doctor before. Perineal ultrasound is an option for the patient who do not prefer digital palpation.

**PHPT's knowledge, experience and personal characteristics:** Having a good grasp of evidence – based practice to overcome uncertainty. Patient came back to the second session and said that she was feeling much better: P11 UK "I am not sure if it is because of the talk with me or because of the knack."

**How the physiotherapist reached the management decision?**

**Analytical reasoning and pattern recognition**

P11 UK explained that "seepage had been due to some detrusor over activity. Therefore, P11 UK did not quite know why the patient was seeping when she was sitting still. **Pattern recognition:** It was clear that she had SUI when she coughed or sneezed. She was also wet, though the physiotherapist was unsure about that.

**Analytical reasoning:** The enuresis overnight could have been an open bladder neck at night that was working – she was losing quite a lot. Physiotherapist was not able to identify this without ambulatory urodynamic tests but did not want to put the patient through that. Therefore, the only test possible was to try some medications; that also applied to the enuresis at night. The faecal incontinence sounded like urgency faecal incontinence, lack of sensation and proprioception, not being present, all tied up with the anxiety about being out and not wanting to use a bathroom".

#### **5.4.5.1 Sense making process**

The above vignette demonstrated uncertainty about the cause of urine seepage.

The features of ongoing, based on extracted cues and enacting of sensible environment were observed in this case (Figure 5-1). The definition of each property is in Table 2-1. The participant's use of the sense making properties in her decision making will be discussed in detail in the following section.

#### **5.4.5.2 'Ongoing' and based on extracted cues**

The pelvic health physiotherapist undertook ongoing analysis of the patient's problems that included 'bracketing and noticing'. P11 UK expected the cause of seepage to be due to opening of the bladder neck and detrusor over activity. However, urodynamic tests did not prove that. The physiotherapist considered the use of ambulatory urodynamic to know the reason for seepage. However, she also considered her patient's age and decided not to put her through such an invasive procedure. This 'noticing and bracketing' is an emergent state of sense making (Weick, Sutcliffe and Obstfeld, 2005). In the context of sense making 'bracketing' means interpreting an occurrence that has happened to the patient but has not necessarily been identified or concretely determined yet. For example, in this instance, seepage with an unknown cause (Magala, 1997 p.324). The physiotherapist's 'noticing and bracketing' are guided by mental models that she has adopted throughout her life, work experience and training (Weick, Sutcliffe and Obstfeld, 2005). The combination of mental models and ongoing extracted cues drew her attention to seepage in addition to SUI, though she could not confirm this without invasive procedures.

#### **5.4.5.3 Enacting sensitive environment**

In sense making, they create their own environment for future action (Weick, 1995). The physiotherapist's thinking process attempted to unfold the cause of seepage through a series of approximations and interpretations. She was making sense by thinking, while also using her knowledge within a trusted framework (Weick, Sutcliffe and Obstfeld, 2005). Sense making is about continued analysis of an emerging narrative so that it becomes more inclusive and incorporates the emerging data. The physiotherapist used analytical tools to overcome uncertainty related to the cause of seepage, taking account of

her knowledge, experience and a good grasp of EBP. These tools helped her to make sense of the patient's problems by identifying the most plausible causes and line of action regarding the causes of seepage. In this way, she took account of the possible diagnosis whilst also minimising intrusive procedures. Consequently, the physiotherapist decided to start pelvic floor muscle trainings for three months, based on NICE guidelines, with the option of sending her patient back to the doctor to start medication or carry out ambulatory urodynamic studies, in case the patient's condition did not improve.

**P11 UK** *“the leakage when she sits down could be stress urinary incontinence due to an open bladder neck or it could be detrusor over activity, I wouldn't know that without ambulatory urodynamic, [but] wouldn't want to put her through that, so the only test would be to try some medication.”*

In summary, this Vignette further consolidates findings emerging from the first two vignettes, which both demonstrated the strong case for adopting sense making as a framework to explain physiotherapists' clinical reasoning and decision making. Vignette (3) reinforces the importance of 'ongoing' extracted cues to help overcome uncertainty in treating a patient's condition, using enacting of sensible environment to take an action in order to test her decision. In this vignette, the participant used continued conversations with the patient and extracted cues from the patient to understand the latter's embarrassment regarding her condition, including faecal incontinence, and reluctance to undergo invasive procedures. Incorporating these sense making properties helped the pelvic health physiotherapist to overcome some of the organisational barriers, to involve the patient in the decision making process and to suggest a multiple-step plan for treating the patient. Several options were providing, i.e., by suggesting starting with pelvic floor muscle training for a certain period, with the option of going back to the doctor to take medication if required.

To conclude physiotherapists, use sense making processes to overcome ambiguity: it starts with 'noticing and bracketing'; it is a combination of retrospective and prospective; it depends on assumptions to guide action; it is embedded in social, shared decisions; and it settles for plausibility (instead of accuracy). Answers to the question “what is the narrative?” arise from retrospective of past experiences, and conversation among multi-disciplinary teams who act on behalf of larger social divisions (Weick, Sutcliffe and

Obstfeld, 2005). Answers to the question “now what?” arise from assumptions about the future, articulation coexisting with action, and the patients’ cases that become clear with the unfolding of events (Weick, Sutcliffe and Obstfeld, 2005).

Sense making theory was used to interpret the participants’ thinking process. It was evident that physiotherapists were making sense of the different factors to make decisions.

However, organisational culture was a recurrent factor that shaped physiotherapists’ identity and guided their decision making. Discussions lead to continual understanding of sensitive issues, which is so central to organisational action (Weick, Sutcliffe and Obstfeld, 2005). In sense making, talks and actions are a cyclical process rather than a linear sequence. Both are significantly important and could occur early or late; action is a central factor in the understanding of sense making (Weick, Sutcliffe and Obstfeld, 2005).

Organisational cultures were different between the UK and KSA that may lead to the decision that sense making theory might not be enough to interpret the participants’ clinical reasoning and decision making. This point will be discussed in detail in the next chapter.





## Chapter 6 Discussion

### 6.1 What this research has identified

The aim of this study was to better understand the clinical reasoning and decision making processes of physiotherapists undertaking the assessment and treatment of women with UI in two countries. Models and theories provided useful tools to understand and explain clinical reasoning and decision making. Analysis of the data collected for this study revealed that commonly used clinical reasoning models such as pattern recognition, dual process and hypothetico-deductive (H-D) reasoning partially help to explain some of the participants' decision making and clinical reasoning processes. These models and theories were useful in part for understanding how physiotherapists attempted to make diagnoses and to decrease diagnostic error. However, they did not address many causes of the patient's problems and different factors, including individual and organisational cultures and sense making properties such as plausibility rather than accuracy and others. Further theoretical concepts and models were therefore explored in order to explain and interpret the findings; this included cultural humility and institutional logic, which were useful alongside sense making theory to understand the decision making and clinical reasoning processes of the UK and KSA physiotherapists who treat patients with urinary incontinence.

A novel finding of this research is that individual and organisational cultures were more influential in clinical reasoning than had previously been considered in the general physiotherapy clinical reasoning and decision making literature. This finding regarding the importance of individual and organisational cultures was made possible by comparing the UK and the KSA. National and regional identity as well as religion, shaped patients' individual culture in both countries, but there was also organisational or institutional culture that shaped the physiotherapist's identity and influenced how they made decisions in the face of uncertainty.

The arguments to support this assertion are laid out in this discussion in the following way. Firstly, the chapter reiterates how the study findings help to explain physiotherapists'

thinking processes and decision making compared to the available literature in clinical reasoning. Secondly, this chapter considers how institutional theory provides additional insight alongside sense making theory to explain how differences in institutions influence participants' sense making processes. Thirdly, comparing two different cultures provides an insight into the value of cultural humility theory alongside sense making theory. Finally, in order to understand how clinical reasoning happens in different settings it is critical to consider culture and institutional logic alongside sense making proprieties, which is discussed in detail later in this chapter.

## 6.2 Insufficiency of clinical reasoning models

This is the first study to the researcher's knowledge which explores the clinical reasoning process and decision making of physiotherapists while managing patients with UI in two different cultures. The available models and theories of clinical reasoning and decision making in physiotherapy helped to explain some of the physiotherapists' thinking processes. The participants in the current study reported using pattern recognition, biopsychosocial models, experience and their ability to treat patients holistically. This supports findings from previous studies exploring the process of clinical reasoning in out-patient musculoskeletal, neurological physiotherapy, and a recently published study in Australia and New Zealand exploring the attributes of physiotherapists (Edwards *et al.*, 2004a; Holdar, Wallin and Heiwe, 2013; Bernards *et al.*, 2014; Slade *et al.*, 2020; Brandt, 2021). The latter found that physiotherapists have special attributes that are important for being an expert continence clinician. For instance, high levels of research literacy and the ability to generate and translate research into practice; managing patient-centred care and consumer expectations; advanced clinical reasoning; participation in research teams; and highly developed inter-personal skills and mentorship.

However, these models did not fully describe the clinical reasoning processes; the findings of the current study suggest that the process of pelvic health physiotherapist clinical reasoning and decision making for patients with urinary incontinence does not appear to be following a solely cognitive model of clinical reasoning, carried out by physiotherapists and patients only. Instead, physiotherapists' reasoning and decisions around UI management need to acknowledge that UI management is carried out by a range of individuals over time within an organisational culture that is socially embedded (Weick, Sutcliffe and Obstfeld, 2005). For instance, the process of UI management took place in a

context which is dependent on effective communication; where the patient needs to be able to communicate their UI symptoms and where the physiotherapist is able to receive such communication. This provides particular difficulties for patients with a history of, for example, sexual abuse or co-morbidities, including immobility or vaginismus (in addition to UI). Depending on their level of impairment, they might be unable to communicate distress if this is not encouraged by physiotherapists. In this context, UI quality of life assessment tools, by themselves, did not appear to provide the type of information physiotherapists used in order to allow effective UI recognition and management. Rather, organisational, and individual context such as type of health care system, resources and culture were mediating factors in the recognition and management decision of UI. For instance, one of the UK participants reported that her patient who had tightness in pelvic floor muscles only admitted to sexual abuse after encouragement by the physiotherapist. This participant was ‘making sense’ of certain types of patients using cues such as the patient’s low mood to prompt her to encourage deeper discussions, which in turn led to the disclosure of sexual abuse. This physiotherapist was making sense of her organisational culture and policies. She was also aware that gaining the patient’s trust to document the sexual abuse incident is the only way to help the patient to get access to psychological support. It is clear that the discussion of sexual abuse was something that was personally, institutionally, and culturally acceptable to this physiotherapist and allowed her to better understand the UI problems and management.

Conversely, in KSA, some participants were reluctant to discuss sexual abuse with their patients because there were unclear clinical pathways and national clinical guidelines to follow. The culture in KSA is a collectivist one where ethical and sensitive issues are solved within a group rather than a higher authority (Rollston *et al.*, 2020). When they did discover an ethical issue, they reported uncertainties on how to make sense of that issue.

Given that clinical reasoning in physiotherapy seems to miss potentially important issues, like organisational and individual context, it is important to look at other models of reasoning and decision making that might be useful. One such model is sense making (Section 2.14.3), which is discussed in the next section.

### 6.2.1 Reworking of the physiotherapists' thinking processes: using sense making theory

The existing physiotherapy clinical reasoning literature concentrates on biomedical clinical reasoning models (Edwards *et al.*, 2004a; Croskerry, 2009b), in addition to limited clinical implementation of psychological and social parts of bio-psychosocial reasoning processes. This is supported by Brandt (2021), who explored the implication of bio-psychosocial models in physiotherapists while dealing with patients with pelvic floor disorders using a systematic search of the literature. The author found that most of the physiotherapist literature considers the biological effect of pelvic floor disorder rather than the psychosocial effect.

The theory of sense making offers a framework to help better understand the complexities and uncertainties of physiotherapists' clinical reasoning and decision making. The process of decision making is often characterised as plausible rather than accuracy-focussed, where knowledge and experience about the specific patient provide potential solutions to patients' problems, with physiotherapists trying different solutions until one appears to work (Dowding *et al.*, 2016). Many of these characteristics in the process of decision making can be found within the sense making theory by Weick (1995). It suggests that individuals use different properties of sense making to underline relevant cues and identify plausible goals. The participants in this study also mentioned using a "trial and error" approach when managing UI, using pelvic floor muscle training and bladder retraining as a way of seeing if UI symptoms improved and changing treatment plans if it did not work. This is supported by National Institute for Health and Care Excellence guidelines Smith *et al.* (2013); guideline (2021) and other international UI management guidelines by Bernards *et al.* (2014); Brandt (2021). It identified pelvic floor muscle training as the first line of treatment, followed by possible adjunct therapy, such as biofeedback, depending on pelvic floor muscle power. This could help increase motivation in the patient and consequent improvement of their UI symptoms (Abrams *et al.*, 2018; Peate, 2019). Sense making theory was used to interpret the participants' thinking processes: participants in this study overcame uncertainty by using plausibility and social cues, which are part of the properties of sense making, rather than just justifying the diagnosis and avoiding making diagnostic errors as suggested by dual process theory (Croskerry, 2009a), in addition, the classic decision making theory and dual-process section 2.13 were not appropriate because it could not be applied in people actual life (Huczynski and Buchanan, 2001).

Furthermore, the naturalistic decision making theory did not include different factors that could influence the decision making process, such as patients' social factors; because of that, it cannot help in interpreting the participant's clinical reasoning and decision making. As a result, it was clear that the participants used sense making of the patient's factors, organisational factors, as well as their own experiences and knowledge. Sense making theory, compared to other theories, was not used to name a medical condition but rather to guide the selection of assessment and treatment approaches (Weick et al., 2004).

Another property of sense making that was apparent from the findings in this study is cue acquisition. During the process of sense making, physiotherapists identified specific cues or pieces of information, which have been referred to by Weick, Sutcliffe and Obstfeld (2005) as noticing and bracketing. This involves the physiotherapists noticing small signs and singling out these signs for interpretation (bracketing), using mental models based on past experiences. This process might be cited as being similar to the process of the pattern recognition model; it is a model of clinical reasoning and thinking processes where physiotherapists use their knowledge and information extracted from patient presentations to make a clinical diagnosis. Miller, Rivett and Isles (2009p.29) defined pattern recognition as "patterns derived from experience with similar patients or conditions which form a prototype in a clinician's non-propositional knowledge base. The pattern is triggered when similar case features are confronted, and a hypothesis relating to the presenting case is consequently formed". Pattern recognition is a diagnostic clinical reasoning as supported by Edwards, Jones and Hillier (2006), associated with the term forwards reasoning as suggested by Higgs and Trede (2018) and refers to the movement from cues to the hypothesis.

However, sense making distinguishes itself through the focus of physiotherapists on past experience and mental models, which have been developed through the continual, iterative, shared understandings between physiotherapists within a particular organisational or social culture. Sense making is an ongoing process that depends on different properties; it is not only cue acquisition, but it is a combination of cue acquisition of the patient's signs and symptoms, social and psychological background, patients, and physiotherapist's identity (Weick, Sutcliffe and Obstfeld, 2005). It was apparent from the participants' statements that many physiotherapists in both the UK and KSA used cue recognition within their practice. This is a relevant finding because UI management is

about gathering information and adding meaning to this information (Brandt, 2021); cue acquisition is a way of doing this. It is a process of sense making where both the actions assumed, for example, to gather information and to perceive cues, and the process of interpretation is not only individual but also context dependent (Weick et al., 2004). This demonstrates the importance and significance of sense-making to physiotherapists' practice within various patients' contexts.

Through the lens of sense making, decision making is seen as the result of the interplay between pelvic health physiotherapist's cognition and the social/organisational context, where decisions occur over time, through multiple interactions across a number of individuals, such as multi-disciplinary teams (Goodwin, 2014). Probably, sense making may also occur during a single meeting between two people. In this approach, whether or not a physiotherapist identifies the cause of a patient's UI symptoms depends on the expectations and previous experiences of physiotherapists (through the development of patterns or mental models) and the social context of the environment within a specific organisational culture, as well as patterns of behaviour for when and how UI management occurs. The findings of this study, alongside other research, highlight the complexities and uncertainty that physiotherapists often face in attributing meaning to the information they find in patients with UI, which is where sense making properties, such as cue recognition and plausibility rather than accuracy, can help to overcome these uncertainties and address the complexities during decision making and clinical reasoning processes (Toye and Barker, 2020; Brandt, 2021). The participants' sense making of their patients with urinary incontinence psychological aspects is a good example to demonstrate the different properties of sense making. This will be explored next.

### **6.2.2 Treating from the neck up rather than the waist down: How the women's emotions and psychological state affect their bladder, and on a wider level, as a human being**

There is a relationship between psychological problems, the bladder and UI. There are clear biological reasons why emotions affect the bladder: through the sympathetic and parasympathetic control of micturition. For instance, the sensitive nature of certain body parts, the taboo around them and women's lives, particularly in Muslims culture, may all play into the causes and consequences of UI. There is a recognition in the literature of the importance of bio-psychosocial factors in clinical reasoning, but this appears much stronger in the current study than in the rest of the clinical reasoning literature.

In the current study physiotherapists reported that they carry special inter-personal characteristics, such as empathy, self-emotional expression and optimism; this is indicative of emotional intelligence (EI), as suggested by Bar-On and Parker (2000). It can be suggested that due to the personal and intimate nature of UI, physiotherapists have characteristics that differentiate them from other physiotherapy specialities, and which inherently shape their identity. This is in line with findings stated within the literature (Hall *et al.*, 2016; Cerderbom, Bjerk and Bergland, 2020). Exceptional communication skills that use cue acquisition can build trust and good relationships, which can help to create successful interactions, which in turn achieve better treatment outcomes and experiences.

Emotional intelligence is one of the key requirements to implement a bio-psychosocial approach; however, it is unclear how EI is applied within this approach. In the current study, participants were aware about the importance of EI in UI management, but it was unclear how they developed EI and if it varied between different institutions and cultures. Further studies are required to answer those questions. Physiotherapists' clinical reasoning models were found to be impacted by the individual and organisational culture and patients with urinary incontinence were often reliant on physiotherapists' ability to identify patients' behavioural characteristics that may indicate the presence of ethical or sensitive issues.

The physiotherapists in this study exhibited different degrees of emotional intelligence due to the sensitivity of their speciality. In this study, how emotional intelligence was expressed, varied between the UK and KSA participants due to different factors and may be directly related to the differences in organisational and individual cultures between the two countries.

Organisational routines of professional roles provide a framework within which sense making can occur. Using sense making theory is a step forward that helps better understand some of the complexities of physiotherapists' clinical reasoning and decision making. However, the limitation of sense making theory relates largely to its lack of ability to recognise the impact of an organisation on clinical reasoning and decision making, and on an individual's identity. This can be considered a limitation of sense making theory

because this theory tends to focus on micro-level actions, but organisational culture is not attributed to individuals only but also to institutional controls, organisational places, and traditions. For instance, some KSA participants followed their hospital policy rather than patients' preferences and decided to discharge their elderly and illiterate UI patients with pelvic floor muscle training only because they did not accept digital palpation.

On the other hand, some of the KSA participants were aware that their patients' culture is collectivist, as supported by Hofstede (2003). They, therefore, recognised that their culture depended on "in-group" decisions rather than individual decisions. As a result, some participants reported making their management decisions based on patients' family preferences to increase their adherence to pelvic floor muscle training. For instance, replacing coffee with a herbal warm drink to manage urgency and frequency while maintaining family gathering traditions as mentioned in Section 4.5.1.3 and Chapter 4.

Consequently, comparing clinical reasoning models and decision making processes between two different cultures and healthcare institutions required the addition of institutional theory in parallel to sense making theory to improve the understanding of physiotherapists' decision making and clinical reasoning (Goodwin, 2014; Cerderbom, Bjerk and Bergland, 2020), which will be explored in the subsequent section.

### **6.3 Institutional theory: how the differences between institutions influence decision making**

Sense making theory is useful but not sufficient in fully acknowledging the broader role of context and the influence of the organisation on clinical reasoning and decision making. It may be better understood by including institutional theory. The use of institutional theory 2.14.2, in addition to sense making, is important for interpreting the participants' findings in this study; it has been chosen because it has multiple logics and comparing physiotherapists' decision making and clinical reasoning in two different countries showed that different logics influence decision making. The organisational logics were not found in the other theories and explored in detail in section 2.14.2.

The KSA participants' sense making varied based on their organisational core characteristics and social categories, while the UK participants' identities were more



homogenous and based on national guidelines and institutional logics (of the NHS) that justify action. In KSA, the culture might be more homogenous (mostly based on one religion and minimal ethnic diversity). Nonetheless, KSA's institutional policy is heterogeneous and depends on multiple logics such as religion, hospital policy or the state and family. In contrast, in the UK, national guidelines and policies create greater unity of practice. Often organisations experience multiple and sometimes conflicting institutional logics (Thornton and Ocasio, 2008). Health care system is fragmented especially in KSA, as a result, health care organisations are dependent on a high number of actors with possibly different logics (Pache and Santos, 2010).

If sense making is affected by the organisations' culture, this can also affect the individuals' characteristics, shared beliefs and norms which may affect clinical reasoning and decision making processes (Schein, 1985; Parmelli *et al.*, 2011).

The management of organisational culture is increasingly viewed as an essential part of the health system reform (Parmelli *et al.*, 2011). The current study showed the importance of considering the impact of organisational cultures on physiotherapists' clinical reasoning and decision making. This might also be applicable in other physiotherapy specialities that treat chronic health conditions. This is supported by Cerderbom, Bjerk and Bergland (2020) in a qualitative study exploring physiotherapists' views on their role in working with fall prevention services section 2.14.2. The precise nature of organisational culture in healthcare policy and its influence on physiotherapists' clinical reasoning often stays underspecified. The benefits and possibility of implementing strategies have also been limited (Parmelli *et al.*, 2011).

Nevertheless, the importance of organisational culture in healthcare policy and its impact on clinical reasoning and decision making of physiotherapists have been shown within this study and within the literature; it would certainly be a relevant area of future research in order to further understand the extent to which organisational culture can affect clinical reasoning and ensure good practice, efficient services and positive patient outcomes.

### **6.3.1 Factors affecting pelvic health physiotherapists' decision making and clinical reasoning**

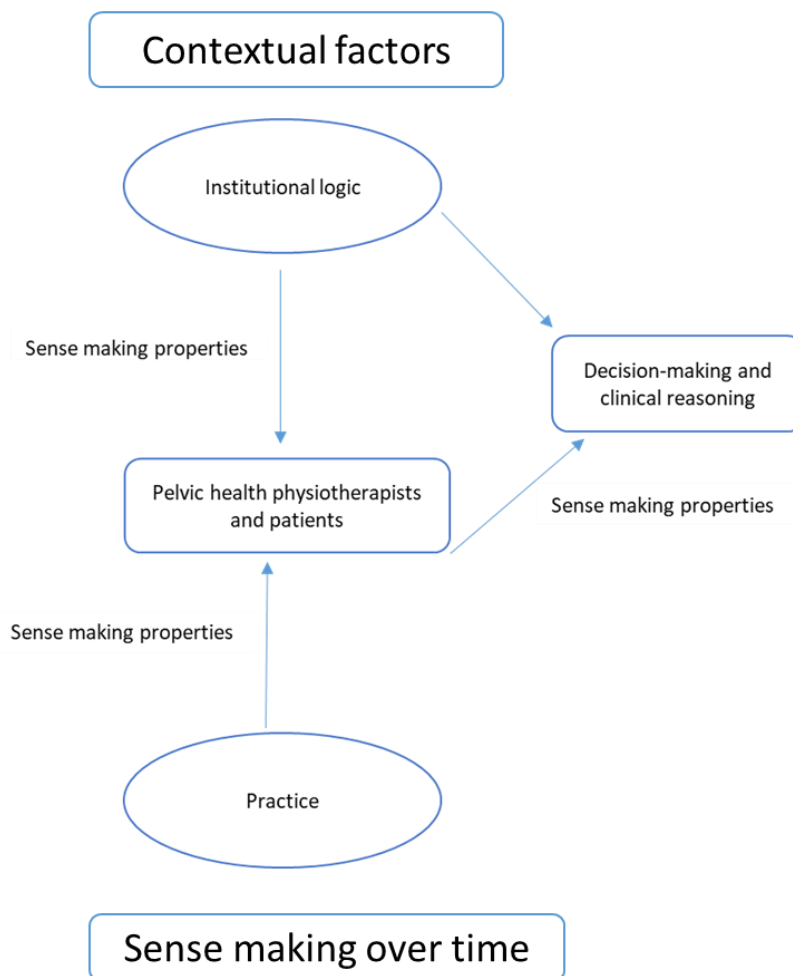
After introducing the concept of institutional theory and the need to use that theory, in addition to sense making, to understand participants' clinical reasoning, this section explains the relationship between sense making, institutional theories and the factors that influence decision making. It was impossible to explain what was happening using one of these theories alone. Instead, what became apparent through the findings of this study is that there was a clear interaction between cues at the patient level and the social and organisational logics that shape what is appeared to and acted up on. Pelvic health physiotherapists' clinical reasoning and decision making are formed by three main elements, including 1) the decision-makers, who are the physiotherapists and patients 2) Physiotherapists' sense making; 3) institutional properties of the organisation, which include individual and organisational culture, resources, and socio-economic factors.

Sense making varies among organisational contexts; institutional logic can be implemented as an outcome of institutional properties. In physiotherapists' sense making processes, institutional logic can be considered as one input for physiotherapists and patients' sense making which may be a factor in guiding their decision making and clinical reasoning process (see Figure 6-1). The cues generated to further understand patients and physiotherapists will also be factors in decision making. Hence, it is not only the institutional logic that forms the patients' and physiotherapists' sense making, but it is also shaped by the practice that can be seen as an outcome of institutional logic. Thus, physiotherapists' decision making and clinical reasoning processes are a blend of cues from the institutional logic and practice that in turn shapes the sense making of extracted cues (Linderoth, 2017). This notion is presented in Figure 6-1 below, which shows how physiotherapists' sense making process over time and institutional logics shape their decision making and clinical reasoning and facilitate the identification of a flow of extracted cues from interactions with patients and multidisciplinary teams. These cues relate to parts of physiotherapists' institutional logic, identity, and create meaning and guide further action. However, using this might be inadequate in patients from ethnic minorities since it does not take into account the impact of cultural diversities among ethnic minorities. The variation between the UK and KSA institutional logics and properties and how it may impact decision making and sense making of ethical or sensitive issues was apparent in the findings. This was clear in the way UK and KSA pelvic health

physiotherapists made decision around regulating patients’ emotions reflectively. This will be discussed in more detail in the subsequent section.

Figure 6-1: This figure shows how pelvic health physiotherapists’ decision making and clinical reasoning use sense making processes and institutional logic as well as the factors that influence decision making over time to guide action.

Sense making properties include extracted cues, social context, grounded with identity and plausibility rather than accuracy adapted from Linderoth (2017).



### 6.3.1 Institutional logics shaped KSA physiotherapists’ decision making

In KSA, institutional logic and organisational culture could shape physiotherapists’ decision making do its deeply entrenched cultural heritage, which shapes much of society. The participating KSA physiotherapists in this study acknowledged that elderly, illiterate and religious patients might be hesitant to accept digital palpation, regardless of whether the physiotherapists had explained the significance of that assessment to the patient. As a

result, physiotherapists appeared divided into two types: one accepted patients' preference (interpretive decision making), while the other focussed on their own opinion because it was driven by highly available research evidence, further supported by their hospital policy and guidelines (paternalistic decision making). However, excluding patients from decision making may create a power imbalance between patients and physiotherapists, as some KSA physiotherapist participants might consider themselves as an authoritative decision-maker. Physiotherapists who used paternalistic decision making instead of joint decision making with their patients, were trying to change patients' individual or religious beliefs instead of accepting and working with them. KSA participants reported that they were aware of patients' belief because they came from the same culture. However, they were making sense of their hospital policies and guidance (institutional logics) rather than making sense of the extracted cues from patients and creating a culture of curiosity towards patients' beliefs and values. Considering patients' culture in the management decision will be explored in the next section.

#### **6.4 Cultural humility theory: how to incorporate patients' cultural needs into the management plan**

Institutional logic might vary between the two countries based on the patients' ethnicity and cultural background. For instance, some UK participants reported that the NHS encourages them to document patients with female genital mutilation (FGM). This created some tension for UK physiotherapists as they were torn between following NHS guidelines (which is mandatory) and following a patient-centred approach. Participants respected their patients and wanted to provide them with an emotionally safe environment, where patients could feel safe and trust physiotherapists. However, both sense making and institutional logic do not always fully consider how to apply patients' cultural needs and beliefs into physiotherapists' clinical management. This was evident in the findings of the current study, which demonstrated that participants in both countries exhibited different understandings and incorporation of culture into their management plans. Some of them did implement this, while others were only showing awareness of those cultural needs and beliefs without considering the impact on management. However, considering this is extremely important. For instance, patients with urinary incontinence from ethnic minorities whose religious beliefs render the subject taboo may feel shy and reluctant to

talk about intimate issues. This in turns means they have often been found to seek help only when their symptoms were extremely severe (Zhou *et al.*, 2011).

The present study is the first study to explore the influence of culture on physiotherapists' clinical reasoning while treating UI patients in different countries. The UK participants in this study mentioned how the culture of UI patients from ethnic minorities, such as those practising the Islamic faith, influenced their decision making and clinical reasoning. Cultural humility theory is seen as particularly relevant to this study. As such, it has been incorporated into the theoretical understanding of the findings because it acknowledges the importance of power imbalance and avoiding stereotyping compared to the other existing theories. In addition, it incorporated both an institutional level and an individual one (Tervalon and Murray-Garcia, 1998). The meaning of cultural humility theory and the differences between cultural competency and humility were discussed in section 2.15.3.1; the way participants apply culture in their management plan is discussed in the following section.

#### **6.4.1 Cultural competency in physiotherapy and this study**

In physiotherapy practice, the focus is on developing cultural competency in decision making and clinical communication. This method enables effective work in cross-cultural conditions, which focuses on increasing cultural knowledge as one of its goals; however, it has been criticised by others as a checklist approach that may lead to bias and stereotyping of individual's patient (Jenks, 2011). There is a growing body of literature that has challenged the explicit and implicit assumptions of cultural competency (Beagan, 2015; Cox and Simpson, 2020; Tascon and Gatwiri, 2020). Some limitations of the cultural competency approach include an over-emphasis and rigidity when it comes to an individuals' health practitioners' own opinions. This approach fails to wholly and comprehensively value and incorporate the needs and wishes of an individual patient from a different cultural background (Fisher-Borne, Cain and Martin, 2015).

An example of cultural competency was apparent in the current study, where some physiotherapists mentioned that they were showing empathy and awareness towards patients' values and beliefs but did not integrate their understanding into their

management program. One of the UK physiotherapists reported an awareness regarding the need for cleanliness for a Muslim patient during bladder re-training. The physiotherapist showed awareness and curiosity and asked detailed questions to help the patient carry out training but neglected to fully implement a practical plan that would help the patient with the issue of cleanliness during prayer. Most of the UK participants were aware about cultural competency as a method of understanding patients' needs from different ethnicities, but only a few physiotherapists were using cultural humility instead. However, cultural competency does not provide a completely tailored solution that fully encompasses and incorporates an individual's culture, so an increased awareness and understanding of cultural humility among physiotherapists may be necessary to help resolve this particular issue. Hence, the following section discusses the use of cultural humility in patients' management plan.

#### **6.4.2 Participants' consideration of culture in the management plan using cultural humility rather than competency**

As mentioned previously, there are differences between cultural competency and cultural humility in the way that health practitioners involve their patients within the management program. Cultural humility encourages physiotherapists to place themselves in the position of a supporter rather than an authority. Further, it offers an alternative approach that focuses on knowledge of self in relation to others, recognising challenges and barriers that affect marginalised communities on both an individual and institutional level, especially within the context of sensitive, personal and intimate types of treatment of UI in two different cultures (Fisher-Borne, Cain and Martin, 2015). When health practitioners move from a cultural competence approach to a process-oriented approach, this is known as cultural humility.

Another important element of any physiotherapy management plan involves taking consent and educating patients on lifestyle issues related to UI. These are found to be an important part of the physiotherapist's management decisions. Cultural humility can impact the consent taking process, which was suggested by Bassett and Tango (2002) in a study that explored the culture of Maori patients (who are the indigenous people in New Zealand). It was found that Maori women found dis-robing and the close physiotherapist-patient contact concerning and uncomfortable. However, when the physiotherapist offered to leave the room and provided patients with convenient draping techniques, the concerns

were eliminated, and patients felt more comfortable with accepting treatment; hence, incorporating cultural humility by showing understanding and incorporating simple solutions into the UI management plan is necessary for gaining trust and improving adherence.

A potential concern raised by the participants in this study was the issue of some patients requiring family members to interpret in health consultations, which broke patient confidentiality and often prevented patients from discussing private issues (Lowe, Griffiths and Sidhu, 2007). However, physiotherapy students taking part in a community based clinical placement with indigenous people from Metis communities in a study by Oosman *et al.* (2019), found value in the roles of diverse community members involved in the health matters of their family members and friends. They noted the importance of incorporating family relationships into the management plan. The study reported that working with indigenous people helped the physiotherapy students to reflect on their negative stereotypes about ethnic minorities (Oosman *et al.*, 2019). Participants could safely analyse their own worldview, lived experience and identify how these could lead to misguided generalisations about ethnic minorities. This highlights the importance of increasing genuine understanding of ethnic minorities with differing cultural backgrounds in order to remove stereotypes and instead attempt to turn potentially negative issues into positive ones. For example, when a family member interprets, physiotherapists could potentially involve the family member as an additional support for the patient. This member could then encourage adherence to the treatment plan. However, it is important to follow a patient centred care approach with women who need to be asked if they would accept having one of the family members as an interpreter. This is particularly vital when dealing with confidential issues, such as sexual problems and during digital palpation.

Within the literature, there are suggestions that some physiotherapists can be quick to assume that every patient from ethnic minorities have a preference and expectation for a passive “quick fix” management and this may be contrary to their own belief in active self-management (Dressler and Pils, 2009; Buddhadev, 2012). It is likely that preferences for passive treatment should not be considered as fixed among ethnic minority patients as these preconceived assumptions may lead to cultural stereotyping. In a UK based study by Singh *et al.* (2018) it was found that third-generation Punjabi speaking Indian patients

changed their focus from passive to active pain coping strategies over time. While common factors appeared among patients from ethnic minorities, such as communication challenges, different values and beliefs, it is important to consider that culturally and linguistically diverse communities are not a homogenous group, because there are considerable variation in the values and beliefs held within and across communities (Chan, Hamamura and Janschewitz, 2013).

There are limited studies that explore the use of cultural humility in pelvic health physiotherapy or in clinical reasoning in physiotherapy. Within the existing literature, it is apparent that the majority of physiotherapy research involving ethnic minorities were conducted around chronic pain. This research identified limited implementation of patients' cultural beliefs within the management plan. From the literature review and from the present work, the researcher of this study would argue that cultural humility complements rather than substitutes cultural competency. This is because there is limited structural framework that guides the implementation of cultural humility, although this is beyond the scope of this thesis and requires further investigation in a future study. Nevertheless, the shift towards cultural humility has the potential to increase the effectiveness of health professionals' decision making and clinical reasoning that fall along cultural lines and can increase the relevance of pelvic health physiotherapy as it develops globally. Cultural humility provides continuous self-reflection, self-critique, overcoming power imbalances by open discussion and using open questions rather than stereotyping. It encourages a more critical and effective approach to working with clients from diverse cultural backgrounds (Agner, 2020). Thus, individual culture is not the sole determining factor that influence decision making, rather institutional logics and other factors intersect to influence physiotherapists' decision making.

## **6.5 Reflection and reflexivity**

It is suggested that the way the researchers present themselves could influence the participants' input in qualitative research (Holmes, 2020). The researcher presented herself to the UK participants as an outsider who was unfamiliar about the UK health systems and came from KSA. In addition, it was apparent during data analysis that culture and religion were a recurrent factor that influenced the participants' decision making. However, only Muslim culture was covered in detail; this may be because the researcher was wearing a head scarf, which encouraged the participants to discuss this culture specifically. There are



advantages to being either an outsider or an insider to the participants (Dwyer and Buckle, 2009). Being an outsider may have encouraged the participants to speak openly and discuss deeply about different factors. It also provided a trustworthy environment, facilitating participants to elaborate on sensitive and delicate issues related to decision making and clinical reasoning and remove feelings of judgement. However, some participants may have viewed me as an insider because I explained that I was an experienced and practising physiotherapist; consequently, they may have felt that I was knowledgeable in the field, and this may have encouraged them to speak freely and openly about their experiences.

Introducing myself as experienced in pelvic health physiotherapy may influence some participants' responses because they may assume that I knew the answer and they did not have to elaborate on it or explain it in detail; this was more obvious among the KSA participants than in the UK ones. Whenever I felt this may be a possibility, I quickly ensured that I followed the question with another "what, why and how" question to gain more depth in their answers. It might also have made some participants reluctant to express opinions or experiences that deviated from the norm. If one of the participants reported something opposite to norms, I tried to elaborate on her points of view. I encouraged her to add details, which encouraged other participants to report different unique experiences with their patients and colleagues.

The researcher would have been considered an insider and familiar to most of the KSA participants, which may also have created a comfortable environment for them to discuss their views and opinions. Although it is worth mentioning that some participants may have felt less at ease and were extra prepared to explain pelvic floor muscles anatomy and physiology because they thought I was testing their knowledge. At the same time, I stated at the beginning of the interview that I am not intended to test their knowledge and encouraged them to talk freely because there were no correct or wrong answers. Some of the participants were concerned about being judged by the researcher due to the experience I have obtained in the UK and since I am studying for a PhD at a British University. Despite this being a possible inhibitive factor or barrier to gathering data, upon reflection, I feel that the participants were open and provided rich and insightful responses during the focus groups and interviews, so it is anticipated that the possibility of being viewed as 'an

outsider' was more my worry than the participant's concern, because all of the participants were extremely helpful and willing to offer information freely and openly.

## **6.6 Summary of the discussion**

This study aimed to improve understanding of the decision making and clinical reasoning processes of physiotherapists undertaking the assessment and treatment of women with UI in two countries. Models and theories provided useful tools for understanding and explaining decision-making and clinical reasoning. Analysis of the data collected for the current study revealed that commonly used clinical reasoning models were complex and insufficient because they do not address many causes of the patient's problems nor different factors, including individual and organisational cultures, nor sense making properties, such as plausibility rather than accuracy. This is the first study that acknowledges that decision making and clinical reasoning in UI management are affected by a range of factors over time, within an organisational culture that is socially embedded (Weick, Sutcliffe and Obstfeld, 2005). It is important to look beyond the current models in the physiotherapy literature at other models of reasoning and decision making might be useful. In such model is sense making theory, particularly the elements of 'plausibility rather than accuracy' and 'grounded with identity'. Moreover, sense making, institutional logic and cultural humility theories all needed to be considered to explain what was happening regarding decision making and clinical reasoning among the participants in this study. However, it is apparent that these theories in combination are relevant and useful in understanding how physiotherapists manage patients with urinary incontinence.

The current study also provides an insight into how physiotherapists' professional identities are shaped by their organisational culture and how these in turn shape their reasoning. A pelvic health physiotherapist's awareness of the organisational culture and institutional logic, which includes family, religion, guidelines and/or policy would help them to tailor the management programme (Thornton, Ocasio and Lounsbury, 2015). At the same time, physiotherapists' cultural humility may allow them to incorporate patients' identity and beliefs into the management process without merely categorising patients based on physiotherapists' own judgements and assumptions about their patients' cultural identity; this is the opposite of cultural competency (Nadan and Ben-Ari, 2013).

Furthermore, recent concept analysis of physiotherapists' bio-psychosocial model in chronic pain and illness has identified that physiotherapists paid limited attention to patients' social, cultural and psychological factors (Daluiso-King and Hebron, 2020; Brandt, 2021). Comparing two different countries has shown the impact of institutional logic and cultural humility, alongside sense making theory to understand the decision making and clinical reasoning processes of UK and KSA physiotherapists who treat UI patients. Physiotherapists' emotional intelligence was a strong and recurrent feature of the physiotherapists involved in the current study. In the future, it could contribute towards an advanced level of physiotherapists' bio-psychosocial consideration in the management plan of UI patients. It is, however, unclear how exactly pelvic health physiotherapist participants expressed emotional intelligence and how it influenced their interaction with their patients. There is also the possibility that it varies depending on the institution and culture. More research is needed to answer these emerging questions. The current research suggests that emotional intelligence exists within the participants, but we would need studies that specifically set out to explore the factors that contribute towards developing emotional intelligence among physiotherapists.

It is apparent from the findings of this study that physiotherapists' decision making, and clinical reasoning is a process-oriented approach, which can be interpreted using sense making, institutional logic and cultural humility theories.

## **6.7 Limitations**

There is a possibility that clinical reasoning processes could be better understood through combining observation of physiotherapists' management processes of patients with urinary incontinence alongside interviews about those practices; this, however, was challenging as patients were likely to express reluctance in accepting a third party to observe an examination or treatment that involves intimate and private areas. For example, patients might be hesitant during digital palpation, carried out by physiotherapists. This would be particularly challenging in KSA, due to the patients' culture, in addition to challenges posed by research ethics.

Analysing participants' thinking processes and reasoning during the interviews and focus groups was challenging as they were recalling patients whom they had treated days or weeks ago in the interviews. A 'think aloud' style interview might have been a good alternative to the semi-structured interview, but this would have either interrupted the physio/patient interaction (if occurring in real time). Another option would have been a video recording of the encounter, with a subsequent 'think aloud' phase where the pelvic health physiotherapist would re-watch the video with the researcher and explain what they were thinking, doing and why. As above, this was not considered to be appropriate due to the intimate nature of the treatment. In addition, most of the interviews took place in the participants' clinics. This was helpful as physiotherapists had access to their patients' medical files, which were used as a prompt or reminder in some cases.

The extent to which participants' thinking and clinical reasoning processes can be accessed, might be restricted due to different factors. For instance, some of them might have had high reflexive, metacognitive ability, with the ability to justify how they came to certain decisions but felt unwilling to disclose due to social desirability or lack of memory –there is no ultimate way to understand physiotherapists' clinical reasoning and decision making. In addition, some of the participants, especially in KSA, had limited exposure to qualitative research, which meant that they were asking if their assessment and treatment processes were right or wrong. Further, the researcher was known by a number of KSA participants. This may have influenced what they were prepared to say and how they accounted for their practice. In the UK, my appearance, i.e., wearing a dress with a headscarf, as well as my oral delivery, i.e., not having a British accent, –may have affected the extent to which the focus was placed on cultural issues. It could also have meant that participants' presented views which they considered to be socially acceptable. Alternatively, this limitation could be seen as an advantage in that it might have encouraged participants to reflect on the impact of culture on their clinical reasoning in a way that they might not have done otherwise.

## Chapter 7 Conclusion

### 7.1 Conclusion and implications

This thesis presents new, more nuanced understanding of clinical reasoning and decision making in physiotherapists, in addition to the factors that influence physiotherapists' clinical reasoning and decision making while managing patients with UI. The factors identified are broad and complex and clearly indicate that decision making extends beyond a biomedical understanding of the body, with reasoning influenced by patient, physiotherapist, and organisational factors. The findings in the current study show an overlap between the factors and the models of clinical reasoning, hence, physiotherapists' reasoning and decision making are complex and not straight forward and the existing clinical reasoning models are insufficient when used as stand-alone models. As a result, sense making theory is suggested as a framework that could be used to interpret and understand physiotherapists' clinical reasoning and decision making, also it is supported by a consideration of institutional logics and cultural humility theory.

Most of the existing clinical reasoning literature in physiotherapy is about the interaction between physiotherapists and patients and making the correct diagnosis. The findings from this research show that participating physiotherapists from both the UK and KSA used different properties of sense making, mainly plausibility rather than accuracy, extracted cues, grounded with identity and the social context to understand uncertainty and ambiguity in the clinical reasoning and decision making while managing patients with UI. Physiotherapists sense making is a framework and process, which acknowledges the complexity of patient and contextual factors that influence physiotherapists working within the clinical context of UI. A sense making consideration of clinical reasoning may also be useful for other physiotherapy specialisms dealing with chronic patients' and neurological cases.

By undertaking research in two countries, with different cultures and healthcare systems, this study was able to identify concepts not incorporated in other clinical reasoning models. In this study, organisational culture within sense making was suggested as an additional model to help understand physiotherapists' clinical reasoning and decision making. It was

found that the organisation shapes pelvic health physiotherapist's identity, behaviour, and characteristics, which in turn can influence their assessment and treatment decisions. The organisational culture in KSA was particularly shaped by religion, patients' culture, and physicians' hierarchies, while the organisational culture in the UK was found to be influenced by National Institute for Health and Care Excellence guidelines, NHS policies and patient centred care. Such concepts have not been identified before within decision making and clinical reasoning models in physiotherapists and nor other area of physiotherapy and as such this is a novel contribution to the literature.

Another concept that was found to affect physiotherapists' decision making and clinical reasoning was institutional logic. Since this PhD thesis was conceptualised to answer questions regarding the similarities and differences in decision making and clinical reasoning between physiotherapists in two different countries, this comparison enabled the creation of a unifying story regarding the importance of institutional logic that physiotherapist's use when clinically reasoning and making decisions. Using institutional logics, as suggested by Goodwin (2014), alongside sense making and organisational culture, helped in understanding the impact of different institutions on physiotherapists' decision making and clinical reasoning in two different countries. KSA participants were aware about the importance of family centred care and religious background, while the UK participants might view that as a barrier to patient centred care. These findings could be applicable to other physiotherapists who are treating patients from ethnic minorities. In the current study, institutional theory was used to support sense making theory to understand the participants' decision making and clinical reasoning. The precise nature of organisational culture in healthcare policy and its influence on physiotherapists' clinical reasoning often stays underspecified and the benefits and possibility of strategies to be implemented is limited (Parmelli *et al.*, 2011). Nevertheless, its importance and impact on decision making and clinical reasoning of physiotherapists has been shown within this study and within the literature and it would certainly be a relevant area of future study in order to further understand the extent to which organisational culture and institutional logic can affect clinical reasoning and ensure good practice, efficient services and positive patient's outcomes.

Moreover, culture was found to be an important influence on clinical reasoning. There are limited studies that explore the influence of patients' culture on physiotherapists' clinical reasoning and decision making but, in this study, patients' culture was found to be a

recurrent factor that did influence physiotherapists' clinical reasoning and decision making. Culture in the UK is largely heterogeneous, while it is more homogenous in KSA and is shaped by religion in addition to other elements. Participants in the UK reported awareness regarding the importance of cultural competency in management plans, although only a few of them mentioned including patients' beliefs and values in the management plans. The existing clinical reasoning models were found to be generally insufficient when used as stand-alone models; however, cultural humility theory was found to be relevant and useful in identifying the importance of culture. Most of the existing research has been conducted in western countries, which makes it difficult to assess the effect of patients' national/ regional culture on clinical reasoning and decision making processes for physiotherapists treating patients UI. Therefore, this study aimed to address the existing gap within the literature by involving participants from two different countries, which made it possible to draw comparisons that would not have been otherwise achievable. It is imperative that future research considers the impact of individual and organisational culture in any new research especially when used to inform clinical guidance.

Existing evidence appears to suggest that the way the bio-psychosocial model is used takes limited account of patients' psychological and social factors and is therefore, restricted in its utility. In this study it was apparent that physiotherapists were considering patients' psychological factors and that their emotional intelligence encouraged patients' disclosure related to their symptoms. It can be suggested that further studies are needed to understand how the physiotherapists develop their emotional intelligence and how that could contribute toward the way bio-psychological model is implemented.

Long-term UI has some similarities with other long-term conditions that require self-management, for example chronic neurological conditions. Therefore, physiotherapists from other specialities might also use the sense making process, organisational culture, and institutional logic to understand uncertainties and ambiguity with their chronic patients who require long term self-management. This study showed that patients' individual culture, beliefs, and institutional logic, such as family centred care are significant factors that influence decision making, which may be a relevant finding for

physiotherapists treating various long-term conditions (and not just limited to physiotherapists treating patients with urinary incontinence).

The existing literature and the current study suggest that there are differences in clinical reasoning models used by novices in comparison to experience physiotherapists. When considering how to support novice physiotherapists to develop their decision making skills, sense making theory could contribute by raising awareness of the clinical reasoning processes that take place. Current models of clinical reasoning encourage students to use cognitive models of reasoning, while sense making theory involves different properties that work on novices' metacognition, which may be easier to learn than cognitive ones. This is an important finding that can contribute towards improving physiotherapists' clinical reasoning and decision making and may help to improve clinical outcomes for patients with urinary incontinence, as well as those with other chronic illnesses that require self-management. Therefore, there is potential for further research to test the suitability of using sense making and institutional theories in other physiotherapy areas and in undergraduate physiotherapy study. Further studies are needed to explore the effect of adding cultural humility to cultural competency in physiotherapists' management plans of patients with ethnic minorities within the UK.

## **7.2 Recommendations**

The current study led to important findings, and it is highly important to take further step to implement the findings within clinical practice, education and within KSA and the UK health service. This could be achieved by applying the following recommendations.

Improving awareness and understanding clinical reasoning and decision making for physiotherapists using sense making theory, organisational culture and institutional logic is a nuanced approach that could be developed further by implementing it in physiotherapy undergraduate education and within clinical practice. This could help physiotherapists understand uncertainties and ambiguity within their decision making and clinical reasoning process in both the UK and KSA. This could be achieved by communicating the findings of this research with the CSP and world physiotherapy association to inform future national and international clinical and education physiotherapy guidelines.

Using sense making theory and institutional logics is important to understand physiotherapists' clinical reasoning and decision making in other areas, such as chronic MSK, neurological problems and chronic pain that required self-management. This may



occur by conducting additional qualitative research exploring the use of sense making properties and institutional logic on physiotherapists' clinical reasoning and decision making while managing patients with chronic conditions.

Adaptation of clinical guidelines for physiotherapists in KSA is highly important to unify clinical practice, encourage physiotherapists to provide patients with different treatment options, and to consider patients' beliefs and needs within their clinical reasoning and decision making. This could be achieved by using recent international high-quality clinical guidelines in pelvic health physiotherapist and assessing the feasibility of applying these guidelines among KSA patients considering the differences in culture, institutional logics and making sense of the factors that influence KSA physiotherapists' clinical reasoning and decision making. Furthermore, KSA participants showed different clinical reasoning and decision making when dealing with sensitive and ethical issues. It is important to adapt international clinical guidelines in ethical reasoning using EBP to provide physiotherapists in KSA with a clear clinical pathway to understand uncertainty and ambiguity in ethical issues. Also, collaboration with multi-disciplinary teams is highly important in order to develop national ethical guidelines/ethical code of practice.

Public health England promote health equality, but this is difficult to be achieved without proper understanding of patients from ethnic minorities and having representatives (advocates) within the health service who are willing to serve their communities. The writing up of the current study took place during the global COVID-19 situation, which highlighted the high level of health inequality around the world. It is, therefore, essential to introduce cultural humility programmes in addition to cultural competency in physiotherapy departments in different clinical settings. This may be achieved by conducting additional qualitative research to further understand the benefits and feasibility of using cultural humility as well as cultural competency programmes in physiotherapy department and other wider contexts while managing ethnic minorities' patients.

Emotional intelligence appears to be an important feature that can contribute towards the successful application of bio-psychosocial model for physiotherapists. However, it is unclear how physiotherapists in the current study develop their emotional intelligence features and what factors contributed to that development. Hence, further investigation may be required to understand the best way to teach undergraduate students how to be emotional intelligence and maintain professional boundaries at the same time.

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The researcher will follow the implementation of the above recommendations with different organisations to increase the transferability of the current study within clinical practices and education

## **Appendix A                      Scoping review of the decision making and clinical reasoning literature in physiotherapy**

### Scoping Review

Arksey and O'Malley (2005) suggested a scoping review framework using a five-step approach as follows:

1. Identifying the research question
2. Identifying relevant studies
3. Study selection
4. Charting the data
5. Collating, summarising, and reporting the result

#### Step 1: Identifying the research question

What are the similarities and differences in the clinical reasoning processes of experienced physiotherapists in the UK and KSA while assessing and treating women with UI?

The objectives are:

To identify and understand the similarities and differences in clinical reasoning and decision making between physiotherapists in the UK and KSA.

To identify the clinical reasoning models being used during decision making in UK and KSA.

To explore the factors influencing clinical reasoning and decision making in the management of UI.

To contribute towards the understanding of future development of theoretical frameworks of clinical reasoning specific to physiotherapists in the UK and KSA.

#### Step 2: Identifying relevant studies

##### *Developing search terms*

The PEO format (Bettany-Saltikov, 2012) was applied Table 7.1.

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Table 7-1: Developing search terms using PEO Format, which is Population, exposure and outcomes

P: Population and problems
E/I: Exposure / Issue
O: Outcomes and themes

As the objectives have been developed in support of the research question, different stages of searches were carried out using the search terms identified in the table below. The key words and related synonyms were combined using Boolean operators AND/ OR, and truncation '\*'

Table 7-2: the objectives, related key words, and Boolean operators

Stage	Objectives	Key words	Boolean Operators
One	To explore the utilization of clinical reasoning and decision making in women's health physiotherapy	P: physiotherapists E/I: urinary incontinence O: clinical reasoning, decision making	Physiotherapy*OR 'physical therapy*' AND 'clinical reasoning' OR 'decision- making' AND women OR woman OR female* AND incontinence OR 'stress urinary incontinence' OR 'continence care' OR 'continence management'
Two	To explore the utilization of clinical reasoning and decision making in pelvic health physiotherapy	P: physiotherapists E/I: urinary incontinence O: clinical reasoning, decision making	Physiotherapy*OR 'physical therapy*' AND 'clinical reasoning' OR 'decision- making' AND pelvic health OR pelvic rehabilitation AND incontinence OR 'stress urinary incontinence' OR 'continence care' OR 'continence management OR Urge urinary incontinence OR mixed urinary incontinence'
Three	To explore the decision making and clinical reasoning process among other physiotherapists' specialities	P: physiotherapists E/I: other physiotherapists speciality O: clinical reasoning, decision making	Physiotherapy*OR 'physical therapy*' AND 'clinical reasoning' OR 'decision- making' AND women OR woman OR female*
Four	To explore the model of clinical reasoning among physiotherapists treating patient with UI	P: physiotherapists E/I: urinary incontinence O: the model of clinical reasoning	Physiotherapy*OR 'physical therapy*' AND 'clinical reasoning model' OR 'decision making model' AND women OR woman OR female* AND incontinence OR 'stress urinary incontinence' OR 'continence care' OR 'continence management'
Five	To identify the factors that influence physiotherapists' clinical reasoning and decision making	P: physiotherapists E/I: different than other physiotherapists speciality O: the factors of clinical reasoning and decision making	'Physical Therapy' OR 'Physical Therapists' AND 'Decision Making factors' OR 'clinical reasoning factors' AND 'factors that affect clinical reasoning' Or 'factors that affect decision- making' AND 'culture' AND 'social factors' AND 'cultural diversity' AND 'religion' AND 'ethnicity' AND 'knowledge base' AND 'education' AND 'patients' AND clinician's perspective'

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Six	To identify the patient-centred clinical reasoning model and shared decision making	P: physiotherapists E/I: other physiotherapists speciality O: patients centre and shared decision making	'shared decision making' AND physiotherapy* AND physical therap* AND 'patient centred care'
Seven	To identify different clinical reasoning models	P: physiotherapists E/I: other physiotherapists speciality O: different clinical reasoning models (dialectic reasoning, biopsychosocial reasoning, pattern recognition, H-D reasoning and dual process, clinical practice	Physiotherap* AND physical therap* AND Dialectic reasoning AND Biopsychosocial reasoning AND Pattern recognition AND Hypothetico-deductive reasoning AND Dual process

Table 7-3: Setting the inclusion and exclusion criteria

Date of Search	2016 and updated in 2021
Inclusion Criteria	Studies with in-depth analysis and exploration of the clinical reasoning model and decision making, factors and strategies among physiotherapists and other disciplines, the clinical guidelines of physiotherapy in UI.
Exclusion Criteria	<p>Articles were excluded if they did not involve an in-depth analysis and exploration of clinical reasoning and decision making.</p> <p>The following were excluded: articles on physiotherapy assessment and treatment; clinical guidelines; health promotion; professional competence; physiotherapy student's clinical placement; physiotherapy ethics, physiotherapy continuing education, clinical reasoning in acute care and in other disciplines such as nursing, medicine and midwifery, imaging techniques, surgical interventions, Delphi-survey and other health professionals' assessment, and treatment including drug prescription. In addition to low quality studies.</p>

	<p>Other physiotherapy intervention for SUI, such as electrical stimulation, and biofeedback, and vaginal cones.</p> <p>Physiotherapy assessment for SUI.</p>
Limits	<p>Language: English</p> <p>From: 1980-2016</p> <p>Another limit after updating the literature: 2016-2021</p> <p>Female</p> <p>Human</p>



***Database selection***

The following databases related to health, social care, psychology and sociology accessed via the University of Southampton library were searched: Cochrane, MEDLINE, CINAHL, EMBASE, Psych INFO, Web of Science (W.O.S), Scopus and MIDRIS. In addition to the grey literature.

Table 7-4: Database selection criteria

Cochrane Library The availability of systematic reviews, technology assessments, economic evaluations and individual clinical trials.
MEDLINE is the largest and most widely used database in the health sciences. It covers journal articles and other reference types in medicine, dentistry and nursing, including biomedicine, medicine, nursing, dentistry, allied health, pre-clinical sciences and psychology.
CINAHL Offers comprehensive coverage of journals in nursing, midwifery and allied health.
EMBASE Offers a range of journal articles in biomedicine
Psych INFO Contains journal articles, books, dissertations and theses in core psychology Disciplines, behavioural sciences and mental health.
Web of Science (W.O.S) Provides access to a wide range of field particularly covering science, health, social science, humanities.
Scopus Is the largest abstract and citation database of peer-reviewed literature. It comprises the world's research in the fields of medicine, social sciences, and arts and humanities.
MIDIRS Reference Database collates information and resources relating to midwifery.

Table 7-5: Grey Literature

<p>Evidence Search Health and Social Care (NICE):</p> <p><a href="https://www.evidence.nhs.uk/">https://www.evidence.nhs.uk/</a></p>
<p>The British Library</p> <p><a href="http://catalogue.bl.uk/primo_library/libweb/action/search.do?dscent=1&amp;dstamp=1384781350374&amp;vid=BLVU1&amp;fromLogin=true">http://catalogue.bl.uk/primo_library/libweb/action/search.do?dscent=1&amp;dstamp=1384781350374&amp;vid=BLVU1&amp;fromLogin=true</a></p>
<p>Open Grey - a multidisciplinary European database, covering science, technology, biomedical science, economics, social science and humanities.</p> <p><a href="http://www.opengrey.eu/">http://www.opengrey.eu/</a></p>
<p>The King's Fund - The King's Fund is an independent charity working to improve health and health care in England. They help to shape policy and practice through research and analysis; develop individuals, teams and organisations; promote understanding of the health and social care system; and bring people together to learn, share knowledge and debate.</p> <p><a href="http://www.kingsfund.org.uk/">http://www.kingsfund.org.uk/</a></p>
<p>UK Clinical Research Network Study Portfolio - The UKCRN Study Portfolio is a repository for recording research taking place within the NHS in the UK. Details of clinical research which meet specific eligibility criteria, and which is currently taking place across the UK is recorded in the UKCRN Study Portfolio.</p>

<http://public.ukcrn.org.uk/search/>

### **Step 3: Study selection**

The study selection from 2016 and 2021 will be present. The different stage of the search strategy resulted in a variable hit (see Figure 2-3). Implementing the inclusion and exclusion criteria Table 7.3 some of the studies titles and abstracts were screened and duplicates. A total of 28 full papers were relevant to the study.

### **Step 4: Charting the data in 2021**

According to the Arksey & O'Malley's framework for conducting a scoping review, the data charting process involves insertion of information from individual articles. Therefore, the following data was entered into a spreadsheet: author(s), year of publication, study location, aims of the study, methodology/ study design, and method of data collection, sample/participant, and key findings are illustrated in Table 7.6.



## Appendix B                      Charting the data 2021 and 2016

A scoping review framework using a five-step approach was used to update the literature review in July 2021. The fourth step include charting the data as illustrated in the detailed table below.

Table 7-6: A detailed data extraction sheet of the literature review conducted in 2016 and 2021.

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
<p>1.Attributes of physiotherapy continence clinicians: a qualitative perspective</p> <p>(Slade et al.2020) Australia and New Zealand</p>	<p>Explore the experiences and information needs of clinicians who used pelvic floor muscle training for UI management</p>	<p>Qualitative methods. Data collection: using focus group, purposeful sampling from private and public settings of varying level of experience in pelvic floor health and continence management.</p> <p>Using a predetermined set of questions to guide the sessions.</p>	<p>Results showed three main themes: 1. Attributes that are important to be an expert continence clinician.2. High levels of research literacy and ability to generate and translate research into practice.3. Managing patient-centred care and consumer expectations. Important attributes of expert continence physiotherapists include postgraduate education, advanced clinical reasoning and decision making, participation in research teams and partnerships, highly developed inter-personal skills, and mentorship.</p> <p>Conclusion: A stronger foundation in clinical reasoning is essential and assisted in overcoming deficits in research reports and clinical guidelines. The need for sustainability by providing structured mentoring and training to extend continence knowledge, skills, capability. They suggested further research</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		Codes on participant's beliefs and experiences, themes describing clinician attributes.	including clinician from rural area and a broader geographical and cultural sample to gain into practice similarities and differences.
2. A critical review of the biopsychosocial model of low back pain care: time for a new approach? (Mescouto et al.2020) Australia	Aim: To investigate how physiotherapy low back pain literature enacts the Bio- psychosocial model.	Methods: Conducting a critical review using discourse analysis of 66 articles retrieved from different data base	Results: showed dominant of biomedical model over bio-psychosocial model. Psychological aspects are conceptualised as cognitive and behavioural. Social context was rarely mentioned and other aspects of care such as culture and power dynamics received little attention within the texts.  Conclusion: multiple important factors such as institutional power relations, cultural considerations, ethical and social aspects of health may not incorporate in physiotherapy research and practice when working with people with low back pain.
3. Is the biopsychosocial model in musculoskeletal physiotherapy adequate? An evolutionary concept	Aim: To clarify the conceptual understanding of the bio-psychosocial model within musculoskeletal	Methods: Using concept analysis methodology by Rodgers 1989 to clarify how the bio-psychosocial is conceptualised in	Results: After applying search strategies and selection from different database. That result in 16 articles included, after thematic analysis. After analysis the main themes are; failure of biomedical model, literature and supporting guidelines, cultural change in physiotherapy and different master themes such

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
analysis. (Daluiso-king and Hebron, 2020) UK	physiotherapy, to understand the meaning and use in clinical practice.	physiotherapy. The procedures involved four steps, collection of data related to bio-psychosocial models, analysing the data and identifying implications for current and future practice and research.	as, biomedical, psychological, social factors and communication and individualised care. In addition to implementation failure of the bio-psychosocial model  Conclusions: A holistic framework for care is proposed, in which communication and therapeutic alliance forms the scaffold for a humanistic approach to therapeutic care. R conceptualising bio-psychosocial models to support patient's therapeutic care is needed
4. Physiotherapy and pelvic floor health within a contemporary biopsychosocial model of care: From research to education and clinical practice. (Brandt C, 2021)	Aim: To address the gaps and controversies in research and evidence on bio-psychosocial model within pelvic floor disorders.	Methods: Critical review of the literature for studies published in the last ten years. Studies on bio-psychosocial models, communication and individualise care were retrieved.	Results: The resulted studies focus on the biomedical aspect of pelvic health, while psychological, cognitive, behavioural, social and occupational factors, individualised care, communication and therapeutic alliances are still under-investigated and not explored at a sufficient level into research, education and clinical practice in physiotherapy from physiotherapists perspective.
5. Sociocultural factors influencing physiotherapy management in culturally and linguistically diverse people with	To synthesise the sociocultural factors influencing pain management	Methods: Different data bases were searched until July 2018. The methodological quality of	Results: Key factors included: language competence, active vs passive coping strategies, gender influences, cultural-spiritual beliefs, illness perceptions and expression of pain, treatment satisfaction and barrier to access.

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
persistent pain: a scoping review. (Yoshikawa et al. 2020) New Zealand and Australia.	between culturally and linguistically diverse (CALD) patients with persistent pain and physiotherapists treating CALD patients.	the included studies was assessed using the Critical Appraisal Skills Program (CASP) and Mixed Methods Appraisal Tool (MMAT). Using a thematic synthesis to extract the common themes.	Conclusion: Discordant perspectives on patient autonomy are evident between CALD patients and physiotherapists. Such discordance create stress in the therapeutic alliance and influence the efficacy of pain management. To overcome such barriers, it is crucial to foster cultural competence in physiotherapy. There is limited implementation of patients' socio-cultural awareness in clinical practices.
6. Why Do We Do as We Do? Factors Influencing Clinical Reasoning and DM among Physiotherapists in an Acute Setting (Holdar et al. 2013) Sweden	To identify the factors that influence the physiotherapist's CR in specialist care.	Data collection: observations and interviews of eleven physiotherapists in acute care hospitals.	Data analysis showed six descriptive categories with five subcategories. Situational circumstances that could not be controlled by the physiotherapists/contextual factors (work culture and organisation), communication, acquired knowledge, physiotherapists and patients as persons and negotiation strategies to choose intervention.
7. A Clinical Reasoning Model for Manual Physical Therapy. Collins C;	To explore the literature on the clinical reasoning models used by physiotherapists	Narrative review of the existing literature in functional manual therapy	There are different models of clinical reasoning used by physiotherapists such as functional manual therapy clinical reasoning model for physiotherapy intervention based on the movement system and for the examination,



Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
Johnson R and Masaracchio M (2017) USA	when developing a plan of care.		evaluation, and prognosis. Conclusion: This model of reasoning provides physiotherapists with a paradigm for the creation, implementation and improving the plan of care for patient management.
8. Physical Therapists' Clinical Reasoning and Decision-Making Processes When Mobilizing Patients Who Are Critically Ill: A Qualitative Study. Amundadottir et al. (2018) Iceland and Canada	To investigate factors influencing physiotherapists' clinical reasoning and decision-making processes when mobilising patients who are critically ill	Twelve physiotherapists were observed before, during, and after a mobilization session with one patient, followed by a semi-structured interview.	Six categories; the context of intensive care unit, patient, transfer, physiotherapists, and FITT parameters which includes frequency, intensity, type, and time and expected outcome. In addition to four factors that includes patients and physiotherapists' safety and well-being; continuous assessment and intervention intertwined; individualized and response-driven intervention; and barriers and solutions) which emerged as significant in influencing participants' clinical reasoning when mobilising their patients.
9. Clinical reasoning in osteopathy: Experiences of novice and experienced practitioners. King et al. (2018) Australia.	To understand clinical reasoning in osteopathy from the perspectives of both experienced and novice practitioners.	Semi-structured interviews and reflection on the clinical reasoning processes practitioners used in response to two case scenarios.	Two themes existed: (1) different approaches to clinical reasoning in experienced, and novice osteopaths, and (2) observation and palpatory findings from direct contact with the patient are considered experiential findings and were integral to clinical reasoning in osteopathy. Clinical reasoning in osteopathy is like that of other health professions and clinical experience were important factor in developing sounds clinical reasoning and decision making processes.

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
10. The clinical reasoning among master students specializing in Orthopaedic Manual Therapy. Vedin, Elin (2021) Sweden	To describe the clinical reasoning processes of orthopaedic manual therapy physiotherapy students in a master's programme	A semi-structured interview OF 19 master's students.	One main category: "A multidimensional picture of clinical reasoning" and three subcategories: 1) Confidence in the students' role as physiotherapist; 2) Decision making, a cognitive analytical process 3) Creating therapeutic alliance and patient involvement in clinical reasoning and decision making.
11. The skills, knowledge and attributes needed as a first-contact physiotherapist in musculoskeletal healthcare. Langridge N (2019) UK.	To understand the roles and the clinical practice of musculoskeletal physiotherapists in the primary care.	Eight health practitioners' views via a stage one think aloud interview process. This was followed by a stage two focus group involving physiotherapists and a general practitioner trainer.	The themes identified were medical assessment and systems knowledge; speed of thought in an uncertain environment; breadth of knowledge; people and communication skills; common sense/simplify; and responsibility and experience.

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
12. Clinical reasoning and critical reflection in physiotherapists' examinations of patients with low back pain in its early phase: a qualitative study from physiotherapists' point of view. Karvonen et al. (2017) Finland.	To increase understanding of physiotherapists' clinical reasoning and clinical reflections on their decision making when managing low back pain patients.	Semi-structured interviews with six physiotherapists	The results showed that physiotherapists used a hypothetico-deductive reasoning model and reflected on their decisions related to their low back pain patient's examination, from the history to the diagnosis and on the classification of non-specific low back pain.
13. Core components of communication of clinical reasoning: A qualitative study with experienced Australian physiotherapists. Ajjawi and Higgs, 2012 p.107)  (UK)	- 'To explore the nature of communication of clinical decision making with patients and students in physiotherapy practice.  -To explore the perceived core processes of communication of decision	'N= 12 experienced Australian physiotherapists working in cardiopulmonary (Hopton <i>et al.</i> ), musculoskeletal (MS) or neurological (N) physiotherapy-  Experience= ranged from 6 to 26 years	Communicating clinical reasoning was found to be dynamic, complex, context-dependent and often automatic and habitual.  'Five themes were found: active listening, framing and presenting the message, matching the co-communicator, metacognition and decision making ability'.

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
	making by experienced physiotherapists.	Gender= Four of the participants were male, eight were female'	
14. Clinical reasoning and patient-centred care in musculoskeletal physiotherapy in Portugal--a qualitative study Cruz, et al., (2012 p246) (Scotland)	'To explore clinical reasoning processes by experienced Portuguese musculoskeletal physiotherapists. The focus is on clinician's interaction with their patients in order to define or manage clinical problems.	'N= Four physiotherapists with musculoskeletal background'. Designs: an interpretative hermeneutic research approach  Data collection: observation, semi-structured interviews, patients 'chart, memos and researchers' field notes.  Thematic analysis to explore and interpret clinical practice and reasoning.	'Findings showed that the clinicians were more likely to carry out their reasoning approach as a purely cognitive and clinician centred process. Perspectives of clinical reasoning therefore differs between cultures and contexts of practice and this has potential implications in the way physiotherapists interpret health and illness, their role as clinicians, as well as the patient physiotherapist relationship.  five themes appeared: Finding the source of patients 'complaints; Taking control of patient's clinical history; Excluding the  Patient from the decision- making process; A biomechanical under-standing of the patient's problem'.

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
<p>15. Implementation of Shared Decision-Making (SDM) in Physical Therapy: Observed Level of Involvement and Patient Preference. Dierckx et al. (2013 p1321) Finland.</p>	<p>‘To examine the status of shared decision making in physiotherapists, patients’ preferred levels of involvement, and the agreement between physiotherapists perception and patient preferred level of involvement’.</p>	<p>N= 13 physiotherapists</p> <p>Design. This was an observational study of real consultations in physiotherapy</p> <p>Data collection: 237 consultations were audio recorded, and 210 records were analysed using the Observing Patient Involvement (OPTION) instrument was used to measure patient involvement during the decision making process. Before the consultation, the patient and therapist completed the Control Preference Scale (CPS) to assess therapist’s perceptions about patient’s preferences for decision</p>	<p>. ‘The mean OPTION score was 5.2 (SD=6.8), out of a total score of 100. Female therapists achieved a higher OPTION score (b=-0.86, P=0.01). These authors found that female general practitioners have a different communication style and are more likely to talk about psychosocial problems and encourage questions from patients. In total, 36.7% of the patients wanted to share decisions, and 36.2% preferred to give their opinion before delegating the decisions’. ‘In the majority of cases, therapists believed that they had to decide’. ‘The kappa coefficient for agreement was poor at .062 (95% confidence interval=-.018 to .144)’.</p> <p>The majority of patients preferred to share decision making with their physiotherapists, and a substantial percentage of the patients wanted to express their opinion about treatment options before the therapists made a decision. In contrast, approximately, one third of the therapists assumed that patients preferred to delegate the whole decision making process to the therapist, whereas only 1 out of 6 patients reported this preference</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>making and patient's preferred levels of involvement.</p> <p>Data Analysis: Multilevel analysis was used to study the association between individual variables and the level of shared decision making. Agreement on preferences was calculated using kappa coefficients</p>	
<p>16. Clinical reasoning of expert and novice physiotherapists in an outpatient orthopaedic setting. Doody and McAteer, (2002 p258). (London)</p>	<p>'To investigate the decision making of expert and novice physiotherapists in an outpatient orthopaedic setting'. No studies to date have investigated the clinical reasoning of physiotherapists as they have assessed and</p>	<p>Ten experienced clinicians with a minimum of ten years' experience (also had postgraduate training in manual therapy) and ten undergraduate students (5 fourth year and 5 third year also, they were taking orthopaedic outpatient rotation of their clinical experience program).</p>	<p>. 'The subsequent analysis showed that all used an H-D reasoning process. However, the experts and novices went beyond this essentially diagnostic process to include reasoning focused on treatment. In particular, manual therapy treatment was used as a method of further hypothesis testing. In addition to H-D reasoning the experts also made use of pattern recognition'. 'The clinical reasoning of the physiotherapists in this study was found to be a dynamic, cyclical process. The results of the study support the model of clinical reasoning proposed by Jones'.</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
	<p>treated a real and previously unseen patients.</p>	<p>Data collection: The study took place in two different hospitals and six private physiotherapy practices. Participants were observed and audiotaped as they examined and treated a real, previously unseen patient. In addition to field notes and think aloud method was used retrospectively with stimulated recall to obtain the therapists verbal protocol. A semi-structured interview was carried out where the audiotape was stopped. This review session was also recorded.</p> <p>Data Analysis: The transcript (audiotape, field notes and comments) was analysed. They</p>	

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		use member check by physiotherapists who were not participants to check the inter and intra-coder reliability	
17. Clinical reasoning strategies in physical therapy. Edwards et al. (2004 p312) (Australia)	‘To examine the decision-making of expert physiotherapists in 3 different Fields of physiotherapy: orthopaedic (manual), neurological, and domiciliary) care (Home health)’.	Design: ‘a grounded theory method, a multiple case study approach was used to study the clinical practice of the 6 physiotherapists in the 3 fields (primary sample). This approach is similar to that used by Jensen et al. (1992)’  Data Collection: ‘79 hours of observation to 6 physiotherapists were audiotape and transcribed. Then semi-structured interviews with secondary sample which involved 6 physiotherapists with	They found that they are using a range of clinical reasoning skills or strategies representing a diversity of thinking and actions during diagnosis and management  Within these clinical reasoning strategies, the Application of different paradigms is termed "dialectical reasoning’.



Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>teaching experience. In addition to field notes and they asked the primary sample to write personal reflection about the source of knowledge they have (e.g., mentors, clinical and life experiences) and factors and people whom they considered important influences on their professional lives’.</p> <p>Data analysis: ‘comparative analysis. Case studies were sent to the respective therapist from the primary sample for his or her comments, a process known as “member checks”, on follow-up, which was done by a telephone discussion’.</p>	

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
<p>18. Ethical reasoning as a clinical-reasoning strategy in physiotherapy. .Edwards and Braunack-Mayer (2005, p229) (Australia)</p>	<p>‘This paper proposes a model for integrating ethical reasoning into a wider clinical reasoning framework without reducing the complex, moral dimensions of ethical reasoning to merely logical and rational processes of clinical reasoning’.</p> <p>-To examine the nature and scope of clinical reasoning of expert physiotherapists working in different physiotherapy settings.</p>	<p>Similar to the study above</p>	<p>Similar to the study above.</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
<p>19. Ethically-based clinical decision making in physical therapy: process and issues. Finch et al, (2005 p.147) USA</p>	<p>‘To explore the way in which physiotherapists integrate ethical issues into clinical practice decisions and identify ethical themes used by physiotherapists.</p>	<p>N=8 physical therapists using purposeful sample.</p> <p>Data collection and Data Analysis: Participants describe a recent ethically based clinical decision (they were asked to describe scenarios where they consider ethical value to be important in their decision making).</p> <p>-Transcribed interviews were coded and themes identified.</p> <p>Methodology: use of hermeneutic phenomenology, which interprets participant’s descriptions of the</p>	<p>The following categories were identified: 1) the integration of ethical issues in the clinical decision making process, 2) patient welfare including the themes of treatment effectiveness, patient autonomy and quality of life, 3) professional ethos of the physiotherapy including the theme of professional role and boundaries, patient advocacy, and professional collegiality, and 4) health care economics and business practices’. Including the themes of conflict of interest, funding, allocation of scarce resources and endorsement of equipment ‘Participants readily described clinical situations involving ethical issues but rarely identified specific conflicting ethical issues in their description. Ethical dilemmas were more frequently resolved when there were fewer emotional sequelae associated with the dilemma, and the PT had a clear understanding of professional ethos, valued patient autonomy, and explored a variety of alternative actions before implementing one’.</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		phenomenon of interest and reflects on it is essential meaning.	
20. Clinical decision- making in exercise prescription for fall prevention. Haas et al, (2012, p.666) (Australia)	‘To describe the factors influencing the clinical decision making processes used by expert physical therapists to prescribe exercises for fall prevention’.	N=24 physiotherapists  Design: This investigation was a qualitative study from a phenomenological perspective.  Methods: ‘Semi-structured telephone interviews were conducted with 24 expert physiotherapists recruited primarily from the Victorian Falls Clinic Coalition. They did five to six interviews in each group, and no additional themes were identified, and no additional themes identified means they reach saturation. Interviews	‘Participants described highly individualized exercise prescription approaches tailored to address key findings from physical assessments of client’s physical ability, cognition level and therapist time constraints. ‘Dissonance between prescribing a program that was theoretically correct on the basis of physiological considerations and prescribing one that a client would adhere to exercise was evident and the level of motivation’. ‘Safety considerations also were highly influential on the exercise type and setting prescribed’. In addition to research evidence and theoretical knowledge to rationalise the quantity of the exercise. Regarding external constraints, knowledge about the effective dosage for effective therapy was derived from clinical experience, research evidence and professional training

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>focused on 3 exercise prescription contexts: face-to-face individual therapy, group exercise programmes, and home exercise programmes.</p>	
<p>21.Shared decision making (SDM) in back pain consultations: an illusion Or reality? .Jones, (2014 pS13) ( UK)</p>	<p>‘To measure the prevalence of shared decision making in clinical encounters involving physiotherapists and patients with back pain’.</p>	<p>Forty-two patients aged 18 years, referred with back pain and 12 physiotherapists involving novice staff and experts</p> <p>Data analysis: ‘audio-recorded were observed, transcribed verbatim and analysed using the 12-item OPTION scale. (The transcripts were analysed using OPTION scale, which measure the overall shared decision-making process from the observer prospective in the initial</p>	<p>The mean OPTION score was 24.0 % (range 10.4–43.8 %). Shared decision making was under-developed in the observed back pain consultations. Clinicians’ strong desire to treat acted as a barrier to shared decision making and further work should focus on when and how it can be implemented’.</p> <ul style="list-style-type: none"> <li>-Physiotherapists did not explain the risk and benefits of the treatment options.</li> <li>-few physios asked patients about their preferred level of receiving information.</li> <li>-Patients views and expectation were not discussed at all.</li> </ul>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>and follow-up). It measures the overall shared decision making process and is unique in comparison with other instruments as it scores the clinician-initiated behaviour from an observer's perspective'. 'The revised instrument rates 12 behavioural items (mirroring the core concepts of shared decision making fundamental to good clinical practice )on an ordinal scale, ranging from zero—"the behaviour is not observed"', to four—"the behaviour is observed and executed to a high standard"'. 'Scores are summated and scaled to give a percentage score.</p> <p>The higher the score, the greater is the shared decision making</p>	

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>competency attained, with 60 % generally accepted to correlate with the lowest meaningful competency level by the shared decision making’.</p> <p>Example of OPTION scale scores:</p> <ul style="list-style-type: none"> <li>-The clinician explains the pros and cons of options to the patient.</li> <li>-The clinician explores the patient’s concerns (fears) about how problems are to be managed.</li> </ul>	
<p>22. Factors that influence the clinical decision making of physiotherapist in choosing a balance assessment</p>	<p>‘The aims of this study were: to explore decision making during examination of</p>	<p>Eleven therapists were purposefully selected (6 from outpatient offices. 5 from</p>	<p>‘A highly individualized approach to patient examination based on therapists’ practical knowledge emerged from the data, with limited influence of the</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
<p>approach. McGinnis et al., (2009 p233) (USA)</p>	<p>patients with balance deficits, to understate the selecting of assessment methods from the clinician s perspective, and to explore why specific methods were selected’.</p>	<p>inpatient rehabilitation settings to participate in repeated interviews. Participants with one-year experience and former students were excluded. Methods: ‘A qualitative design using a grounded theory approach permitted exploration of clinical decision making.</p> <p>Data collection:</p> <p>Repeated interviews (initial was about examination of patients with balance deficits, the second interview focused on participant’s description of their clinical decisions during a specific patient case). In the second interview participants</p>	<p>Literature’. ‘Movement observation was the primary assessment and diagnostic tool’.</p> <p>‘When selecting assessment approaches for specific patients, the perceived validity of information gathered mattered more than testing time’.</p>



Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>completed a demographic data form that included questions related to education, practice experience, certifications, memberships in professionals' organizations, continuing education, and identification of any resources used (e.g., textbooks, journals) for balance assessment.</p> <p>Data analysis: constant comparative analysis was used whereby data collection and analysis were ongoing. Data sources included interview transcripts, results of sorting activities, field notes, reflective memos, and comparison with expert opinion. Each transcript was reviewed line by line to gain</p>	

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>understanding of the raw data (open coding)</p> <p>'Credibility' of the findings were established low-inference data, member check, and triangulation among participants and multiple data sources'.</p>	
<p>23. Expert therapists use specific clinical reasoning processes in the assessment and management of patients with shoulder pain: a qualitative study. May et al., (2008 p261) (Australia)</p>	<p>'What are the key items in the clinical reasoning process which expert clinicians identify as being relevant to the assessment and management of patients with shoulder pain?'</p>	<p>N=Twenty-six experts in the UK (physiotherapists and occupational therapists) consented to be involved and were contactable, of whom 20 contributed, with 12, 15, and 15 contributing to the different rounds. Design: Qualitative study using a three-round Delphi procedure.</p>	<p>'These expert clinicians demonstrated the use of diagnostic pattern recognition, and H-D and narrative clinical reasoning and patient's centred and collaborative reasoning processes. 'The emphasis was on the history and basic physical examination procedures to make clinical decisions. The use of both types of clinical reasoning by these clinicians confirms the dialectical model of the two</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>Round one: unstructured and allowed multiple open responses. The clinicians were asked to share the clinical reasoning process by which they assessed patients with shoulder pain and arrived at a management strategy.</p> <p>Data Analysis:</p> <p>Qualitative themes analysis, in which items were grouped together through shared themes relating to the narrative reasoning process of shoulder assessment, classification, and management.</p> <p>In Round 2: respondents were asked to rank the relative</p>	

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>importance of all the items using the scale (1Essential, 2very important, 3 important, 4less important, 5unimportant).</p> <p>In Round 3, respondents voted on their agreement or disagreement with the ranking that emerged from Round 2. All correspondence was via e-mail.</p>	
<p>24. Limited clinical reasoning skills used by novice physiotherapists when involved in the assessment and management of patients with shoulder problems: a qualitative study. May et al. (2010 p.84) (UK)</p>	<p>‘To explore the clinical reasoning process used by novice physiotherapist in specific patient problems.</p>	<p>N= Nine physiotherapist (three male and six female) in the UK from two NHS trusts in one city in the UK with limited experience of managing musculoskeletal problems were included</p> <p>Methods: ‘Semi-</p>	<p>‘Items mostly related to information gathering, although there was some use of H-D clinical reasoning there appeared to be limited understanding of the clinical implications of data gathered, and clinical reasoning through use of pattern recognition was minimal’. ‘Major weaknesses were apparent in the clinical reasoning skills of these novice therapists compared to previous reports of expert clinical reasoning, indicating areas for development in the education of student and junior physiotherapists.</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>structured interviews were conducted on how novice</p> <p>Physiotherapist would assess and manage a patient with a shoulder problem'. They used a topic guide from textbooks that include history and physical examination for musculoskeletal shoulder problems.</p> <p>Data analysis: interviews were transcribed and analysed using framework analysis. It was decided before that in order for themes or items mentioned by the therapists to be included in the final data analysis at least 50% of participants has to have mentioned the themes. In other</p>	

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>words, the final themes would represent what the majority of novice physical therapists considered important in the evaluation of a patient with shoulder pain. For example, in history trauma or insidious onset were more common than time since onset and pain on resisted exercise in physical examination were less frequent</p>	
<p>25. Clinical reasoning process in physiotherapy. Payton (1985 p924) (USA)</p>	<p>to analyse physiotherapist's clinical</p> <p>Problem solving and compare the results with physicians' clinical problem solving.</p> <p>Descriptive study</p>	<p>N= Ten skilled (experts) physical therapy clinicians, suggested by academic faculty in physiotherapy Gender= 5 male and 5 females. One academic physio and others are clinicians. All are clinical educators</p> <p>Method: 'Participants were</p>	<p>'The therapists defined their problem lists and developed treatment plans early in the interview, as they gathered data'. 'This clinical problem-solving sequence is comparable to a method reported in the literature that is used by physicians.</p> <p>'This model of clinical problem solving based on actual performance of clinicians can be used to train physiotherapist students and, perhaps, to refine clinical evaluation skills.</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>observed as they performed an initial interview with a patient. Their performance was audiotaped and later replayed the tape to discuss it with each participant. The therapist's review of the patient's interview was audiotape. In addition to field notes and analysed'.</p>	
<p>26. Factors that influence the clinical decision making of novice and experienced physical therapists. Wainwright et al. (2011) (USA):</p>	<p>Aims: To identify differences in clinical decision making abilities and processes between novice and experienced physical therapists' clinicians and to develop a model of the factors that influence clinical decision- making</p>	<p>Three participant's pairs (each pair consisted of one novice physiotherapist and one experienced physiotherapist are purposefully selected from three inpatient rehabilitation settings. Design: Qualitative research methods and grounded theory.</p>	<p>The factors that influence clinical decision making were categorized as informative or directive. Novice participants relied more on informative factors, whereas experienced participants were more likely to rely on directive factors.</p>

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		<p>Methods: Case summaries from each participant provided the basis for within and across-case analysis.</p>	
<p>27. Influence of the Therapist-Patient Relationship on Treatment Outcome In Physical Rehabilitation: A Systematic Review Hall et al. (2016)(Australia)</p>	<p>To investigate whether the working alliance (patients and physiotherapists relationship) is related to outcome in physical rehabilitation settings</p>	<p>Methods: A sensitive search of 6 databases identified a total of 1,600 titles. Prospective studies of patients undergoing physical rehabilitation were selected for this systematic review. Thirteen studies including patients with brain injury, musculoskeletal conditions, cardiac conditions, or multiple pathologies were retrieved.</p>	<p>The results indicate that the alliance is positively associated with: (1) treatment adherence in patients with brain injury and patients with multiple pathologies seeking physical therapy, (2) depressive symptoms in patients with cardiac conditions and those with brain injury, (3) Treatment satisfaction in patients with musculoskeletal conditions, and (4) physical function in geriatric patients and those with chronic low back pain.</p>



Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		Outcome measure; working alliance inventory, the California scale and Vanderbilt scale	
28. Clinical reasoning processes in physiotherapists' assessment of unilateral neglect (ULN): part two. Plummer et al.(2005 p533)(Australia)	Explored the clinical decision-making processes used by 14 Australian neurological physiotherapists when assessing ULN after stroke.	N=14  <b>Methods:</b> Participants observed a videotape of an experienced therapist assessing a stroke patient with left ULN. The videotape was paused at intervals and participants recorded their thoughts pertaining to the patient at that time. Afterwards, physiotherapists were asked questions in relation to their clinical decisions and were instructed to classify the	'The findings revealed that physiotherapists used both hypothetic-deductive and pattern recognition models of clinical reasoning'. 'Hypotheses concerning neglect were generated early in the assessment. Only a small number of physiotherapists were able to refine their neglect-related hypotheses in light of new information'. 'Types of neglect were rarely considered in the decision-making processes. A lack of specialized knowledge may limit the ability of physiotherapists to make detailed characterizations of neglect behaviour.' A glossary comprising definitions of the different types of neglect improved the ability of clinicians to accurately characterize neglect behaviour, suggesting that education may enhance diagnostic reasoning ability of physiotherapists in the assessment of ULN.'

Title/Authors/Year/Country	Aims	Methods	Results/ Conclusion
		behaviour of the patient using a glossary of diagnoses	

**Appendix C                      Ethical approval in the UK**

Ethical approval in the UK

Approved by Faculty Ethics Committee - ERGO II 31625

Submission ID: 31625

Submission Title: A qualitative study to explore the clinical reasoning processes among experienced women health physiotherapists in the UK and Kingdom of Saudi Arabia while managing patients with urinary incontinence


Submitter Name: Jawahr Alagil

Your submission has now been approved by the Faculty Ethics Committee. You can begin your research unless you are still awaiting any other reviews or conditions of your approval.

Comments:

Thank you for your clear and detailed responses. Good luck with this much needed study.

**Appendix D Ethical approval in KSA**

<p>Kingdom of Saudi Arabia King Saud University (KSA) P.O. Box 7805 Riyadh 11442 Tel: +966 11 467 00 11 Fax: +966 11 467 19 92 http://www.ksu.edu.sa</p>	<p>المملكة العربية السعودية جامعة الملك سعود (KSA) ص.ب. 7805 الرياض 11442 هاتف: +966 11 467 00 11 فاكس: +966 11 467 19 92</p>	 جامعة الملك سعود King Saud University المدينة الطبية الجامعية
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17.10.2018 (08.02.1440)  
Ref. No. 18/0665/IRB

**To:** Ms. Jawahr Hamd Alagil  
Department of Health Rehabilitation  
King Saud University College of Applied medical Science  
Email: jaqeel@ksu.edu.sa  
Principal Investigator

**CC:** Dr. Hana Alsobayel  
Co-Investigator

**Subject:** Approval of Research Project No. E-18-3348

**Study Title:** "A Qualitative Study to Explore the Clinical Reasoning Processes among Experienced Women's Health Physiotherapist in the Kingdom and the Kingdom of Saudi Arabia while Managing Patients with Urinary Incontinence"

**Type of Review:** Expedite  
**Date of Approval:** 17 October 2018  
**Date of Expiry:** 17 October 2019

Dear Ms. Jawahr Hamd Alagil,

I am pleased to inform you that your above-mentioned research project submitted to the IRB was reviewed and approved on 17 October 2018 (08 Safar 1439). You are now granted permission to conduct this study given that your study does not disclose participant's identity and poses no risk to the patients.

As principal investigator, you are required to abide by the rules and regulations of the Kingdom of Saudi Arabia and the research policies and procedures of the KSU IRB. If you make any changes to the protocol during the period of this approval, you must submit a revised protocol to the IRB for approval prior to implementing the changes. Please quote the project number shown above in any future correspondence or follow-ups related to this study.

This approval is for a period of one (1) year commencing from the date of this letter. If you wish to have your protocol approved for continuation, please submit a completed request for reapproval of an approved protocol form (KSU-IRB 017E) at least 30 days before the expiry date. Failure to receive approval for continuation before the expiration date will result in automatic suspension of the approval of this protocol on the expiration date. Information collected following suspension is unapproved research and can never be reported or published as research data.

We wish you success in your research and request you to keep the IRB informed about the progress and final outcome of the study in a regular basis. If you have any question, please feel free to contact me.

Thank you!

Sincerely yours,



**Dr. Abdulrahman Alsultan**  
Chairman of IRB  
Health Sciences Colleges Research on Human Subjects  
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**Appendix E Summary of the UK and KSA matrices**

Table 7-7: illustrates charting of the data from the UK and KSA interviews and focus groups

This table illustrate the data in a form of data summary, coding, categories, and the themes of the UK and KSA interviews and focus groups transcripts

<b>Pattern Recognition/UK Participants</b>	<b>Data summary</b>	<b>Dimension identified (Codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within</b>
P8 UK	Patients subjective because she was leaking with exercise and if she got to go, she got to go that is a clear mixed incontinence.	Patient’s symptoms	Straight forward case lead to clear diagnosis	Making diagnosis
P3 UK	It depends on the connection. So, there’s certainly more to muscle health than just how long you can hold a contraction for. But there’s no science behind that. That’s what	Physiotherapist experience	physiotherapist experience influences clinical reasoning and decision making	physiotherapist experience influences clinical reasoning and decision making
P6 UK	Different between MSK and PHPT. The problem is mainly patient’s symptoms. Asking questions help me to make diagnosis.	Patient’s symptoms. Asking questions	Patients complains, symptoms and asking questions lead to the diagnosis	Making diagnosis is different in physiotherapist

Illustrates charting of the data from the UK and KSA interviews and focus groups in a form of data summary, coding, categories and the themes of the UK and KSA interviews and focus groups transcripts

<b>Pattern Recognition/UK Participants</b>	<b>Data summary</b>	<b>Dimension identified (Codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
P7 UK	I draw on my years of experience to solve uncertainties. I have been working in the field for about 25 years (participant's words)	Physiotherapist experience	physiotherapist experience influences clinical reasoning and decision making	making decision based on experience
P11 UK	Physiotherapists experience help her to decide that vaginal examination is not important in compared to ultrasound to assess patients	Physiotherapist's experience	Experience helps physiotherapists to make diagnosis.	Making decision based on experience
P13 UK	Physiotherapists are treating patient's symptoms whatever the diagnosis is.	Patient's symptoms	Treating patient's symptoms whatever the diagnosis	Treating the symptoms not the diagnosis

Pattern Recognition/UK Participants	Data summary	Dimension identified (Codes)	Categories (labels) interpret data under broader heading	Clusters, patterns of association or linkage within the theme and across the data set.
P4 UK	<p>Patients is having features of both types of incontinence, in addition to obvious characteristics of an overactive bladder.</p> <p><i>I think I'm a lot more experienced. And it became obvious because I know my stuff, it became obvious that something wasn't quite</i></p>	<p>Features and characteristics</p> <p>Physiotherapist's experience</p>	<p>Different features and characteristics lead to the diagnosis</p> <p>Physiotherapist's experience leads to the</p>	<p>Making diagnosis</p> <p>Physiotherapist's experience helps in making diagnosis.</p>
P3 UK	<p>Patient is restricting her fluids and had some night wetting.</p>	<p>Patient's symptoms</p>	<p>Patient's symptoms</p>	<p>Making diagnosis</p>
P9 UK	<p>Understanding the effect of episiotomy and forceps delivery on UI and this is because of her experience</p>	<p>Physiotherapist's experience helps in understanding the relationship between UI and other problems.</p>	<p>Physiotherapist's experience</p>	<p>Making decision based on experience</p>

Pattern Recognition/UK Participants	Data summary	Dimension identified (Codes)	Categories (labels) interpret data under broader heading	Clusters, patterns of association or linkage within the theme and across the data set.
P10 UK	Patient almost tell you within the first period. Subjective assessment gives information for the clinical diagnosis.	Patient's subjective give clinical diagnosis	Patient's subjective	Making diagnosis
P12 UK	A lot of the symptoms are presenting that showed patients are getting stress incontinence.	Patient's symptoms lead to diagnosis	Patient's symptoms	Making diagnosis
FG1 UK	The decisions that are made by therapists vary depending on the experience and the knowledge that the therapist has. The more junior members that you might be working wouldn't have the same level of experience and the decision is more of a challenge. Junior staff might feel that treating pregnancy is everything is contraindicated; this is what they have been taught in the University and then we find our -self telling them it's okay it's okay to treat pregnant women nothing awful is going	Physiotherapist experience and clinical reasoning and decision making	physiotherapists experience	making decision based on experience



Illustrates charting of the data in a form of data summary, coding, categories and the themes of the UK and KSA interviews and focus groups transcripts

<b>Collaborative sense making/ psychological issues/ UK Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
PI UK	<p>Patient was a complex case; the complexity came more from psychological than anything else. Doing training in psychosexual medicine help me to think about factors beyond the physical.</p> <p>Patient is communicating with me via email to ask questions. I told them to do that. Thinking of a bit of</p>	<p>Psychological factor can be a complex factor.</p> <p>Physiotherapist communicating with patients and building a good relationship with the patients.</p>	<p>Relation between identifying psychological factors and physiotherapist's training.</p> <p>Physiotherapist's skills and relationship with patients.</p>	<p>Patient's psychological factors and physiotherapist's knowledge.</p> <p>Physiotherapist and patients working alliance.</p>

Collaborative sense making/ psychological issues/ UK Participants	Data summary	Dimension identified(codes)	Categories (labels) interpret data under broader heading	Clusters, patterns of association or linkage within the theme and across the data set.
P2 UK	<p>I need to be aware of complex psychosocial issues, attending psychosexual medicine seminar help me to think about the dynamic type of treatment in relation to sexual problems.</p> <p><i>You need to give people the time to open up about sexual problems. (Participant's own words).</i></p> <p>Physiotherapist is being a good listener and reassuring patients to get</p>	<p>Complex psychosocial issues can be related to sexual problems.</p> <p>Patients need time to open up about sexual relationship.</p> <p>Physiotherapist's personal characteristics that help to get to the</p>	<p>Relationship between identifying psychosocial factors and physiotherapist's training.</p> <p>Gaining patient's trust takes time.</p> <p>Physiotherapist's skills and relationship with patients</p>	<p>Patient's psychosocial factors and physiotherapist's knowledge.</p> <p>Physiotherapist making sense of the important of gaining patient's trust to disclose intimate issue.</p> <p>Physiotherapist and patients working alliance.</p>
P3 UK	<p>Physiotherapist was interpreting patient's perception of the world, anxiety and not feeling safe as driving her bladder. Physiotherapists think that she is treating the patient as a whole and not being vaginal</p>	<p>Complex psychosocial issues can affect patient's bladder.</p>	<p>Treating the patient as a whole and not being vaginal centric.</p>	<p>Not being vaginal centric.</p>

<b>Collaborative sense making/ psychological issues/ UK Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
<p>P4 UK</p>	<p>Patient was anxious and stressed at work, this might affect patient's bladder behaviour at work compare to home.</p> <p>There is lack of time to complete questionnaire to assess patient's psychological problem and I am good at picking up anxiety issues.</p> <p>Relying on talking to them, hearing them and caring about them, give my email and working on instinct rather than anything precise. Being interested in patients will validate their symptoms and make them feel differently.</p>	<p>Complex psychosocial issues can affect patient's bladder</p> <p>Lack of time to fill psychological questionnaire but relying on intuition.</p> <p>Communication</p> <p>Building a good relationship</p>	<p>Physiotherapist depend on her instinct and sense making to identify patient's psychological problems.</p> <p>Intuition</p> <p>Physiotherapist's skills and relationship with patients.</p>	<p>Patient's psychosocial factors and physiotherapist's instinct or sense making</p> <p>Organisational factors can be a barrier in decision making using intuition instead</p>

Collaborative sense making/ psychological issues/ UK Participants	Data summary	Dimension identified(codes)	Categories (labels) interpret data under broader heading	Clusters, patterns of association or linkage within the theme and across the data set.
	<p><i>I quite often have a chat with them. This will make them feel like they're sort of friends rather than ...sitting at the other side of the desk (Participant's own words).</i></p>	<p>Making patient feels sort of friend</p>	<p>Patient-physiotherapist relationship</p>	<p>Sense making and making patients feel included. Physiotherapist and patients working alliance.</p>
<p>P5 UK</p>	<p>Using questionnaires may help in picking up more of the emotional side, but it does not make difference to the treatment.</p> <p><i>Most of its talking and listening. (Participant's own words).</i></p>	<p>Psychological questionnaire</p> <p>Communication</p> <p>Building a good relationship</p>	<p>Psychological questionnaire will not affect physiotherapy treatment</p> <p>Physiotherapist's skills and relationship with patients.</p>	<p>Psychological factors will not affect physiotherapy treatment.</p> <p>Physiotherapist and patients working alliance.</p>

<b>Collaborative sense making/ psychological issues/ UK Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
P6 UK	<p>Patient's job that involve heavy lifting with weak pelvic floor muscle might lead to pelvic organ prolapse and urinary incontinence.</p> <p><i>I am always try to be reassuring, as I do with all patients there (Participant's own words).</i></p>	<p>Social factors can affect bladder function.</p> <p>Reassuring patients</p>	<p>Patient's factors can contribute to pathological problems.</p> <p>Patients-pelvic health physiotherapist's relationship.</p>	<p>Patient's social factors related to pathological problems.</p> <p>Physiotherapist and patients working alliance.</p>
P7 UK	<p>Patient anxiety level from social relationship and work stress affect her bladder symptoms.</p> <p>Physiotherapists think that attending training in sexual counselling, running a home program helped her to follow a collaborative and holistic approach.</p>	<p>Patient's anxiety</p> <p>Physiotherapist's knowledge</p>	<p>Relationship between identifying psychosocial factors and physiotherapist's training.</p>	<p>Patient's psychosocial factors and physiotherapist's knowledge.</p>

Collaborative sense making/ psychological issues/ UK Participants	Data summary	Dimension identified(codes)	Categories (labels) interpret data under broader heading	Clusters, patterns of association or linkage within the theme and across the data set.
	<i>I think she knows that I will listen to her. So I was quite keen to try and be empathetic (Participant's own words).</i>	Listening and be empathetic.	Patients-pelvic health physiotherapist's relationship.	Physiotherapist and patients working alliance.
P9 UK	Trust is a mutual relationship between patients and physiotherapists. Patient gain confidence to talk and can burst into tears because physiotherapist can be the first person that is ever interested in their problems.  This might be because of physiotherapist's age and experience in addition to spending long time with patients compare to other health practitioners.	Mutual trust  Disclosing personal and intimate issues.  Physiotherapist's skills and time  Building rapport.	Mutual trust lead to building rapport    Physiotherapist's skills and organisational factors lead to building rapport	Not being vaginal centric can help in building rapport.

<b>Collaborative sense making/ psychological issues/ UK Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
P10 UK	<p>Patient pelvic floor was high in tone and this might be due to psychological state.</p> <p>The hospital is setting a series of questionnaires about patient's psychological state and their mental health, patients can fill in this in the waiting area and this would allow me to know patients before walking through the door.</p> <p><i>I eventually managed to build a rapport with her. So they need to have a trust in you</i> (Participant's own words).</p>	<p>Patient's factors can affect pelvic floor muscle function.</p> <p>Psychological questionnaire</p> <p>Building rapport.</p>	<p>Patient's factors can contribute to pathological problems.</p> <p>Organisational factors can facilitate physiotherapist's decision on patient's psychological factors.</p> <p>Building rapport.</p> <p>Patients-pelvic health physiotherapist's relationship.</p>	<p>Patient's social factors related to pathological problems</p> <p>Organisational factors as a facilitator</p> <p>Awareness of patient's characteristics lead to sense making on the best way to build rapport.</p>

Collaborative sense making/ psychological issues/ UK Participants	Data summary	Dimension identified(codes)	Categories (labels) interpret data under broader heading	Clusters, patterns of association or linkage within the theme and across the data set.
	<i>I've just realised how important it is to make sure you're listening. They need to make sure they feel listened to (Participant's own words).</i>	Active listening		Physiotherapists and patients working alliance.
P11 UK	<i>She's been much stressed in the last three years because she's lost her husband. That gives you an idea of how anxious she is. Being a widow make her ignore herself until the symptom become worse (participant's own words).</i>  <i>I think the talking actually, because I understand it now and somebody is listening to me, you've just got to keep listening to your patient. I was</i>	Social factors  Communication  Building a good relationship	Patients' factors can contribute to pathological problems.  Physiotherapist's skills and relationship with patients.	Patient's social factors related to pathological problems.  Physiotherapist and patients working alliance.



Collaborative sense making/ psychological issues/ UK Participants	Data summary	Dimension identified(codes)	Categories (labels) interpret data under broader heading	Clusters, patterns of association or linkage within the theme and across the data set.
	able to email a patient with faecal incontinence the details of those sprays ( <i>participant's own words</i> ).			
P12 UK	<p><i>I would advise her to seek some psychological support for her to try and help to manage some of those other issues</i></p> <p><i>It's only sometimes two or three appointments down the line when they trust you, when they will talk to you and they will open up that you start to unpick some of what's going on (participant's own words).</i></p>	<p>psychological support</p> <p>Intimate issues.</p>	<p>Communication with other healthcare practitioners.</p> <p>Gaining patient's trust take time.</p>	<p>Not being vaginal centric.</p>

<b>Collaborative sense making/ psychological issues/ UK Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
	<i>It's about giving them that opportunity to tell the picture from their perspective. And actually, giving them the space to talk back that far through. (Participant's own words).</i>	Time to talk.	Patients-pelvic health physiotherapist's relationship.	Physiotherapist making sense of the important of gaining patient's trust to disclose intimate issue.  Physiotherapists and patients working alliance.

Collaborative sense making/ psychological issues/ UK Participants	Data summary	Dimension identified(codes)	Categories (labels) interpret data under broader heading	Clusters, patterns of association or linkage within the theme and across the data set.
P13 UK	<p><i>Sometimes you'll need to support somebody a lot more emotionally. And my colleagues often laugh at me and say that I treat a lot more from the neck up than the waist down</i></p> <p><i>So, providing a safe environment both physically and emotionally for the patient to discuss their issues is important (participant's own words).</i></p> <p><i>She is the one who needs to be listened to. Its patients who present the problem. So, it's important to work around the patient's need</i></p>	<p>Supporting patients emotionally.</p> <p>Disclosing important issues.</p> <p>Active listening</p>	<p>Considering patient's psychological issues.</p> <p>Disclosing important issues</p> <p>Patients-pelvic health physiotherapist's relationship.</p>	<p>Treat a lot more from the neck up than the waist down.</p> <p>Providing a safe environment.</p> <p>Physiotherapists and patients working alliance.</p>
FG1 UK	<p><i>I have to be open minded non-judgmental; the key difference is empathy and has the ability to</i></p>	<p>active listener</p>	<p>shared decision making</p>	<p>Plausibility of decision making</p>

<b>Collaborative sense making/ psychological issues/ UK Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
	<p><i>communicate and not embarrassed easily. I have never had a patient say to me you have changed my life like I have in pelvic health. we are dealing with patients who are exposed to a lot of trauma in this area either childbirth or abuse, so we do need to have more skills to deal with patient than if you are working in sports, more vulnerable area of the body. We need to make the patient feel more comfortable enough to be happy to share what they would consider be absolute secret thing that have never shared with anyone else.</i></p>	<p>showing empathy</p> <p>Disclosing any sensitive issues</p>		

Illustrates charting of the data in a form of data summary, coding, categories and the themes of the UK and KSA interviews and FGs transcripts

<b>Collaborative sense making/ Discussing different options and harms to management /KSA Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
P1 KSA	There are different options and I always encourage my patients to share what they think.	Being open to patient's preference.	Discussing different options.	Patients and physiotherapists working alliance.
P2 KSA	The most common problem with my patient that they don't want to have internal examination. So I accept their decision and I do external examination for them and I said to them that he can only offer exercise in general while if you accepted to have internal examination then I would be able to be more specific and give you extra	Physiotherapist interpersonal characteristic  accepting patient opinion	shared decision making	Sense making of clinical reasoning and decision making

Collaborative sense making/ Discussing different options and harms to management /KSA Participants	Data summary	Dimension identified(codes)	Categories (labels) interpret data under broader heading	Clusters, patterns of association or linkage within the theme and across the data set.
	things in your pelvic rehabilitation program.			
<b>P3 KSA</b>	<i>She is sharing in decision making; she is not only a woman or a lady or an individual that you just give instructions without any feedback. We call it person-centred relationship, it is not patient- therapist relationship only, so it is a person (Participant's words)</i>	giving instructions  feedback from patient	Sharing in decision making.	Patients and physiotherapists working alliance.

<b>Collaborative sense making/ Discussing different options and harms to management /KSA Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
<b>P8 KSA</b>	I accept if patient do not like to have internal examination and I am encouraging them to do maintenance exercise and I progress the exercise later on. Some of the patients might accept later on.	Accepting patient's request  adjusting the treatment program  Patient's preference.	Changing the treatment program based on patient's needs.	Patients and physiotherapists working alliance.
<b>P4 KSA</b>	If patients want to continue with us, they have to remove the IUD and use any other contraceptive ways. Also, I explain to them that I cannot teach you the exercises until I do vaginal examination. So, when I make them afraid, they will do what	<i>change their contraceptive treatment</i>  <i>Have to have vaginal examinations.</i>	<i>Forcing the patient to follow physiotherapist advice</i>	<i>Paternalistic decision making</i>

<b>Collaborative sense making/ Discussing different options and harms to management /KSA Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
<b>P5 KSA</b>	<p><i>If patient does not accept vaginal examination usually, I provide them with exercise and discharge them. This is an agreement between me and the referring physicians. Regarding treatment options, I inform them with the treatment options, and I told them what is best for them. Because most patients are not confident to choose the treatment modalities and they ask me about my opinion.</i></p>	<p><i>There are no other options to vaginal examinations</i></p> <p><i>Patient's culture</i></p> <p><i>Trust health practitioner's decisions.</i></p>	<p><i>Forcing the patient to follow physiotherapist advice in assessment. Helping them to choose the treatment modalities.</i></p>	<p><i>Paternalistic decision making in assessment and inform decision making in treatment.</i></p>



<b>Collaborative sense making/ Discussing different options and harms to management /KSA Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
<b>P6 KSA</b>	<i>I wouldn't do anything without their permission, never. They should be cooperating with me for example I want to use dry needling and I think needles are going to give her a good result but if she doesn't want it I can't force it. So, I have to use another treatment method. So, whenever you want me to stop [vaginal examination], I'd stop because all of them come with a bad history that I do the examination in the labour room (Participant's words).</i>	Accepting patient's request  Patient's preference.	Changing the management program based on patient's needs.	Patients and physiotherapists working alliance/ shared decision making
<b>P7 KSA</b>	<i>Usually I do the vaginal examination in the second session because I am expecting the patient</i>	Patient's preference.		

<b>Collaborative sense making/ Discussing different options and harms to management /KSA Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
	<i>to be not ready or she had signs of infections but if I have time and patient accepted to assess her pelvic floor muscles in the first session. I'll do it.</i>			
<b>P8 KSA</b>	<p>If something is not giving harm to the patient, and is affecting the patient in a good way, just use it. Because you don't know what will work with the patient, either manual therapy, your instructions, the chair, patient's psychological aspect, something will work with her. Just do your best and give it a try with many chances. The good thing is that we as physical therapists we are not doing something harmful to the patient, so even if you are doing something and it is not working</p>	<p><i>different options</i></p> <p><i>different modalities</i></p> <p><i>limited experience and knowledge</i></p> <p><i>NOT involving patients in the decision.</i></p>	<p><i>What is next?</i></p>	<p><i>Informed decision making.</i></p>

<b>Collaborative sense making/ Discussing different options and harms to management /KSA Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
	<p>with the patient, it is not a big deal. You can fix it with another exercise or something. And the doctors are always here</p>			
<b>P9 KSA</b>	<p><i>I always give her the chance to change or to choose another thing and I give her alternatives. I'm not the one who is choosing for her, in order to make her feel comfortable and complied with what she does. Sometimes patients are accepting to insert the perineometer by themselves, some of them say no I don't want to, the very old ladies resist these things. So, I just do the external landmark, and start to encourage them to do the exercise properly while I'm just observing they are not substituting the other</i></p>	<p>different options</p> <p>patient's characteristics physiotherapist's knowledge</p> <p>Resources such as perineometer.</p>	<p>Relation between patient's characteristics and physiotherapist's skills in providing different options.</p>	<p>Patients and physiotherapists working alliance.</p>

<b>Collaborative sense making/ Discussing different options and harms to management /KSA Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data under broader heading</b>	<b>Clusters, patterns of association or linkage within the theme and across the data set.</b>
	<i>muscles. And it is a poor practice I know (Participant's words).</i>			
<b>P10 KSA</b>	<p>Treating MUI by separating that to urge and stress incontinence. First treating urgency with posterior TPNS for 12 sessions then followed by EMG for another 12 session's then concentrate on the endurance training. Then I give patient one-month chance to return to physiotherapy in case she needs further management. This is because it is quite difficult to have another referral from the physicians to physiotherapy.</p>	<p>Providing patients with different options</p> <p>A lot of exercises.</p> <p>Limited experience and knowledge</p> <p>NOT involving patients in the decision.</p>	<i>What is next?</i>	<i>Informed decision making.</i>
<b>P12 KSA</b>	<p>If that physiotherapist is not confident or comfortable, they the</p>	<p>Physiotherapist skills</p>	<i>Physiotherapist skills can influence patient behaviour</i>	<i>Patient and physiotherapist factors</i>

<b>Collaborative sense making/            Discussing different options and            harms to management /KSA            Participants</b>	<b>Data summary</b>	<b>Dimension identified(codes)</b>	<b>Categories (labels) interpret data            under broader heading</b>	<b>Clusters, patterns of association or linkage within            the theme and across the data set.</b>
	patient will pick up on that and might don't accept vaginal examination.	patient behaviour		

## Appendix F

## Invitation email

### Invitation email

#### Invitation e-mail will be send separately to

General Secretary of the following:

Pelvic, Obstetric and Gynecological Physiotherapy (POGP)

Or

Saudi Physiotherapy Women's Health Association (SPTAWH)

Or

International Uro-gynaecology Association (IUGA)

Or

Association for Continence Advice (ACA)

Or

International Continence Society (Heath et al.)

#### Delete as appropriate

I am a PhD student at the University of Southampton. For my thesis I am conducting a qualitative study to explore the similarities and differences in the clinical reasoning processes of experienced WHPTs in the UK and KSA while assessing and treating patients with urinary incontinence (UI). The study aims are to explore WHPTs clinical decision-making processes, in two countries (UK and KSA) while assessing and treating patients with UI. I would like to recruit physiotherapists with a minimum of one year experience treating urinary incontinence patients within your association. If this is possible, could you help me to do this by sending the invitation letter and the participant information sheet to your members please?

My ERGO/Ethics approval number is: **31625**

Please do not hesitate to contact me for any other details. I appreciate your kind support.

Sincerely,

Jawahr Alagil

PhD Student

Members of SPTWHA

Principal Researcher

E-mail: [j.h.alagil@soton.ac.uk](mailto:j.h.alagil@soton.ac.uk)

#### Supervisors:

Dr. Sarah Demain

Faculty of Health Sciences Student Office University of Southampton Highfield Southampton SO17 1BJ

**Email:** [s.h.demain@soton.ac.uk](mailto:s.h.demain@soton.ac.uk)

**Room Number:** 67/4061

Dr Ellen Kitson-Reynolds

Faculty of Health Sciences Student Office University of Southampton Highfield Southampton SO17 1BJ

Room Number: 67/3019

## **Appendix G                      Invitation Letter**

### **Invitation Letter**

**Dear Members of the Chartered Society of Physiotherapy (CSP) or**

**UK Pelvic, Obstetric and Gynaecological Physiotherapy (POGP)**

I am a PhD student at the University of Southampton working on my thesis entitled: -

**“A qualitative study to explore the clinical reasoning (CR) processes among experienced pelvic health physiotherapists (PHPT’s) in the United Kingdom (UK) and the Kingdom of Saudi Arabia (KSA) while managing patients with urinary incontinence (UI)”**

My ERGO/Ethics approval number is: **31625**

#### **The objectives of the study are**

- To identify and understand the similarities and differences in clinical reasoning and decision making between pelvic health physiotherapists in the UK and KSA.
- To explore the factors influencing clinical reasoning and decision making in the management of UI.
- To identify the clinical reasoning models being used during clinical reasoning and decision making in UK and KSA.
- To contribute towards the understanding of future development of theoretical frameworks of clinical reasoning and decision making specific to pelvic health physiotherapists in the UK and KSA.

#### **I would like to invite you to participate in this study if you are**

- Pelvic health physiotherapist’s who have been *OR* who are currently registered with the Health and Care Professional Council (HCPC) in the UK or the Saudi Commission for Health Specialities (SCHS) in KSA. This study seeks to hear the views of physiotherapists with sufficient pelvic health experience to reflect on their clinical reasoning. They must therefore meet one or more of the following criteria:
- Qualified Physiotherapists who have worked with patients with urinary incontinence for a minimum of one year and have treated a minimum of 10 patients with UI in the past year; this is because physiotherapists might also carry orthopaedic and neurological

caseloads due to a low percentage of patients with women's health issues compared to patients with other diagnoses.

- Or qualified pelvic health physiotherapist's with more than 2 years' women's health experience in either the UK or KSA, but who do not necessarily currently treat 10 patients with UI per year.

If you would like to participate, you will attend an interview and/or focus group to discuss your clinical decision-making process and the factors that might affect your decision during the assessment and treatment of patients with urinary incontinence.

For more details, please check the enclosed participant information sheet.

If you would like to participate in the study or need further details, please contact me using the contact detail below.

I appreciate your valuable time spent reading this information and I apologize to members who are not able to participate in this study.

Sincerely,

**Researcher:**

Jawahr Alagil

PhD Student

Members of SPTWHA

Principal Researcher

E-mail: [j.h.alagil@soton.ac.uk](mailto:j.h.alagil@soton.ac.uk)

Phone number: 07522110629

**Supervisors:**

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SO17 1BJ

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**Room Number:** 67/4061

Dr Ellen Kitson-Reynolds



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Room Number: 67/3019

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## How women’s health physiotherapists (WHPT) make their clinical decisions?

UNIVERSITY OF  
**Southampton**

[16.05.2018][ERGO number: 31625]

**What is this study about?**  
Exploring WHPTs clinical decision-making processes, while assessing and treating patients with Urinary Incontinence.

- What will happen during the study?**
- The study involves individual interviews and/or focus group.
  - The discussion will be about:
    - your views and experiences while managing patients with urinary incontinence.
    - Factors that might affect your decision making.
  - The session will take 60-90 minutes respectively.

- Where does the study takes place?**  
It will be in a convenient place to you, either in:
- A meeting room at the University of Southampton.
  - A private practices.
  - A privately hired venue (Such as a room in hotel or in library).

- Are there any participation requirements?**  
You can take part in this study if you are:
- WHPT who have been OR who are currently registered with Health and Care Professional Council (HCPC)
- AND at least one of the followings**
- Treated a minimum of 10 patients with UI in the past year; or
  - Qualified WHPTs with more than 2 years’ experience in the UK; or
  - Academic WHPTs, who did research and/or teach students about UI.

For Further Information, please contact Mrs. Jewehr Alejli, PhD student, University of Southampton

[ajewehr1@southampton.ac.uk](mailto:ajewehr1@southampton.ac.uk) | Tel: 02380 593333  
[ajewehr1@southampton.ac.uk](mailto:ajewehr1@southampton.ac.uk) | Tel: 02380 593333  
[ajewehr1@southampton.ac.uk](mailto:ajewehr1@southampton.ac.uk) | Tel: 02380 593333  
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[ajewehr1@southampton.ac.uk](mailto:ajewehr1@southampton.ac.uk) | Tel: 02380 593333

**Participant Information Sheet**

Study title: A qualitative study to explore the clinical reasoning processes among experienced pelvic health physiotherapists (PHPTs) in the UK and Kingdom of Saudi Arabia while managing patients with urinary incontinence (UI).

Researcher: Jawahr Alagil Ethics number: 31625

I would like to invite you to take part in a research study. Please take time to read the following information carefully. Talk to others about the study if you wish. Ask me if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part. If you are happy to participate you will be asked to sign a consent form.

**What is the research about?**

This research is part of a PhD study. This study aims to explore the process of clinical decision making/ clinical reasoning among Saudi and UK physiotherapists in the management of urinary incontinence. The University of Southampton is acting as the legal sponsor for the research.

**Why have I been chosen?**

You have been invited to take part in this study because you are a Pelvic health physiotherapist (PHPT) who is currently or who has been registered with the Health and Care Professional Council (HCPC) in the UK or Saudi Commission for Health Specialities (SCHS) in KSA and who has either worked with patients with urinary incontinence for a minimum of one year and has treated a minimum of 10 patients with UI in the past year; or who has more than 2 years' experience but have not necessarily treated 10 patients with UI per year; or is an academic WHPT, who may not necessarily have treated patients with UI in the past year but has been involved in research and/or teaching students about UI. The interviews and focus group discussions will be conducted in English, so you would need to be a fluent English speaker and be willing and able to give signed consent.

**Do I have to take part?**

No, you do not have to take part. I will describe the study and go through the information sheet, which will also be given to you to read if you wish. If you agree to take part, you will be asked to sign a consent form to show you have agreed to take part.

### **What will happen to me if I take part?**

If you would like to take part, then please contact the researcher using the contact details below to register your interest and to check that you are eligible to take part in the research. If you want to be included, then the researcher will contact you directly by telephone to schedule you for a focus group discussion and/or interview. You will then be asked to read through and sign a consent form saying you understand what the research involves and that you are willing to take part.

### **What will I have to do?**

You will be asked to attend the scheduled focus group and/or interview. These will be scheduled at a time and place convenient to you. The researcher will ask you some questions about how you would manage previous cases with urinary incontinence focusing on your clinical decision making and clinical reasoning about that case.

### **In the focus group:**

There will be a maximum of ten women's health physiotherapists in one focus group discussion. There will be one-two focus groups in the UK and one in KSA, each with physiotherapists from pelvic health specialty. It is therefore likely that you may know some of the physiotherapists attending the focus group; some may be your colleagues or managers. The focus group discussion will be led by Jawahr Alagil (PhD researcher) and will last from 90-120 minutes. The discussion will concentrate on the factors that affect women's health physiotherapists' clinical decision making. The discussion will be tape recorded and a second researcher will take notes of the session.

**In the interview:** The interview will take from 60-120 minutes and will be led by Jawahr Alagil (PhD researcher). The researcher will ask you to recall and describe the process of managing one of your UI patients (you will not be asked to provide names or any identifying information about the patient). Then the researcher will randomly allocate one of two specific case scenarios and discuss the clinical reasoning process that you as pelvic health

physiotherapists would use to assess and treat the patient in the case scenario. The discussion will be tape recorded and the researcher will take notes of the session.

**What are the possible disadvantages and risks of taking part?**

There are no known disadvantages or risks involved in taking part in this study. However, if it is possible that some of the topics discussed during the focus group or interview may cause distress (although this is unlikely to happen during a discussion about patients' treatment). If this should happen, the interview will be ceased, and you can take a break or withdraw from the study if this should happen. During the focus group, you can take a break or leave if you feel distressed.

**What are the possible benefits of taking part?**

Discussing the clinical reasoning regarding the case will give you an opportunity to reflect on your practice with these types of patients and cases.

You may feel that you will not benefit directly from taking part in this study but the information we get will help improve the understanding of UK and Saudi physiotherapist's clinical decision making in the management of people with urinary incontinence. This might improve the treatment of UI in the future and the training provided to students.

**What if there is a problem?**

Any complaint about the way you have been dealt with during the study or any possible harm you might have suffered can be addressed by contacting either of my supervisors. For contact details see the bottom of the information sheet.

**Will my taking part in the study be kept confidential?**

The researcher (Jawahr Alagil) will not disclose any information about you or your participation in either the focus group or interview and will not disclose any comments that you have made. However, as this is a group discussion, other physiotherapists in the focus group would know that you attended and would hear any comments you make during the discussion. All physiotherapists who attend the focus group will be asked to respect the confidentiality of the other participants.

Your data will be handled confidentially. Any data from this research will be stored according to the University of Southampton's Data Management policy. Written and digitally recorded data will be stored on a password-protected computer that will be kept in a secure environment. Interviews and focus groups will be coded and real names and places will be altered to preserve

confidentiality. Any e-mails sent to research participants will have their content coded and preserved within a password protected Word document and contact details and original emails will be deleted. Any papers connected with this research will be scanned and saved in a password protected computer. The original papers will be shredded. All participants who take part in the research will be given a code and that code, rather than your name, will be used to identify you in the analysis and write up of the study.

### **What happens if I change my mind?**

In the interview, up until data analysis and up to 7 days after the focus group you can decide that you no longer wish to proceed with this research, and you have the right to withdraw from the study.

### **Who has reviewed the study?**

This study has been reviewed and approved by the ERGO: Ethics and Research Governance Online. University of Southampton.

### **Contacts for further information**

Researcher: Jawahr Alagil

Email: [j.h.alagil@soton.ac.uk](mailto:j.h.alagil@soton.ac.uk)

### **Supervisors**

Dr. Sara Demain

Faculty of Health Sciences Student Office University of Southampton Highfield Southampton SO17 1BJ

Email: [s.h.demain@soton.ac.uk](mailto:s.h.demain@soton.ac.uk)

Room Number: 67/4061

Dr. Ellen Kitson-Reynolds

Faculty of Health Sciences Student Office University of Southampton Highfield Southampton SO17 1BJ

Room Number: 67/3019

Email: [E.L.kitson-Reynolds@soton.ac.uk](mailto:E.L.kitson-Reynolds@soton.ac.uk)

## **Appendix J**

## **Twitter Message**

### **Twitter Message**

I am researching clinical reasoning and decision making among pelvic health physiotherapists and would be very interested to speak to you! If you'd like to be involved in the study, please contact me at [j.h.alagil@soton.ac.uk](mailto:j.h.alagil@soton.ac.uk). For more information

<http://bit.ly/2mOTw9a>

<http://bit.ly/2LRjq6R>

## Appendix K Interview Consent form

### CONSENT FORM

#### For Interview

**Study title:** A qualitative study to explore the decision making and clinical reasoning processes among experienced women's health physiotherapists in the UK and Kingdom of Saudi Arabia while managing patients with urinary incontinence.

**Researcher name:** Jawahr Alagil

**ERGO number:** 31625

*Please add you're initial in the box (es) if you agree with the statement(s):*

I have read and understood the information sheet (16/05/2018 /version no. 1 of participant information sheet) and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw (up to data analysis) for any reason without my rights being affected.	
I understand that my interview will be audio recorded and transcribed.	



I understand my responses will be anonymised in reports of the research.	
I understand that I may be quoted directly in reports of the research but that my name will not be used.	
I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of ethically approved research studies.	

Name of participant (print name) .....

Signature of participant.....

Date.....

Name of researcher (print name) .....

Signature of researcher .....

Date.....

***Optional - please only initial the box (es) you wish to agree to:***

I understand that the information collected about me will be anonymised and may be used in future ethically approved research studies.	
--	--

## Appendix L

## Focus Group Consent Form

### CONSENT FORM

#### For Focus Group

**Study title:** A qualitative study to explore the decision making and clinical reasoning processes among experienced women's health physiotherapists in the UK and Kingdom of Saudi Arabia while managing patients with urinary incontinence.

**Researcher name:** Jawahr Alagil

**ERGO number:** 31625

*Please initial the box (es) if you agree with the statement(s):*

I have read and understood the information sheet (16/05/2018 /version no. 1 of participant information sheet) and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw (up to 7 days following focus group) for any reason without my rights being affected.	
I understand that focus group will be audio recorded and transcribed.	
I understand my responses will be anonymised in reports of the research.	
I understand that I may be quoted directly in reports of the research but that my name will not be used.	

I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of ethically approved research studies.	
--	--

Name of participant (print name) .....

Signature of participant.....

Date.....

Name of researcher (print name) .....

Signature of researcher .....

Date.....

*Optional - please only initial the box (es) you wish to agree to:*

I understand that the information collected about me will be anonymised and may be used in future ethically approved research studies.	
--	--

## Appendix M

## The UK Demographics Form

### The UK Demographics Form

Demographics Form						
Participant ID		Date	/ /		Country	<input type="checkbox"/> UK
Setting	<input type="checkbox"/> NHS Hospital <input type="checkbox"/> Private Hospital	<input type="checkbox"/> GP surgeries	<input type="checkbox"/> Self-employment	<input type="checkbox"/> Community health centre <input type="checkbox"/> Clinic	Method	<input type="checkbox"/> Interview <input type="checkbox"/> Focus Group

### INCLUSION CRITERIA

*appropriate box*

*Please tick  the*

Pelvic Health Physiotherapists (PHPTs) who have been OR who are registered with the Health and Care Professional Council (HCPC).	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Qualified Physiotherapists (PT) who have worked with Urinary Incontinence (UI) patients a minimum of one year and treated a minimum of 10 patients with UI in the past year.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Or qualified PHPTs with more than 2 years' experience who have treated less than 10 patients with UI in the past year.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Participants able to read, speak and write in English.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Able to give informed consent.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Academic PHPTs who are not necessarily treating patients with UI in the past year, but did research and/or teach students about UI.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Participant has read and understood the information sheet, has had the opportunity to ask questions and has completed the consent form.	<input type="checkbox"/> Yes <input type="checkbox"/> No
---	--

**SOCIO-DEMOGRAPHIC INFORMATION**

**Sex:**       Male       Female

*Age: Please tick as appropriate*

20-25       26-35

36-45       46-55

56-65

**Qualifications** *Please mark or write the appropriate response*

	Diploma Physiotherapy	1
	Bachelor Physiotherapy	2
	Masters of Physiotherapy	3
	PhD in Physiotherapy	4
	Other(specify)	5
<b>Employment status (paid or voluntary)</b>	Full time	1
	Part time	2
	Other (specify) _____	3

**Number of years since graduation**

**Where did you train?**

.....

**How long did you work in that country?**

.....

**Number of years since working with urinary incontinence**

Number of patients with urinary incontinence treated in the last year

**Please specify the common type of UI diagnosis...**

**Courses that you have attended in Urinary Incontinence (please specify the course title and duration):**

Courses title .....

Duration .....

Who usually refers patients to the physiotherapy service in your setting?

Date	Signature
------	-----------

**Appendix N**

**KSA Demographics Form**

Demographics Form						
Participant ID		Date	/ /	Date of Birth: / /	Country	<input type="checkbox"/> KSA
Setting	<input type="checkbox"/> Ministry of Health Hospital  <input type="checkbox"/> Private Hospital	<input type="checkbox"/> Tertiary Hospital	<input type="checkbox"/> Governmental Clinic	<input type="checkbox"/> Private Clinic	Method	<input type="checkbox"/> Interview  <input type="checkbox"/> Focus Group

**INCLUSION CRITERIA**

*Please tick ✓ the appropriate box*

PHPTs' have been OR are registered with SAUDI Commission for Health Specialities (SCHS) in KSA.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Qualified Physiotherapists (PT) who have worked with patients with urinary incontinence a minimum of one year and treated a minimum of	<input type="checkbox"/> Yes <input type="checkbox"/> No
Or qualified PHPTs with more than 2 years' experience. Who were treating less than 10 patients with UI in the past year.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Participants able to read, speak and write in English.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Able to give inform consent.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Or academic PHPTs, who are not necessarily, treating patients with UI in the past year, but did research and/or teach students about UI.	<input type="checkbox"/> Yes <input type="checkbox"/> No
--	--

Participant has read and understood the information sheet, has had the opportunity to ask questions and has completed the consent form.	<input type="radio"/> Yes <input type="checkbox"/> No
---	---

**SOCIO-DEMOGRAPHIC INFORMATION**

**Sex:**       Male       Female

Age: *Please tick as appropriate*

20-25       26-35

36-45       46-55

56-65

**Qualifications** *Please mark or write the appropriate response*

**Employment status (paid or voluntary)**

Diploma Physiotherapy	1
Bachelor Physiotherapy	2
Masters of Physiotherapy	3
PhD in Physiotherapy	4
Other(specify)	5
Full time	1
Part time	2
Other (specify) _____	3



Number of years since graduation

Where did you train...?

How long did you work in that country...

Number of years since working with urinary incontinence

Number of patients with urinary incontinence treated in the last year

**Please specify the common type of UI diagnosis:  
in Urinary Incontinence (please specify the course title and duration):**

**Courses that you have attended**

Courses title .....

Duration .....

Who usually refers patients to the physiotherapy service in your setting?

Date	Signature
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**Interview Guide****Adapted from Hennink (2007)**

**Introductory Statement:** I would like to thank you for coming to this interview. My name is Jawahr Alagil from the University of Southampton, and I am conducting this interview as part of my PhD study to identify your views about your processes of decision making and clinical reasoning during the assessment and treatment of patients with urinary incontinence.

Decision making and clinical reasoning is a very important part of pelvic health physiotherapists in their clinical assessment and treatment for patients with urinary incontinence. I would like to focus on your processes of clinical reasoning during the assessment and treatment of your patients with urinary incontinence. This means the process of your thinking and how you reach your assessment and treatment decisions.

Your participation in this interview is completely voluntary. So, if you prefer to stop the interview, you are completely free to leave. However, I value your views on the topic and I hope that you will stay and share your opinions. The information that we will discuss today will remain confidential and will be used only for my research purposes. It will be securely stored so that it is not accessible to anyone outside the research team.

I would like to say that there are no right or wrong answers in this interview, there is a case scenario that I would like you to spend five minutes reading. Then we will simply discuss your views, opinions, and experiences on a range of topics related to this case, so please feel comfortable to say what you honestly feel.

During the discussion I will be taking notes and looking at my notes, which would remind me if I forgot to ask something. However, so that I do not have to worry about getting every word down on the paper, I would also like to digitally record the whole session. Please do not be concerned about this, the recording will remain completely confidential and will only be used for this research project. Are you comfortable with recording this discussion? I would like to spend about 60-120 minutes with you. Are there any questions before we start? Let's start.....

Think for a minute about one of your patients with urinary incontinence and while maintaining your patient confidentiality could you tell me....

How did you receive your patient referral?

Was the diagnosis clearly mentioned or did you have to make your own assessment?

*If referral WAS NOT clearly and correctly diagnosed, ask:*

What assessments did you do?

How did you come to this decision?

What treatments did you decide to use?

How did you come to this decision?

*Prompts: What other kind of treatments would you usually prescribe? Why?*

*If referral WAS clearly and correctly diagnosed, ask:*

How much did it inform your clinical reasoning about.....?

What assessments to do?

What treatments to use?

*Prompts: What other kind of treatments would you usually prescribe? Why?*

What helped you to decide what the clinical diagnosis or clinical problems were?

How did you decide what treatments might be best?

How did you reach the treatment decision?

How did you solve any uncertainties that you had?

How do you decide what treatments might be best?

What role did the patient play in deciding what the treatment should be?

*Prompts – type of treatments, frequency of treatments,*

### **Conclusion:**

We are now reaching the end of the interview. Do you have any further comments to add before we conclude this session?

As this was a pilot interview, I wanted to ask you what you thought about the interview itself. Are there any other questions that I could have asked you that would have given me useful information?

I would like to thank you very much for your participation in this interview, your experience and opinions are very valuable to assist in improving our understanding of the clinical reasoning processes among pelvic health physiotherapists. I am interested to know more about the factors that might affect decision making and clinical reasoning, so I am planning on conducting a focus group discussion in the near future, I would be very interested to hear your views in discussion with other pelvic health physiotherapists. Please take your time to think about it and reply to me by e-mail if you would like to take part. You will receive a thank you e-mail from me, with an option to receive the findings of this study. Please reply to me if you are interested in reading the future study findings.

## **Appendix P                      Focus Group Guide**

### **Focus Group Guide/ Framework**

Adapted from (Lauri *et al.*, 2001; Edwards *et al.*, 2004b; Hennink, 2007; McGinnis *et al.*, 2009a; Haas *et al.*, 2012)

### **Introductory Statement**

I would like to thank you all for coming to this group. My name is Jawahr Alagil from the University of Southampton, and I am conducting this discussion group as part of my PhD study to identify your views about the common factors that affect pelvic health physiotherapists' decision making and clinical reasoning while assessing and treating patients with urinary incontinence.

Decision making and clinical reasoning is a very important part of women's health physiotherapists in her clinical assessment and treatment for patients with urinary incontinence. We would like to focus on your view and experience about the factors that influence your clinical reasoning and decision making.

Your participation in this discussion group is completely voluntary. So, if you prefer not to be part of this discussion, you are completely free to leave. However, we value everyone's views on the topic, and I hope that you will stay and share your opinions. The information that we will discuss today will remain confidential and will be used only for research purposes. It will be securely stored so that it is not accessible to anyone outside the research team.

I would like to say that there are no right or wrong answers in this discussion, we will simply be discussing your views, opinions and experiences on a range of topics, so please feel comfortable to say what you honestly feel.

During the discussion a facilitator will be taking notes and reminding me if I forgot to ask something. However, so that she does not have to worry about getting every word down on the paper, we would also like to digitally record the whole session. Please do not be concerned about this, the recording will remain completely confidential and will only be used for this research project. Is everyone comfortable with recording this discussion? (Ensure that everyone consents to recording.)

We do not want to miss anything that is said so it is important that only one person talks at a time. Remember we want to hear as many different points of view as possible, so feel free to disagree with someone else and share your own opinions. We would like you to have the chance to express your opinions, so please let everyone have their say. We would like to spend about 90-120 minutes with you. Please also help yourselves to the refreshments we have provided before discussion. Are there any questions before we start? Can I just check that you all sign the consent form and read participants information sheet? Let's start

### **Introduction question**

As an introduction, let us go around the group and perhaps each person can introduce themselves by saying their name and tell us your area of work. (I will edit this in the transcript using pseudonym name and remove all identifying places if mentioned).

### **Prompts:**

In your opinion/experience\*, what are the main different between the factors that can affect pelvic health physiotherapists' decision making and other physiotherapy specialities?

What are the main factors, external to treatment that affects your clinical practice?

### **Multidimensional knowledge base**

In your opinion/experience\*, what are the central skills in pelvic health physiotherapy practice?

How did you gain your knowledge and become women's health physiotherapists?

What type of knowledge is more important than the other in pelvic health physiotherapy?

What kind of knowledge do you use when defining your client's health problems?

### **Physiotherapist's experience**

How do you think that you have grown as pelvic health physiotherapists over the last few years?

As you think back over your clinical experience, has your approach to assessing and treating patients with urinary incontinence changed? Why or why not?

How do you regard the activity of teaching in your practice?

### **Physiotherapists understanding of patient's problems**

- Is there anything that limited your choices of assessment and treatment approaches?
- How did you use the information you gathered from your assessment?
- How did you know to look at these things? Is there anything from your demographic data form that influenced your choices?

### **Patients factors (Age and other related diseases)**

- How your assessment and treatment varied is based on patient's age and the availability of other disease?
- Do you involve family members or caregivers in the management process?
- If so, in what ways (or how) do you do this?

### **Patient goals, preferences and perceptions toward assessment and treatment**

- What role do your clients have in their management process?
- In your opinion, what is the best way to interact and socialize with your patients with urinary incontinence? (interactive reasoning Edwards et al. (2004))
- How can you manage the social relationships with your patients and colleagues, the emotional aspects of your work, and your own emotions?

### **Prescribing exercises for patients with urinary incontinence:**

In what circumstances do you think patients need to do exercises in this context (for example, on face-to-face individual basis) rather than the other contexts explored (for example, doing a home exercise program or attending a group exercise program)?

### **Adherence to exercise**

- Do you have problem with patient's adherence and, why do you think this is generally the case?
- What do you do to help promote patient adherence?

- Do you think this is effective?
- Why or why not?
- Is there anything else could be done to promote adherence that you do not or cannot do?
- What stops you from doing this?

#### **Cultural constraints**

- How cultural competence is integrated in pelvic health physiotherapy practice? at all three levels identified: those of awareness, respect and acceptance, and mutual collaboration(Norris and Allotey, 2008).
- How women's health physiotherapists consider different culture in her assessment and treatment of patients with urinary incontinence?
- How the way of taking patient consent to assessment in urinary incontinence is varied among different culture?
- Are there any specific guidelines that you follow?

#### **Relationship with inter-disciplinary team**

- Do you consider referring the patient to another specialist and why?
- How do you do that?

#### **Utilizing the experience of doing interview in the UK and KSA:**

- Based on the participant's interview that has been done in the UK and KSA, they mentioned that there are different in the clinical practice between UK and KSA. In your opinion what are the factors that lead to this difference?
- Why there is different?

#### **Conclusion:**

We are now reaching the end of the discussion. Does anyone have any further comments to add before we conclude this session? I would like to thank you all very much for your participation in this discussion, your experiences and opinions are very valuable to assist in improving our understanding to decision making and clinical reasoning process among pelvic health physiotherapists. You will receive a thank you e-mail from the researcher, with an option to receive the findings of the study. Please reply to me if you are interested in reading the future study findings. \*Experience/opinion will be used interchangeable

**Appendix Q                      Thank you e-mail**

Subject line: Interview and /or Focus group Thank you e-mail

Dear Mrs. /Mr. Last Name,

I enjoyed meeting you and learning more about your experience in clinical reasoning and decision making while assessing and treating patients with urinary incontinence.

Thank you for taking part in this research. It was very helpful learning about your knowledge and experience in the field of women's health.

I am grateful for the time you spent with me during the interview and/or focus group.

Please let me know if you are interested in reading the future study findings, which will be available in about two-year time.

Sincerely,

Jawahr Alagil

## Glossary

Adapted from Bø (2020); Frawley *et al.* (2021)

**Pelvic Organ Prolapse:** refers to falling or downward displacement of the uterus, vaginal compartments their neighbouring organs such as bladder, rectum or bowel.

**Dyspareunia:** Complaint of persistent or recurrent pain or discomfort associated with attempted or complete vaginal penetration.

**Palpation/ Digital palpation:** The process of using fingers/hands as part of assessment, to gather information about the tissues.

**Lifestyle modification:** is the application of interventions in the management of lifestyle-related pelvic floor dysfunctions. For instance, fluid consumption/restriction, dietary modification, dietary elimination and physical activity.

**Urgency suppression techniques** are methods/manoeuvres that are used to decrease the feeling of urgency, which may include, but are not limited to: distraction, PFM contraction and perineal pressure such as sitting on a hard chair.

**Facilitation technique:** any method of increasing recruitment/ response of a nonresponding muscle. In the case of very weak PFMs, this may include a quick stretch of the PFM, with tapping or stretching the PFM digitally. An overflow effect from a strong contraction of adjacent synergistic muscle (e.g., external rotators) may also assist facilitation or recruitment of PFMs.

**Functional PFM training:** training and exercises that include a correct PFM contraction into activities of daily living such as lifting, transferring out of bed, or coughing. A PFM contraction before a rise in intra-abdominal pressure, e.g., a sneezing (“the Knack”) is part of functional PFM training.

**Posterior Tibial Nerve Stimulation:** Percutaneous neuromuscular electrical stimulation (e.g., posterior TNS) is a peripheral neuromodulation technique, in which the posterior tibial nerve is electrically stimulated, via insertion of a percutaneous needle electrode. This is joined with an adhesive reference surface electrode placed near to the needle. This intervention is offered to patients with overactive bladder.

**Nocturia:** is waking to pass urine during the main sleep period.



**Urgency:** is the complaint of a sudden compelling desire to pass urine, which is difficult to defer.

**Stress Urinary Incontinence:** is the complaint of involuntary leakage on effort or exertion, or on sneezing or coughing.

**Urgency Urinary Incontinence:** is the complaint of involuntary loss of urine associated with urgency.

**Mixed Urinary Incontinence:** is the complaint of involuntary leakage associated with urgency



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