

ORIGINAL ARTICLE IN HEALTH PSYCHOLOGY

Knowledge and attitudes among healthcare workers and patients with total knee and hip replacement towards the use of brief psychological techniques: A qualitative study in UK and Saudi hospitals

Tahani ALSANAANI¹, Alyson NORMAN¹, Ben WHALLEY¹

Affiliations:

¹ *School of Psychology, University of Plymouth, Plymouth, UK.*

Corresponding Author:

Dr. Tahani Alsanaani, School of Psychology, University of Plymouth, Drake Circus, Plymouth, UK. Email:

tahani.alsanaani@gmail.com

Abstract

Introduction: Brief psychological interventions, including guided imagery, relaxation, and distraction-based techniques, can be effective adjunctive techniques to manage acute surgical pain, but are not widely adopted in clinical practice. Furthermore, mixed adherence to conventional pain treatments sometimes limits the effectiveness of pain management. Patients' perceptions of these techniques, and the attitudes of health professionals involved in managing acute pain, are not sufficiently well understood to inform research or policy.

Methods: Key informants such as 58 patients and 20 healthcare professionals in two Orthopedic departments in the UK and Saudi Arabia, were interviewed. Patient interviews were conducted at three distinct points in their care: before surgery (T1), on the ward (T2), and several weeks after surgery (T3). A thematic analysis explored participants' perceptions, understanding and acceptance of brief psychological interventions (BPIs) for acute pain after surgery.

Results: Most patients expressed favorable opinions towards BPIs. These opinions were often

linked to concerns about painkillers including side effects, tolerance, or dependence. Many patients reported the spontaneous practice of non-drug interventions to cope with their pain. Interviews also revealed numerous barriers to the delivery of BPIs in mainstream clinical practice including lack of knowledge and expertise among healthcare workers (HCWs), and prejudice associated with psychological treatments. HCWs were positive towards the use of BPIs in principle but highlighted a perceived lack of scientific evidence and lack of time and resources as the primary barriers to broader adoption.

Conclusion: Our findings provide insights into the perception of psychological interventions for acute pain among patients and healthcare professionals, and provide a foundation for the design, evaluation and dissemination of future BPIs for postoperative pain relief. A better understanding of perceived barriers to use will inform the structure and presentation of future BPI packages. Future evaluation studies using structured, well-documented interventions that are designed for ease of dissemination are required.

KEY WORDS: Brief intervention; healthcare workers; healthcare knowledge; healthcare attitude; non-drug interventions; psychological intervention; patients' perceptions.

TAKE-HOME MESSAGE: In this qualitative study, in UK and Saudi hospitals patients are broadly receptive to psychological interventions as adjuncts to pharmacotherapy for acute pain. Healthcare workers require structured intervention packages with clear plans for implementation to aid wider adoption.

Competing interests: none declared

Copyright © 2021 Tahani Alsanaani et al. Edizioni FS Publishers

This is an open access article distributed under the Creative Commons Attribution (CC BY 4.0) License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

See <http://www.creativecommons.org/licenses/by/4.0/>.

Cite this article as: Alsanaani T, Norman A, Whalley B. Knowledge and attitudes among healthcare professionals and patients with total knee and hip replacement towards the use of brief psychological techniques: A qualitative study in UK and Saudi Hospitals. [published online ahead of print February 18, 2021]. J Health Soc Sci. doi10.19204/2021/knw19

Received: 11 Feb 2021

Accepted: 18 Feb 2021

Published Online: 18 Feb 2021

INTRODUCTION

Poor adherence to treatment is common among patients who are experiencing pain [1]. Poor control of pain can threaten patients' well-being, impair functional recovery, and increase economic burdens [2, 3]. Adherence is influenced by multiple factors including; age, gender socioeconomic status, and patients' attitudes, knowledge or beliefs about medications [2, 4, 5]. A systematic review aimed at determining the prevalence of medication non-adherence identified that factors associated negatively with non-adherence were: age, pain intensity and the quality of the patient-caregiver relationship [1]. Underuse of treatment was also positively associated with active coping strategies and self-medication while being negatively associated with a perceived need for medication [1].

Studies of non-drug interventions identified that hospitalized patients and patients experiencing acute pain episodes after discharge often spontaneously practice non-drug techniques to manage their postoperative pain. For example, Pellino et al. (2005) reported that between 19 and 28 percent of patients in the usual care control group used non-drug techniques such as deep breathing, music and meditation to manage their pain during the three postoperative days [6]. Another study using data from 34 postoperative breast cancer patients reported an increase in

non-drug interventions among patients after discharge, particularly relaxation techniques (breathing, imagery, music, and meditation) [7] with most participants using these non-drug interventions in addition to medication.

It is worth stating that the effectiveness of BPIs as an adjunctive treatment for acute pain have been investigated in a number of systematic reviews and meta-analyses [8–12]. Meta-analyses of adult patients undergoing surgeries and other medical procedures revealed medium to large effect sizes for hypnosis ($g = 0.44$, and $D = 1.20$ respectively). Patients in treatment groups had better clinical outcomes, less pain medication use, better physiological indicators and better recovery compared with control groups [8, 9]. Another systematic review revealed a small positive effect size of therapeutic techniques on the use of medication and recovery period among patients undergoing surgeries under general anesthesia [10]. Furthermore, relaxation techniques for managing different conditions of pain have also been reported in a systematic review by Kwekkeboom and Gretarsdottir (2006). Out of 15 included studies, eight were found to support the effect of relaxation techniques for the relief of various pain conditions [13].

Research into the factors influencing patient adherence to non-drug interventions to manage postoperative pain is very limited in comparison with the large body of research that has addressed patients' non-adherence to medical treatment [1, 14]. This research has identified a number of factors that could influence patients' adherence, including patient-centered factors, therapy-related factors, social and economic factors, healthcare-system factors, and disease factors [4]. In addition, researchers has highlighted the contribution of concerns about pain medication and patient-caregiver relationship [1]. Patient and physician communication is vital in pain management process to make patients aware of pain management choices; however, for

some healthcare workers (HCWs) the role of psychology in pain is equivocal/problematic. For example, an online study included 52 practitioners and 46 physiotherapists to examine the impact of the presence of biomedical basis for pain and the psychological effects on their views of patient pain experience [15]. The findings revealed that the absence of medical evidence and the presence of psychological influences was related to less positive evaluation of patients and higher beliefs in deception in both professions [15].

Therefore, Patients' and HCWs perceptions of these interventions may form barriers which influence their acceptance of brief psychological interventions (BPIs) as methods to manage pain. Such perceptions could be associated with the lack of information and prejudice about psychological treatment generally, which may consequently affect the delivery of these interventions in practice.

Patients' knowledge and misinformation

Patients often express a desire for more information about their condition and its management, and this desire for information appears consistent across patients with a variety of pain experiences including: patients with burn problems [16], cancer patients [17] and patients with chronic back pain [18]. Patients using pharmacological therapies may have specific concerns about the safety and long-term consequences of treatments. For example, a qualitative study of patient-controlled analgesia (PCA) identified that patients wanted more information about the drugs that are used in PCA, and their side effects [19]. Patients also wanted reassurance that the drugs were safe and that they could not become addicted or overdose. This study identified that patients sometimes feel 'in the dark' about pain management and their own pain medication.

Stigma may also play a role in non-adherence with treatments for pain, and patients may be reluctant to discuss or admit pain [20]. Stigma can also be a barrier to help-seeking, and particularly for psychological help [i.e. 14, 15]. Investigating perceptions about BPIs may clarify our understanding of how best to deliver them.

Healthcare workers' knowledge

Pain is a complex phenomenon, and scientific understanding of pain has changed substantially in the working lives of many healthcare professionals, although this is not always reflected in professional education and training [23]. HCW's attitudes-to and understandings-of pain vary substantially [24], and can impact on the ways in which HCWs measure, manage and treat pain symptoms. For example, some HCWs may regard pain experienced by patients as incidental, in the sense that pain is a symptom of disease, or as a reaction to treatment [25]. Other HCWs, particularly pain specialists, regard pain as the principal focus of their practice and an important phenomenon in its own right [26]. An assessment of the knowledge and attitudes of 101 trained doctors and nurses from orthopedic and surgical ward educational hospital in the UK revealed the lack of pain knowledge, pain assessment, analgesic delivery system, and differences between doctors and nurses in standards of education [27]. Another study by Nuseir et al. (2016) evaluated pain knowledge among 662 HCWs (physicians, pharmacists and nurses) [28]. The overall pain knowledge percentage score was low, with significant differences among HCWs percentage scores (physicians (36%) and pharmacists (36%) versus nurses (24%). Additionally, Green and Wheeler (2003) investigated the variability in physicians' attitudes and knowledge as well as the influence of that in their decision-making in acute postoperative and cancer pain [29].

They found that education and work experience could influence their decisions in the prescription of pain management treatment to patients in these clinical situations. Physicians with more pain education, or who had more clinical experience treating pain, reported better pain management choices overall [29].

As evidence continues to highlight the insufficient knowledge of pain management among HCWs [28, 30, 31], this may lead to inadequate pain relief for patients. Furthermore, it can be regarded as a potential barrier to accepting and implementing different approaches to manage postoperative pain, including BPIs.

That has led to the implementation of pain management educational sessions for HCWs to enhance patient experience [32, 33]. This poor knowledge base, coupled with possible cognitive biases against BPIs and regarding medical decision-making, can reduce the evidence base for the treatment decisions of HCWs [34–36]. Therefore, investigating the attitudes of HCWs to these types of interventions are important.

Practices of pain management have been widely investigated across various cultures. The influence of cultural factors has been found to influence the practices of HCWs and is more likely to affect medical recommendations [37], and patients' acceptance of treatment recommendations [37–39]. Middle Eastern countries, including Saudi Arabia (SA), have been encouraged by expert panels on pain management to adapt European or north American guidelines for post-operative pain management, to fit local patients' needs [40, 41]. As noted above, previous studies have suggested variability in HCWs' knowledge of and attitudes to pain management, and that some practitioners attitudes or approaches may not reflect current state of the art. Surveys of SA HCWs suggest similar deficits knowledge-of and attitudes-to pain

management and pain assessment [42–45]. Therefore, investigating the role of culture among SA and UK participants' attitudes and views on BPIs as post-operative pain strategies may insights into the ways in which access to these adjunctive treatments can be expended.

The aim of the study was to 1) investigate the perceived effectiveness of brief psychological techniques (BPIs) for the relief of post-surgical pain among patients and HCWs from the United Kingdom (UK) and Saudi Arabia (SA); 2) identify barriers to implementing BPIs in contemporary practice, and 3) explore the differences between SA and UK patients and HCWs in their views towards these psychological interventions.

METHODS

Study design and procedure

Semi-structured interviews were conducted with both patients and HCWs to explore their views about accepting BPIs as pain management strategies. Participants' attitudes, feelings and individual experiences related to pain and pain management were examined in the therapeutic context to garner a deeper understanding of their expectations and identify barriers for the implementation of BPIs as pain management strategies.

Patients were identified from the consultants lists and those who fit the criteria were approached by their consultant. Those who agreed to participate were contacted by the researcher to arrange the interview. Patients' interviews were performed at three points during their treatment: 1) the preoperative assessment clinic; 2) the postoperative phase on the wards, between day one and day four after surgery; and 3) during the follow-up phase between 6 to 9 weeks after surgery, in which patients were recovering at home. Most patients joined a private one-on-one interview

conducted by the principal investigator, but 11 patients attended with a family member present. Study invitations were sent via email to HCWs from clinic staff. Those who expressed interest were then approached directly to arrange an interview.

Study participants and sampling

The study took place at orthopedic departments in two different locations, one in the South West of England and the other in the Western region of Saudi Arabia. Participants were recruited between March 2017 and June 2017. While the hospital in SA carries out many procedures on private health insurance, patients who attended the medical center were generally representative of the Saudi population, because the medical center all receives patients who came from other social, educational and economic backgrounds.

A convenience sample of 27 UK and 31 SA patients (Age, median (IQR); 63 (55 – 78) UK; 63 (55.5 – 74.5) SA) and 9 UK and 11 SA HCWs (10 consultants, 8 nurses, 2 anesthetists) were included in the study.

Study interviews

Two different interview schedules were employed for the HCWs and the patients. Interviews were conducted by the first author. Patient interviews lasted between 8 and 27 minutes, and HCW interviews lasted between 8 and 20 minutes. All interviews were performed in private one-to-one settings in a quiet place at the clinic. These interviews were audiotaped. English interviews were transcribed verbatim by a commercial transcription service, and Arabic interviews were translated and transcribed by the first author.

The interview guide was structured thematically to explore patients' experiences with pain and

pain relief, including a description of their medications, feelings, and daily activities. Patients were asked to rate their pain in a numeric rating scale (0-10) and describe the impact of pain on their life. Their views on psychological interventions were explored to uncover any potential barriers to delivering such interventions as pain management techniques. For HCWs, the guide was aimed to explore the current surgical pain management protocol, followed by a description of the best practice of pain management based on their work experience. The interviews also explored potential barriers and facilitators to BPIs implementation in practice.

Ethical aspects

Ethical guidelines for research as laid down by the British Psychological Society were followed during this study, including informed consent. The study was approved by the Health Research Authority, the Research Ethics Committees, University Faculty Ethics Committee, and the National Health Services. Approval was also obtained from the Medical Centre in Saudi.

Data analysis

The data was analyzed using thematic analysis [46] using NVivo software (version 11) to help organize and classify the content of transcripts. A thematic inductive approach [46] was selected to allow patients and HCWs' beliefs and thoughts related to psychological interventions as pain relief strategies to be explored without any pre-defined assumptions.

Initially, familiarization with the transcripts took place. Then each transcript was examined for content related to the study's objectives, and emerging codes from the data were categorized into groups. Each group was reviewed to check if themes were related to the codes, then the meaningful themes were refined and labelled. The coding process was performed by the first

author, and the preliminary findings were recorded then checked and discussed with the rest of the research team. Separate analysis for data produced by patients' interviews in each phase (pre-op, post-op and follow-up) were performed to identify any differences related to their pain experiences or behaviors. Where no differences were identified, the general analysis was performed across both the UK and Saudi data. Finally, a report that summarized these findings was produced and reviewed for validation by the research team.

RESULTS

Patient views

Four main themes were identified: 1) Living with pain experience; 2) Concerns related to pain relief; 3) Acceptance of psychological interventions; and 4) Barriers to implementing BPIs.

Theme 1: Living with pain experience

Impact of pain

Patients from both settings described the impact of their pain experiences on their daily routine movements and on their emotional status, leading to their decision to undertake surgery.

“Oh God... the pain is increasing when I walk, I can't walk... I used to walk long distances because it's good for the body, but the pain won't allow me to do that anymore. I can't climb the stairs; I can't stand up to do my praying. I have to do it while I'm sitting on a chair. The driving became annoying because of the pain, this why I have to do the surgery that is it...”

(SA-pre-op P7, male)

“I feel the pain 10 [on VAS 0-10] most of the time... Well, it's not too bad when I sit down but as soon as I get up and move...”

(UK-pre-op P9, male)

In comparison to pre-op patients, follow-up patients experienced less pain and felt more

emotionally stable. However, post-op patients in both settings indicted discomfort in their movements, while sleeping or resting and reported feeling emotional. This was attributed to the wound after surgery and was seen as a temporary but necessary outcome of the surgery.

“...I’m an active person, I like going out and inviting people to my house. I also have a big house, and I have to supervise my children and the housekeepers... all that I could not do it anymore because of the pain. The pain restricted my movements... I became very tired when doing the daily routine like climbing and getting down the stairs.”

(SA-follow-up P9, female)

“I felt worried and so emotional, but all that went after I had my surgery done and felt better now. Thank God!”

(SA-follow-up P1, female)

“...I still sort of do [taking care of their horses], and my husband helps me too—I might go at the stables and do that sort of thing, but I don’t ride anymore. And my husband looks after the chickens and the ducks.”

(UK-follow-up P4, female)

A notable feature of SA patients was optimism that their pain could be alleviated with the help of God and with the support they received from their family. These feelings were not identified in this way among the UK patients, who in contrast, expressed their hopes and wishes only to be better soon.

“... I did feel everything good, and with the help of God. I’m doing my physiotherapy and feeling better. Thank God... My children and my grandchildren around me... and that is all. Thanks God]”

(SA-post-op P3, female)

“...I’m very optimistic and I can feel the pain diminish very day... yeah. My family visits me every day... and yeah thank God they are here to support me in this situation...”

(SA-post-op P5, male)

Approaches to coping with pain

Both SA and UK patients reported that accepting pain as part of everyday life was their main coping strategy besides taking their medications and doing physiotherapy.

“...I just have to live with that. There is not much you can do. A lot of people will sort of let the pain get them down. But I’ve been living with it, as you can gather, for such a long time now. I just...Don’t let it get me down.”

(UK-post-op P2, male)

“I just try and take what I can. I mean, they don’t kill the pain totally. They only take the edge of it. That’s all they do. And the rest of it, like I say, I’ve had to live with. So, I just do.”

(UK-post-op P2, male)

Most patients cited similar methods to manage their pain (before surgery) such as using local pain relief patches, herbal therapy, gel and massage oil alongside their medications.

“.. I used lots of alternatives... I used herbal therapy, gels... and olive oil and ginger and other traditional things... I really cannot forget it... the horrible taste, but I did it because it is not dangerous [she meant it does not have side effects]”

(SA-follow-up P1, female)

“I have tried before... it became bad. Physiotherapy, coconut oil heated up and put it on the joint... yeah it eases up. I’ve tried other methods...”

(UK-pre-op P01 female)

SA patients were practicing religious approaches to cope with pain which was not common practice among UK’s patients.

“...I do something like reading the Quran and saying my prayers... this really made my pain decrease and really gave me a great motivation.”

(SA-follow-up P4, male)

“...I have nothing on my hand all on God’s hand. I came here to seek help, and I’ll continue my treatment with them, if I did not get better that’s it, I’ll be with God and depend on him. If God wants to heal me, he will. But I have to do something and seek treatment ...”

(SA-pre-op P2, male)

Some patients cited additional distraction techniques for pain management. UK patients reported gardening, knitting, reading or coloring, while SA patients reported watching TV, playing games and listening to verses from the Quran or saying their prayers.

“...I like reading. I tried to keep my mind occupied.”

(UK-follow-up P5, female)

“...I do knitting... put at in the back of your mind... I have got very high strong pain... it does not normally affect me... I can cope...”

(UK-pre-op P01, female)

“When I felt the pain, I used to watch TV and watching movies, yeah, and reading”

(SA follow-up P5, female)

“... I was trying to ignore the existence of the pain and get busy with something else like reading or watching TV.”

(SA-pre-op P2, male)

Theme 2: Concerns related to pain relief

Most patients in SA and UK raised concerns relating to taking painkillers with both groups trying to limit their consumption. Most patients stated concerns relating to side effects and addiction.

“I don’t like taking too many pills if I could help it.”

(UK-pre-op P9, male)

“...I try to take some painkillers but taking many painkillers that I don’t like. I have tried to stop it once the pain was relieved, after two or three weeks...”

(SA-follow-up P4, male)

“I don't like taking them [painkillers]. I'm trying to avoid them. As much as I can... You know, it is all chemical substances after all and will harm the body more than gaining any benefit.”

(SA-pre-op P2, male)

“I'm trying to avoid it [painkillers] because I know it has side effects. It is true that it could relieve the pain, but it could also destroy the kidney or other vital organs in the body. So I try not to take it unless it's really necessary.”

(SA-pre-op P1, male)

“...I have heard that tramadol can be addictive, but also, I also get concerns in regards to how much is it damaging my kidneys or my liver...”

(UK-follow-up P2, female)

“I've been lucky in that I, with the Oramorph and the Codeine, I've never found it addictive, but I know those can be very addictive substances for some people.”

(UK-post-op P9 female)

Theme 3: Acceptance of psychological techniques

Some patients reported acceptance of psychological pain-management techniques, with many expressing a readiness to try them even if they were not effective due to the lack of side effects associated with the approaches.

“...I have bereavement after losing my son, they actually went through relaxation techniques. And it was a group therapy of about eight of us, brilliant, and I went through that. And each time we went, the lady there would get us to do that while we were there so we could do it again when we were at home. But I have never... I haven't thought about doing it with this. (Laughs)[meant with pain]”.

(UK-Follow-up P1, female)

“...Actually, pain is a physical thing, not on the mental thing... but I'm happy to try [psychological intervention] and be convinced...”

(UK-pre-op P7, male)

“...nothing would stop me from trying it except I don't know anything about it [meant psychological techniques]”

(SA-pre-op P6, female)

“...I don't have any problem with that I can try it to find out if it's working or not.”

(SA-Follow-up P6, female)

“I would do anything that would help me relieve my pain and don't have any threats to my health.”

(SA-Pre-op P1, female)

Theme 4: Barriers to implementation of psychological pain relief techniques

The variability of patients' knowledge of BPIs was extensive and discussions revealed various barriers to implementation, including both internal patient factors and externally driven factors relating to healthcare services.

Lack of knowledge

Patients often expressed a lack of knowledge of BPIs. This combined with misinformation may lead to skepticism that was identified during interviews, particularly among SA patients.

“Nothing would stop me from trying it except I don't know anything about it [the psychological pain relief...”

(SA-pre-op P6, female)

“Well, I presume if I was given an adequate explanation of what I should try and do. I will undertake that. You know and to just see if that was effective...”

(UK-pre-op P7, male)

“...I can't do that, I feel like it is an escape from reality... I feel it is not going to work, I don't like it”

(SA-follow-up P5, female)

“... I think if I'm in a really bad pain, I would do it [self-hypnosis] no problem, but what I saw on the TV about it would make me scared from trying it...”

(SA-follow-up P7, female)

“I do agree to some extent [accept BPIs]. I mean people should be confident and have a strong faith in God. So I think this way [BPIs] would help weak individuals or having personality issues, but people who have a strong faith might don't need this...”

(SA-pre-op P1, male)

“P: I can do that [listening to a relaxation tape] I have no problem... it could be helpful and doesn't have any harm... hypnosis... I personally feel it's kind of superstition... it's kind of distortion of the reality; it's kind of changing the fact to something not true or not real...”

(SA-pre-op P2, male)

“...hypnosis... I think it's not real and not effective...”

(SA-follow-up P1 female)

“I think the alternative treatments are good with certain types of pain, I don't think it has anything to do with the surgical pain... and I think the alternative therapy would reduce the pain, but not make it go away...”

(SA-post-op P5 male)

“Why I wouldn't have it done? Skeptical, I suppose. I've never heard of it being done. I've never heard of anybody else having it done...”

(UK-pre-op P1, male)

Patients' perceptions of pain were also identified as a potential barrier to their engagement in the intervention.

“Actually, pain is a physical thing, not a mental thing...”

(UK-pre-op P7, male)

“...I don't think the pain in the joint would be relieved with some breathing, I think that [breathing] not related to that pain...”

(SA-pre-op P2, male)

Stigma/prejudice

Some patients implied that although they did not prefer the idea of using BPIs, especially hypnotherapy or self-hypnosis, they would be prepared to try them. However, one participant

clearly expressed that she would not welcome the advice for using such techniques from a psychologist.

R: “if the doctor or the psychologist asked you to try this, from whom would you accept and do it?”

P: “from my doctor, I think better.”

R: “can you tell me if there any reason would let you think of that?”

P: “I think I do trust the doctor more, because he is aware of my situation more and has been treating me for a while, so. But the psychologist might don't know me, or maybe it's only my feelings that won't allow me to accept anything from a psychologist, I don't know...”

(SA-follow-up P1, female)

The pain severity

Many patients expressed the view that they felt BPIs would be not be effective if their pain severity was intensive, but would be prepared to consider such techniques for lower level pain.

“...it depends on the level of the pain I have and the state that I would be in. if the pain was severe of course, that would not be effective, but if the pain was moderate it might have an effect...”

(SA-follow-up P4, male)

“...I cannot do it... when the pain starts, is very bad, he won't let you think of anything else until you take the pain relief. Once I took the pain relief, all that I need to do is just wait...”

(SA-post-op P3, female)

“...it would be very hard to try because it seems to overtake you [the pain] no matter what you think about...”

(UK-follow-up P7, female)

“...it doesn't give me any relief, and if the pain is severe, I don't think it would give you any really.”

(UK-follow-up P8, male)

Lack of self-efficacy

Some patients shared concerns about their own perceived ability to perform the interventions successfully.

“...me personally, I can't do it... All my attention and focus would be on the pain area only...”

(SA-follow-up P3, male)

“... I went to the show once where there was a hypnotist. And that's very interesting, but it did not seem to work on me...”

(UK-pre-op P8, male)

Personal preferences and personal characteristics

In the SA setting, patients' preferences for pain relief were strongly associated with their religious beliefs while UK patients' preferences related to what they like and dislike. These preferences, as well as personal characteristics played a part in patient's acceptance of BPIs.

“...listen to me... any Muslim when gets the prayers and ... ask God... you know the doctor, and the healer is God... so I prefer to rise my hand asking for his help... so this is my philosophy in the life, and all what I have been through, it is just a matter of time and will end...”

(SA-follow-up P9, female)

“...honestly, people might practice something like that [BPIs], but people should always ask God to help them and this is the best really from my personal experience...”

(SA-pre-op P1, male)

“...each and every person manages his pain in different ways... Some go to like classes and stuff like that. Even I was asked, do I want to go with these classes. And I went, “Well, no. because it will like depress me.”

(UK-post-op P2, male)

“...Just to be honest with you I might try it once or twice, but then getting bored and discontinue... it could be helpful, but you can say... it is me feeling bored or lazy to continue doing the same thing.”

(SA-post-op P4, female)

“Personally, that’s...probably, I’m not one of those people who will listen to those sorts of things. It’s not my, should we say a cup of tea...”

(UK-post-op P5, male)

“...He’s not patient enough to do breathing exercises... he wants results, and he wants them now...[Patient’s wife talking]. Yeah. Not 10 minutes later or anything... to be honest...[He is replied]”

(UK-pre-op P1, male)

A small number of patients stated that they would prefer not to engage in a practice like this because they prefer to be ‘in control’.

“...it’s something I’ve not really thought about [hypnosis]... I don’t know what it is... I’ve always been happier when it’s—oh, I’m in control... I don’t particularly like the idea of, somebody else being in control...”

(UK-post-op P6, female)

“...me personally, I don’t like these stuff [BPIs]. Because I prefer practical, physical things, but anything related to the imaginations or so, not that I don’t like it... I think the relaxation should come from me from inside and surrender to reality. I think this way would make me more relaxed as it is coming from me. I motivated myself. But the way that people tell me to do this and to do that... I do not like it...”

(SA-follow-up P2, male)

Patient autonomy vs medical practice or authority

It was frequently reported among patients in both cultures that they were willing to reconsider their views and try BPIs if such approaches were recommended by HCWs (particularly doctors) because they trust their medical expertise and knowledge.

“I don't know. If the doctor asked me to do it, I can't say no, because he knows what's best for me.”

(SA-post-op P1, female)

“... You should trust your doctor, doctors are reliable... and we should follow their advice...”

(SA-post-op P6, male)

“Well, I suppose if they [staff at the hospital] said to try and see, well I would do it, yeah.”

(UK-follow-up P3, male)

“...if the doctor says to me or the surgeons say to me, you must take this or take that then he knows more better than I do and I will...and I'll follow his advice, you know...”

(UK-pre-op P8, male)

External factors

The time, place and content of interventions were highlighted by patients as possible factors that would determine engagement. Patients felt that having the time to engage with BPIs alongside attractive content in a convenient location may increase their likelihood of trying such approaches.

“About the only reason is like obviously time...if you've got time to do it because it does take time doing...if you do it correctly. And time consuming...”

(UK-post-op P2, male)

“...if you are in this environment, if you're in a walled environment and then it was, you know, you're going to listen to this tape, and, there's not an awful lot of any distractions going on— the TV's are not ...I haven't got those, you know what I'm saying? ... it's quite a lot of this...it's like a physiotherapist that come out and say – you need to do these exercises. Hand on my heart how I have been doing them, probably as regularly as I should do or I was trying to achieve the aim at that end of the day...”

(UK-post-op P5, male)

“I might listen to the first 5 minutes, if that was attractive and has something useful, I would continue, but if it has general information or boring content...I would discontinue...”

(SA-post-op P7, male)

“...My husband had it once when he had like a breakdown. And he had some deep breathing exercises... And he was listening to it and I was trying to be really supportive trying to listen to it. But I think it was just a combination that it was very unfortunate... So, I was seriously trying to control my laughter.”

(UK-follow-up P2, female)

Professional views

Three related themes were identified: 1) Acceptance of BPIs as pain relief, 2) Potential barriers to implementing BPIs and 3) Potential issues in the clinical setting to facilitate BPI implementation.

Theme 1: Acceptance of BPIs as pain relief

The majority of Saudi and UK HCWs both implied that they are accepting of BPIs to support postoperative pain care particularly as adjunct treatments alongside medication.

“I think this way would help patients. Most patients have fears from the hospital, from the post-surgical pain and the surgery and I think that would help...HCP4”, and HCP2 cited that “I think if that happened [meant implementing the psychological techniques in the medical center] and there is research confirmed the effectiveness of these techniques, I hope I could see that here to help our patients, really.”

“I just think it would be good to have that alternative and I think you know if any, any aids really from, from thinking about how to maybe distract the patients away from pain or just think maybe in person just think more positively I think It would probably help...”

(HCW 7)

“I think distraction therapy is vital... you’re here [meant a patient], you’ve had your operation... everybody else in that bay has had operations, they all have their own experiences and pain, so there’s lots of things, so you’re not actually distracting their focus on pain discomfort...”

“I think that potentially it could make quite a difference and I think the patients do have pain problems after joint replacements and despite—because we have to balance enough making them numb for a week because we’ve got get and going and if you ever need, you got to balance blocking their nerves and still getting to function. Then, I think anything that we can do even if it’s only got a 15% of improvement or 10% improvement; it is really valuable, so I think it really good Thing.”

(HCW 9)

Theme 2: Potential barriers to implementation of BPIs

HCWs reported similar barriers to patients when it came to delivering BPIs in the clinical setting.

These factors related were patient-focused, factors associated with scientific endeavor and workload pressures.

Patient-related barriers

UK-HCWs suggested that patients may not be accepting of BPIs as a pain relief approach. Similarly, SA HCWs emphasized that patients’ level of knowledge about BPIs would be the main obstacle to delivering this technique in the clinical setting. It was difficult to determine whether these assumptions were entirely based on their experiences with patients, or partially linked to their own skepticism about such techniques.

“I think it’s just depends with the patients who will accept it because sometimes they just don’t want to engage with it [a BPI]”

(HCW 6)

“I think some would think and some wouldn’t. I think it depends on the individual, but I think it also depend on us as nurses about how we sold that as such to the patient and how we promoted it...”

(HCW 7)

“I think it is good idea, but depends on patient’s education and knowledge, some patients especially old ones, who might have severe pain in the 3 or 4 postoperative days, I mean he could not do it, but I think they need awareness and education and family education who would help the patient”

(HCW 9)

“It varies from patient to the other. Sometimes patients here do not like to listen to CD or something that could not actually see it or physically use it (like taking meds). They normally prefer to see and hear directly from the doctor... to comfort them”

(HCW 1)

“it depends on the patient... if this is acceptable and especially emphasized with the family educator, why not? Because after all this, it would support the safety of patient and early recovery...”

(HCW 5)

“...maybe most patients seeking for something physical like medicine, and when you tell them try to imagine... this way in Arabic region might be not acceptable. Because they do not rely on something psychological and psychotherapy always linked to people with mental complications.”

(HCW 3)

Barriers related to scientific endeavour

Saudi and UK HCWs both stated the importance of an evidence-base for the efficacy of any intervention before it is administered, as well as firm knowledge about the interventions among HCWs. There was a sense that this level of evidence and knowledge was lacking for BPIs which led to HCWs being reluctant to recommend or approve these techniques for their patients.

“I personally don't know of any technique [psychological techniques] so I can't advise people on techniques I don't know about.... I think we'd have to have a bit of evidence to suggest that it works first”

(UK-HCW 3)

“I don’t think it would be harmful. I think first of all you need to examine whether it’s clinically affective and then examine whether it’s affordable.”

(UK-HCW 6)

“It can be accepted if there is research confirm that this technique [relaxation or positive suggestions] is effective and shows some results, then would be clinically accepted by healthcare providers...”

(AS-HCW 36)

Workload pressures

Additional barriers included a lack of time or high caseloads which prevented HCWs from being able to facilitate BPIs or follow up on the approaches with patients.

“...have to be somebody on top of what we already have.”... “have to be psychologist, psychotherapist”... “You couldn’t ask for more staff to do it.”... “It would have to be, somehow, another member of the team, you do it.”... “I don’t think doctors, I don’t think consultant and I don’t think nursing staff, physio or OT, so it have to be another one team member that come in to give that sort of treatment. This is time consuming. We don’t have enough much time”

(UK-HCW 4)

“Well, it’s cost and it’s another thing for the nurses to do..”

(UK-HCW 9)

Themes 3: Potential issues in the clinical setting

HCWs did identify some potential factors worth noting before introducing BPIs within the clinic structure, including availability of resources, training, and the delivery approach. UK HCWs emphasized through their conversation that the financial issue would be the significant factor that would affect the delivery of the intervention, so intervention should be cost-effective.

“I think, obviously things cost is a big thing, isn’t it, with everything.”

(UK-HCW 8)

“if there was some kind of psychological intervention, you could get the patient to do that would help with their pain, that would be an additional thing that we are not doing at the moment but would be relatively cheap and preferably cost effective, but there is nothing I’m aware of that’s got any evidence behind it. If it were to be introduced, then it would have to be some of those simple to administer and the patient-led really because I don’t think there are the resources to have a lot of it extra equipment”

(UK-HCW 9)

Furthermore, the cost issue was frequently mentioned besides other fundamental factors such as the availability of the resources, i.e. who will deliver it and training required.

“I guess if you're expecting the doctors to deliver it then they need a bit of training. Because they can't just say go and breathe and it will settle down. I don't see a reason, if it is proven to show a benefit, I don't see a reason why the nurses on the ward or the HCA's could not be trained in these techniques because they, to be fair if I'm honest, they have more contact with the patients than we have. We, like a consultant, I will see a patient once a day if I'm lucky. But the nurses will be seeing them day in, day out. So if that is something that the, that maybe the nurses can be trained in, if indeed it does show a benefit then yeah, I'm all for it.”

(UK-HCW 3)

“If where you wanted a physical person to come and actually do that as a specific role, then yes, you got the resources here with me to actually support that as to employ something at that role”

(UK-HCW 1)

Another factor related to the availability of the resources is that the availability of the equipment required for practicing these interventions.

“Yeah, everyone’s got their bedside services on here so they can have access to music through the radio and obviously we encourage people to bring things in to the hospital as well. I don’t know whether that’s something, they actually suggest that the joint school bringing our... there was iPhones now, if they’re going back... can use tapes. [Chuckles]”

(UK-HCW 1)

In contrast, SA’s HCWs did not consider the financial issue to be an obstacle in delivering the

intervention, but they reported factors like the availability of evidence of the psychological intervention effectiveness, and the training issues.

“I don't think it will be any other reasons, but they have to get the evidence, these are could help the patient, then will be decide how to be added it to the protocol. Also, they should study the idea of how to be implemented/delivered in the way patient would accepted. This would take time to explain the details of the delivery, regarding the financial matters it should not be a big deal here in this medical center as it is a big and might have the equipment.”

(HCW 1)

“...No. no. the hospital here is very interested and care about subjects like these and it might seek to provide all the equipment that required.”

(HCW 2)

Moreover, they mentioned that the cost would not be an obstacle, if the procedure and the targets of the intervention were clear.

“...See, in terms of the hospital, there will be no problem. This hospital is big and well-equipped, it would have the resources. It is open-minded to all that but it required to put what you need to do in a specific protocol, what are you going to do, what are going to provide, who are the targeted age, everything. Other than that, the hospital has no problem with that”

(HCW 4)

“...It can be done [delivered], by the clinic pain department. It is part from our procedure that after the patient finish his or her meeting with the anesthetist; they should meet the pain educator to explain everything to them before the operation. So, at that point, patient could be told what to do exactly [he meant delivering the intervention at the same time while meeting with the pain education]. So the pain educator should be prepared by attending courses or workshops to be able to deliver it to patients”

(HCW 3)

DISCUSSION

Patient views

Broadly, patients indicated their acceptance of non-pharmacological pain relief, and many patients reported practicing BPIs spontaneously to relieve pain, including various methods of distraction and relaxation. No significant variations were found between the UK and Saudi patients' views on BPIs for postoperative pain, although a greater role was found for religious practice among SA patients, both in directing practice and setting expectations. The most frequently reported barriers to practicing BPIs were internal barriers such as skepticism, which often corresponded to a lack of knowledge either of contemporary scientific perspectives on pain, ("pain is physical not mental") or on the nature of the techniques themselves. The severity of pain, lack of self-efficacy, and misconceptions related to psychological treatments were also issues for some patients. Respondents also indicated a role for HCWs in recommending and aiding the implementation of BPIs.

While considerable research has been conducted into exploring the barriers and facilitators to self-management of pain among patients with a range of chronic conditions [47–49], previous studies failed to specifically investigate the views of patients. The current research attempted to rectify this shortcoming and compare the findings against previous studies. The current study has also improved the understanding of patients' attitudes toward BPIs for postoperative pain relief across different cultural settings by identifying similarities and differences in patient responses. This is an important factor as pain perceptions and management have been found to be culturally influenced [50]. Interestingly, the current study did not highlight any significant cultural

difference between the two patient groups except in relation to the role of religious beliefs in pain management.

Our findings support those of previous research that suggest that patients have significant concerns about the use of long-term pharmacological pain relief and are aware of the potential health risks of such use [51, 52]. For example, Fraenkel and Fried (2008) surveyed patients with knee osteoarthritis and identified a preference for exercise over medications and injections despite the reduced efficacy of these techniques in managing pain. The current study suggests that patients routinely and spontaneously employ a range of BPIs to manage their post-operative pain. These approaches include massage and distraction methods, techniques that have been previously identified as useful strategies for patients with a range of conditions [40, 41]. This indicates that complementary or alternative treatments are widespread among patients experiencing various types of pain, suggesting that these strategies may be acceptable to patients in a more formalized setting.

Conversely, several potential barriers to practicing simple BPIs for postoperative pain relief were identified in the current study. These included a lack of knowledge of the benefits of BPIs, which often resulted in misconceptions surrounding psychological treatments and their benefits in pain management. Similar findings have been identified in previous research looking at chronic pain [56]. Additional reasons that may contribute to patients' skepticism towards BPIs as postoperative pain relief is the lack of perceived support such techniques had among HCWs. The findings in both settings identified that patients had trust in their doctors' expertise. This indicates that the views of HCWs and their recommendations of different approaches to pain management are likely to be greatly influential on the views of patients.

Professionals' views

The majority of HCWs in both settings held favorable attitudes towards BPIs for postoperative pain relief and accepted these techniques as part of mainstream medical treatment. However, the interviews revealed potential barriers to the widespread adoption of these techniques. Specifically, HCWs believe that patients' preferences should determine the use of BPIs because insufficient evidence on their effectiveness is available to justify their formal recommended/prescription as part of primary pain protocols. No substantial differences were found in attitudes or barriers between the UK and SA. HCWs were consistent in their support for the need for additional evidence for the effectiveness of these techniques in postoperative pain management. This current study is important as research into the view of HCWs regarding BPIs is currently limited. The findings identify the need to improve the evidence-base for BPIs and to raise awareness along HCWs of the existing evidence-base.

Minor differences emerged in relation to how these interventions could be supported in clinical practice and achieve wider adoption. In the UK, HCWs emphasized that interventions must be cost-effective and highlighted the need to provide equipment to patients. In SA, HCWs emphasized problems relating to training practitioners, and highlighted that interventions should be made accessible to patients by pain management specialists.

The current study employed a solely qualitative approach to investigating the attitudes of both patients and HCWs towards BPIs. While this allowed for a detailed exploration of these attitudes, the findings cannot be generalized to the populations of the UK and Saudi Arabia as a whole. Further research employing wider survey sampling is required to elucidate whether the attitudes expressed in the current study are representative of the views of patients and HCWs

across both countries. Furthermore, the detail in some interviews, particularly with HCWs, was lacking due to time constraints. In this respect, the study could have benefited from a more in-depth investigation of the attitudes of HCWs and how these may influence the use of such techniques, and the attitudes of patients.

CONCLUSION

The current study has demonstrated that most patients in both the UK and Saudi Arabia naturally employ a range of approaches to managing pain and expressed a general willingness to practice brief psychological interventions to alleviate pain. Although some had performed such techniques, including distraction and breathing exercises, spontaneously, patients acknowledged their unfamiliarity with such interventions as formal postoperative pain relief strategies. Potential barriers to implementing such techniques included skepticism about efficacy, a lack of knowledge and awareness, and poor self-efficacy. Additionally, patients from Saudi Arabia highlighted that religious beliefs may serve as a potential barrier. Patients' knowledge and acceptance of psychological pain management strategies could be improved through evidence-based information provided by HCWs. In order to enable this approach, HCWs also need to be made aware of the growing evidence base for the effectiveness of psychological pain management interventions. Working with HCWs could enable the development of routinely employed intervention packages that would help to enhance pain relief in postoperative patients and reduce the need to rely on pharmacological approaches.

Acknowledgement

The authors thank the patients and the health professionals for their generosity participating in this study. In addition, they thank Mr. Keenan from the orthopedic department in Derriford

Hospital in Plymouth and the International Medical Center in Jeddah (IMC) for facilitating the data collection.

References

1. Timmerman L, Stronks DL, Groeneweg JG, Huygen FJ. Prevalence and determinants of medication non-adherence in chronic pain patients: a systematic review. *Acta Anaesthesiol Scand.* 2016;60(4):416–431.
2. Martin LR, Williams SL, Haskard KB DM. The challenge of patient adherence. *Ther Clin Risk Manag.* 2005;1(3):189.
3. Sabaté E. Adherence to long-term therapies: evidence for action. World Health Organization; 2003.
4. Jin J, Sklar GE, Oh VM, Li SC. Factors affecting therapeutic compliance: A review from the patient's perspective. *Ther Clin Risk Manag.* 2008 Feb;4(1)269.
5. Vermeire E, Hearnshaw H, Van Royen P, Denekens J. Patient adherence to treatment: three decades of research. A comprehensive review. *J Clin Pharm Ther.* 2002;26.
6. Pellino TA, Gordon DB, Engelke ZK, Busse KL, Collins MA, Silver CE, et al. Use of nonpharmacologic interventions for pain and anxiety after total hip and total knee arthroplasty. *Orthop Nurs.* 2005;24(3):182–190.
7. Kwekkeboom KL. Pain management strategies used by patients with breast and gynecologic cancer with postoperative pain. *Cancer Nurs.* 2001;24(5):378–386.
8. Montgomery GH, Weltz CR, Seltz M, Bovbjerg DH. Brief presurgery hypnosis reduces distress and pain in excisional breast biopsy patients. *Int J Clin Exp Hypn.* 2002;50(1):17–32.

9. Tefikow S, Barth J, Maichrowitz S, Beelmann A, Strauss B, Rosendahl J. Efficacy of hypnosis in adults undergoing surgery or medical procedures: a meta-analysis of randomized controlled trials. *Clin Psychol Rev.* 2013;33(5):623–636.
10. Rosendahl J, Koranyi S, Jacob D, Zech N, Hansen E. Efficacy of therapeutic suggestions under general anesthesia: A systematic review and meta-analysis of randomized controlled trials. *BMC Anesthesiol.* 2016 Dec 22;16(1).
11. Hole J, Hirsch M, Ball E, Meads C. Music as an aid for postoperative recovery in adults: A systematic review and meta-analysis. *Lancet.* 2015;386(10004):1659–1671.
12. Kühlmann AY, De Rooij A, Kroese LF, Van Dijk M, Hunink MG, Jeekel J. Meta-analysis evaluating music interventions for anxiety and pain in surgery. *Br J Surg.* 2018 Jun; 105(7):773.
13. Kwekkeboom KL, Gretarsdottir E. Systematic review of relaxation interventions for pain. *J Nurs Scholarsh.* 2006;38(3):269–277.
14. DiMatteo MR. Variations in patients' adherence to medical recommendations: a quantitative review of 50 years of research. *Med Care.* 2004;42(3):200–209.
15. De Ruddere L, Goubert L, Stevens MAL, Deveugele M, Craig KD, Crombez G. Health care professionals' reactions to patient pain: Impact of knowledge about medical evidence and psychosocial influences. *J Pain.* 2014 Mar 1;15(3):262–270.
16. Yuxiang L, Lingjun Z, Lu T, Mengjie L, Xing M, Fengping S, et al. Burn patients' experience of pain management: a qualitative study. *Burns.* 2012;38(2):180–186.
17. Kirk P, Kirk I, Kristjanson LJ. What do patients receiving palliative care for cancer and their families want to be told? A Canadian and Australian qualitative study. *Bmj.*

- 2004;328(7452):1343.
18. Verbeek J, Sengers M-J, Riemens L, Haafkens J. Patient expectations of treatment for back pain: a systematic review of qualitative and quantitative studies. *Spine (Phila Pa 1976)*. 2004;29(20):2309–2318.
 19. Chumbley GM, Hall GM, Salmon P. Patient-controlled analgesia: what information does the patient want? *J Adv Nurs*. 2002;39(5):459–471.
 20. Cagle J, Bunting M. Patient Reluctance to Discuss Pain: Understanding Stoicism, Stigma, and Other Contributing Factors. *J Soc Work End Life Palliat Care*. 2017;13(1):27–43.
 21. Vogel DL, Wester SR, Wei M, Boysen GA. The Role of Outcome Expectations and Attitudes on Decisions to Seek Professional Help. *J Couns Psychol*. 2005;52(4):459.
 22. Clement S, Schauman O, Graham T, Maggioni F, Evans-Lacko S, Bezborodovs N, et al. What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychol Med*. 2015;45(1):11–27.
 23. Hogans BB, Watt-Watson J, Wilkinson P, Carr ECJ, Gordon DB. Perspective: update on pain education. *Pain [Internet]*. 2018 Sep 1 [cited 2021 Jan 5];159(9):1681–2. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6106863/>
 24. Toye F, Seers K, Barker KL. Meta-ethnography to understand healthcare professionals' experience of treating adults with chronic non-malignant pain. *BMJ Open*. 2017 Dec 1;7(12):e018411.
 25. Raffaelli W, Arnaudo E. Pain as a disease: an overview. *J Pain Res*. 2017;10:2003
 26. CSPMS Core Standards for Pain Management Services in the UK. 2015; [cited 2020 Nov 20]. Available from: <https://fpm.ac.uk/sites/fpm/files/documents/2019-07/>

Core%20Standards%20for%20Pain%20Management%20Services.pdf.

27. Coulling S. Nurses' and doctors' knowledge of pain after surgery. *Nurs Standard*. 2005 May 4;19(34).
28. Nuseir K, Kassab M, Almomani B. Healthcare providers' knowledge and current practice of pain assessment and management: How much progress have we made? *Pain Res Manag*. 2016;2016:18–23.
29. Green CR, Wheeler JR. Physician variability in the management of acute postoperative and cancer pain: a quantitative analysis of the Michigan experience.[see comment]. *Pain Med*. 2003;4(1):8–20.
30. Francis L, Fitzpatrick JJ. Postoperative pain: Nurses' knowledge and patients' experiences. *Pain Manag Nurs*. 2013;14(4):351–357.
31. Watt-Watson J, Stevens B, Garfinkel PE, Streiner D, Gallop R. Relationship between pain knowledge and pain management outcomes for postoperative cardiac patients. 2002; (January):535–545.
32. Argyra E, Siafaka I, Vadalouca A, Care P. How does an undergraduate pain course influence future physicians' awareness of chronic pain concepts? A comparative study. *Pain Med*. 2015;16(2):301–311.
33. Neumann M. Knowledge and Attitudes of Orthopedic Nurses Regarding Pain Management. 2017.
34. Stone J, Moskowitz GB. Non-conscious bias in medical decision making: What can be done to reduce it? *Med Educ*. 2011;45(8):768–776.
35. Croskerry P. Achieving quality in clinical decision making: cognitive strategies and

- detection of bias. *Acad Emerg Med.* 2002;9(11):1184–1204.
36. Dovidio JF, Fiske ST. Under the radar: How unexamined biases in decision-making processes in clinical interactions can contribute to health care disparities. *Am J Public Health.* 2012;102(5):945–952.
 37. Torres-Cueco R. Pain, culture, health-care system in the postmodern society. *Pain Rehabilitation.* 2018 Jan;1(44):5–9.
 38. Lovering S. Cultural Attitudes and Beliefs About Pain. *Artic J Transcult Nurs* [Internet]. 2006 [cited 2021 Jan 10];17(4):389–95. Available from: <http://www.sagepub.com/journalsPermissions.nav>.
 39. Narayan MC. Culture’s Effects on Pain Assessment and Management. *AJN, Am J Nurs* [Internet]. 2010 Apr [cited 2021 Jan 11];110(4):38–47. <http://journals.lww.com/00000446-201004000-00029>.
 40. Ayad AE, Ghaly N, Ragab R, Majeed S, Nassar H, Al Jalabi A, et al. Expert panel consensus recommendations for the pharmacological treatment of acute pain in the Middle East region. *J Int Med Res.* 2011;39(4):1123–1141.
 41. Salti A, Alabady A, Al-Falaki MM, Ibrahim TA, Scott NB, Sherlallah ST, et al. Expert panel consensus recommendations for postoperative pain management in the Gulf region. *Pain Manag.* 2016;6(6):569–579.
 42. Albaqawi H, Maude P, Shawhan-Akl L. Saudi Arabian Nurses ’ Knowledge and Attitudes Regarding Pain Management : Survey Results Using the KASRP. *Int J Heal Sci Res.* 2016;6(12):150–164.
 43. Eid T, Manias E, Bucknall T, Almazrooa A. Nurses’ knowledge and attitudes regarding

- pain in Saudi Arabia. *Pain Manag Nurs*. 2014;15(4):e25–e36.
44. Fallatah SMA. Pain Knowledge and Attitude Survey among Health-care Professionals at a University Hospital in Saudi Arabia. *Saudi J Med Med Sci* [Internet]. 2017 [cited 2021 Jan 11];5(2):155–9. Available from: [/pmc/articles/PMC6298372/?report=abstract](#).
 45. Al-Quliti KW, Alamri MS. Knowledge, attitudes, and practices of health care providers in Almadinah Almunawwarah, Saudi Arabia. *Neurosciences* [Internet]. 2015 [cited 2021 Jan 11];20(2):131–6. Available from: [/pmc/articles/PMC4727624/?report=abstract](#).
 46. Braun V, Clarke V, Terry G. Thematic analysis. *APA Handb Res methods Psychol*. 2012;2:57–71.
 47. Bayliss EA, Ellis JL, Steiner JF. Barriers to self-management and quality-of-life outcomes in seniors with multimorbidities. *Ann Fam Med*. 2007;5(5):395–402.
 48. Mann EG, LeFort S, VanDenKerkhof EG. Self-management interventions for chronic pain. *Pain Manag*. 2013;3(3):211–222.
 49. Bair MJ, Matthias MS, Nyland KA, Huffman MA, Stubbs DL, Kroenke K, et al. Barriers and facilitators to chronic pain self-management: A qualitative study of primary care patients with comorbid musculoskeletal pain and depression. *Pain Med*. 2009;10(7):1280–1290.
 50. Briggs E. Cultural perspectives on pain management. *J Perioper Pract*. 2008;18(11):468–471.
 51. Sale JEM, Gignac M, Hawker G. How “bad” does the pain have to be? A qualitative study examining adherence to pain medication in older adults with osteoarthritis. *Arthritis Care Res (Hoboken)*. 2006;55(2):272–278.

52. Alami S, Boutron I, Desjeux D, Hirschhorn M, Meric G, Rannou F, et al. Patients' and practitioners' views of knee osteoarthritis and its management: a qualitative interview study. *PLoS ONE*. 2011;6(5):e19634.
53. Fraenkel L, Fried T. If you want patients with knee osteoarthritis to exercise, tell them about NSAIDs. *Patient Patient-Centered Outcomes Res*. 2008;1(1):21–26.
54. Barnes PM, Bloom B, Nahin RL. Complementary and alternative medicine use among adults and children; United States; 2007.
55. Molassiotis A, Fernandez-Ortega P, Pud D, Ozden G, Scott JA, Panteli V, et al. Use of complementary and alternative medicine in cancer patients: a European survey. *Ann Oncol*. 2005;16(4):655–663.
56. Yang S-Y, Bogosian A, Moss-Morris R, McCracken LM. Mixed experiences and perceptions of psychological treatment for chronic pain in singapore: skepticism, ambivalence, satisfaction, and potential. *Pain Med*. 2015;16(7):1290–1300.