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Nurses Experience and Perceived Challenges of Using Nonpharmacological Pain Interventions for Musculoskeletal Pain: A Qualitative Study

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Abstract

Introduction: Current musculoskeletal pain management guidelines encourage utilizing nonpharmacological pain measures. Despite their positive effect in alleviating musculoskeletal pain, nurses reported negative attitudes toward utilizing nonpharmacological pain measures. Therefore, assessing nurses' perception of nonpharmacological pain measures is essential to promote patient comfort.

Objective: The aim of the study was to explore the nurses' experience and perceived challenges in using nonpharmacological pain measures in caring for patients with musculoskeletal pain.

Materials & Methods: A descriptive qualitative design was carried out. Face-to-face semistructured interviews were conducted among 11 nurses. Colaizzi's method was employed in analyzing the data.

Results: Four themes emerged, namely, constant monitoring and observation, selection of nonpharmacological pain measures, and various barriers related to patients and nurses. One of the ways to overcome these barriers or challenges, we should promote interprofessional teams in planning patient-centered pain management care. Also, defining the role of the pain management nurse would be pivotal to ensuring effective pain management measures.

Conclusion: The nursing workforce needs to initiate and utilize these measures as a common practice in managing musculoskeletal pain and in turn create a culture that strongly supports the utilization of nonpharmacological pain measures.

Keywords

nonpharmacological pain measures, pain management, nurses, perception, musculoskeletal pain

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Introduction

Musculoskeletal disorders affecting muscles, bones, joints, and connective tissues are highly prevalent globally, with an estimated 1.71 billion people suffering from these conditions as per the World Health Organization (WHO, 2022). This indicates a rising burden of musculoskeletal disorders worldwide (Devečerski, 2021). Musculoskeletal pain (MSKP) is the most common symptom reported by patients across various musculoskeletal disorders like arthritis, back pain, fractures, etc. (Bonanni et al., 2022). Research evidence over the past decade reveals a steadily rising burden of MSKP globally as well as in the Gulf region specifically (El-Metwally et al., 2019; Sebbag et al., 2019).

A study reported that 56% of the population in Saudi Arabia experiences MSKP (El-Metwally et al., 2019). Another study found the prevalence of arthritis at 31.6% among the population of the United Arab Emirates (Alzahrani et al., 2022). Such statistics indicate that MSKP is now one of the leading causes of disability worldwide (Blyth & Noguchi, 2017). This high prevalence has major implications for public health.

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MSKP can significantly impact the physical, psychological, and social well-being of individuals (Savvakis & Kolokouras, 2019). Physically, it can limit mobility and interfere with routine activities. Psychologically, chronic MSKP may lead to depression, stress, and reduced quality of life. Socially, it can cause isolation and disrupt family relationships. A recent study found that MSKP was a predominant reason for people seeking emergency medical care (Friedman et al., 2018). Considering the rising prevalence and substantial impact on health, effective management of MSKP has become a healthcare priority.

As pain is now considered the "fifth vital sign," proper assessment and management of MSKP is a critical responsibility of nursing care (Pozza et al., 2021). Nurses contribute to pain management through regular assessment and providing appropriate interventions as per guidelines (Cahyani et al., 2018). However, analgesic prescription has been the first line of treatment traditionally, which can cause major side effects, especially in chronic MSKP (Morelli, 2021; Nomikos et al., 2022). Therefore, updated guidelines recommend a multimodal approach using both pharmacological and nonpharmacological interventions (El-Tallawy et al., 2021). Although research shows that nonpharmacological pain measures are effective, safe, and feasible (Tang et al., 2019), studies reveal that nurses underutilize them across various healthcare settings (Abu baker et al., 2019; Awad & Hashem, 2019; Khalil, 2018; Kia et al., 2021).

This lack of adherence to recommended guidelines indicates gaps in the pain management practices of nurses. There is a need for focused research specifically in the context of the Middle East to explore nurses' experiences, perceptions, knowledge, and attitudes regarding nonpharmacological interventions for MSKP. Findings from such studies can provide insight into barriers faced by nurses in adopting evidence-based pain management protocols. It can also inform effective interventions to promote the standardized use of nonpharmacological measures for improving MSKP control.

Review of Literature

MSKP can adversely impact general health, mental health, productivity, and quality of life (Daneshmandi et al., 2017; Wang et al., 2018; Wittkopf et al., 2017). Patients with chronic MSKP report poor emotional well-being and disrupted social relationships as pain affects their daily activities (Wittkopf et al., 2017). Considering its multifaceted impact, recent clinical practice guidelines emphasize the need for a multimodal approach to provide rapid relief from acute MSKP episodes and reduce the risk of chronicity (Hsu et al., 2019).

Nonpharmacological pain control measures (NPPCM) are strongly encouraged as part of multimodal MSKP management. Multiple systematic reviews provide evidence on the effectiveness of NPPCM in improving pain, physical function, and exercise capacity (Kligler et al., 2018; Li et al., 2020). Compared to analgesics, NPPCM tend to provide short-term pain relief with fewer side effects and lower costs (Bayoumi et al., 2021; Tang et al., 2019). They also enhance self-efficacy and coping mechanisms, which are often impaired by pharmacological agents (Hsu et al., 2019; Tang et al., 2019).

Specific NPPCM suggested for managing MSKP include exercise, physical therapy, psychosocial support, manual therapy, patient education, and cognitive behavioral approaches (Hong et al., 2017). Relaxation techniques, music therapy, guided imagery, and distraction are beneficial after orthopedic procedures (Fan & Chen, 2020). For chronic musculoskeletal conditions like arthritis and osteoporosis, interventions focus on exercise, orthotics, lifestyle changes, and psychological coping techniques (Geenen et al., 2018).

Despite robust evidence of their benefits, NPPCM remains underutilized in clinical practice. Studies reveal nurses often have unfavorable attitudes about using NPPCM, stemming from knowledge gaps (Abu baker et al., 2019). Even nurses with adequate knowledge exhibit reluctance to adopt NPPCM into routine care (Jira et al., 2020; Zeleke et al., 2021). There is limited literature exploring nurses' perceptions, experiences, and practice patterns regarding NPPCM, especially in the Middle East region. Further research is warranted to illuminate barriers and facilitators for NPPCM use among nurses managing MSKP. Findings can inform interventions to promote evidence-based, multimodal pain management protocols.

Method

Study Design

A descriptive qualitative design was adopted to explore nurses' experience and perception of the challenges in using NPPCM to relieve MSKP. A review of the literature shows that findings from qualitative descriptive studies have a wider possibility within healthcare to designate the experiences of patients, families, and health providers, which impacts the advances made in interventions, policies thereby improving the quality of life of individuals (Willis et al., 2016). According to Pelentsov et al. (2015), using qualitative descriptive design provides an opportunity to obtain a "straight description of the phenomena" and gives meaning to the analysis and interpretation of the findings that endures demonstrativeness of the answers given by the participants. Accordingly, the qualitative descriptive design served the purpose of the current study.

Research Question

What are nurses' perceived challenges based on their experience while utilizing NPPCM during the care of patients with MSKP?

Setting and Sample

The study was conducted in the medical and orthopedic ward of an accredited government hospital in Ras-Al Khaimah, United Arab Emirates. Eleven nurses who consented to participate were selected using a purposive sampling technique. The target population group was registered nurses with more than 1 year of experience in the orthopedics and medical inpatient units.

Inclusion and Exclusion Criteria

The inclusion criteria were nurses with more than 1 year of experience caring for a patient with MSKP in the inpatient units. The exclusion criteria were new nurse graduates and nurses working in outpatient clinics, emergency departments, and intensive care units.

Data Collection

The list of nurses who met the inclusion criteria was prepared. After obtaining informed consent from the participants, the data was collected using face-to-face, semistructured interviews until saturation was achieved. Two nurses were interviewed individually daily, and written verbatim and audio recordings were obtained. The interviews were conducted in English language. Each interview lasted between 25 and 35 minutes. The interview guide was developed after reviewing the related literature. The topics were associated with exploring the nurse's experience in using nonpharmacological pain interventions while caring for patients with MSKP and the perceived barriers that effectively affect the utilization of NPPCM. The recruitment process lasted until the saturation point reached 11 interviews.

Table 1. Characteristics of the Participants ($n = 11$).

Characteristics of participants	Descriptions	Numbers (%)
Age	22–29	6 (54%)
	30–39	5 (45%)
Gender	Male	2 (18%)
	Female	9 (81%)
Educational Background	BSN	11 (100%)
Year of experience in Nursing	2–5	2 (18%)
	6–10	6 (54%)
	11–15	3 (27%)
Years of experience in caring for patients with musculoskeletal disorder	2–5	2 (18%)
	6–10	7 (63%)
	11–15	2 (18%)
Pain management education	NO	11 (100%)

Data Analysis

Colaizzi's (1978) seven-step process was used to analyze the interviews. It offers a distinct analysis process and confirms an in-depth analysis. Also, the final product delivers a summarizing yet all-inclusive portrayal of the concept under study, authenticated by the participants. Colaizzi's analysis procedure is precisely intended as a method for a descriptive analysis with a thematic approach, and it meets the necessities of the present study. Beginning with stage one of Colaizzi's (1978) analysis, the researchers familiarized themselves with the transcripts by reading them numerous times. In stage two, the researchers identified significant statements that were related to the NPPCM. In this stage, three meanings from each of the significant statements were derived. At stage four, the significant statements and their articulated meanings were assembled into clusters of themes. The fifth stage involved description encircling the clustered theme. Stage six involved the thorough descriptions which were condensed down into a central structure of the NPPCM. Lastly, in stage seven, the central structure of NPPCM was conceded by the participants, to confirm its illustrative explanation of their experience. To further explain, theme validation was established by meeting the participants again and reviewing themes with them. All participants agreed on the themes as they believe they reflect their experience and perceived challenges in utilizing NPPCM.

Results

We interviewed a total of 11 nurses, consisting of two males and nine females, who have been caring for patients with

Table 2. Themes and Subthemes of Nurses' Experiences in using NPPCM.

Themes and subthemes
Theme (1): Constant Observation and Monitoring
Subthemes:
1. Monitoring facial expression
2. Asking for pain levels regularly
Theme (2): Selection of specific nonpharmacological pain measure
Subthemes:
1. Nurses experience
2. Suitability of interventions
3. Patient preferences
Theme (3) Barriers due to patients factors
Subthemes:
1. Pain sensitivity level
2. NPPCM shorter duration effect
3. Patients' poor knowledge
Theme (4) Barriers due to nurses' factors
Subthemes:
1. Workload
2. Limited resources
3. Inadequate healthcare professionals' support

MSKP. The average age of nurses is 29 years (SD = 6.3). The average years of nursing experience is 8.45 (SD = 8.27) while the years of caring for patients with MSKP is 8.27 (SD = 3.3). All of the participants have a Bachelor of Science in Nursing degree. None of them have a specific pain management education. The participants' characteristics are presented in Table 1. Overall, the participants were initiative in utilizing the NPPCM during patients' care. Four major themes have emerged from the data analysis as summarized in Table 2. Each theme is described below, along with quotations explaining the emerging theme. Table 3 shows how the fourth theme, "barriers due to nurses' factors," emerged from theme clusters and formulated meaning units.

Theme (1) constant observation and monitoring:

Nurses believe that providing care for patients with MSKP requires regular pain assessment. Close monitoring is crucial to decide on implementing NPPCM. Nurses in the current study mentioned that observing patients' facial expressions and monitoring the severity of pain is essential to determine the use of NPPCM. In this study, nurses applied NPPCM when the patient's facial expression did not reflect severe pain

So, if the patient reports that his pain level is severe while his facial expressions do not show, I will offer the patient the use of NPPCM. But, if the patient reports that his pain level is mild, I will implement some NPPCM (P1).

Also, some respondents use NPPCM postanalgesic administration when the pain becomes less severe, indicating nurses practice a regular pain assessment.

Table 3. Example of How the Fourth Theme, "Barriers due to Nurses," Emerged From Theme Clusters and Formulated Meaning Units.

Emerging theme	Theme clusters	Formulated meaning units
Barriers related to nursing factors	1. Workload	Increase admission rate
		Increase reports of sick leave
		More procedures during the day
	Limited resources	Need more space for different diversional activities
		unavailability of room with single bed
	Inadequate healthcare professionals' support	Poor involvement of physicians
		Poor involvement of physiotherapists
		Inactivation of pain management nurse role

When a patient's pain level is high, I give them the analgesics as prescribed. Once the level of the pain is reduced, I offer them non-nonpharmacological methods of pain control. (P 5)

Theme (2): Selection of specific nonpharmacological pain measures:

Nurses reported using various NPPCMs. However, when nurses were asked about how they decide on one intervention over another, the following subthemes emerged: previous experience in utilizing specific NPPCM, the suitability of NPPCM to musculoskeletal diseases, and patients' preferences.

Few participants highlighted their positive experience in utilizing specific NPPCMs every time they implemented them.

I noticed that stabilizing the affected limb and applying ice therapy to the fractured part reduced the patient's pain and also, every time, I encourage the patients to do breathing exercises, they become more comfortable (P6)

From my experience as part of diversional activities, after taking patients to the hospital's ground floor (garden) during the sunset, they become less complaining. (P8)

Regarding the suitability of NPPCM to patients' medical conditions, some nurses reported that the selection of certain interventions depends on the medical diagnosis. For example, NPPCM used for fracture patients is not the same as for patients with back pain and arthritis.

I manage the lower back pain by applying a heat compress. however. when I care for a patient with a fractured limb, I will stabilize the affected limb, and apply ice therapy. (P10)

Arthritis patients are scheduled for physiotherapy to alleviate their pain while patients with muscular spasms will be treated by massaging (P3)

The second subtheme was patients' preferences. One of the nurses mentioned that patients might prefer certain NPPCM over another, which is based on patients' experience and cultural norms.

…very few patients ask for a specific NPPCM, for example, Muslim patients prefer to recite or listen to the Quran rather than meditation as the disease gives them a way to get closer to Allah and it is one method of healing (P7)

One time, a lady with arthritis asked me to massage her legs to feel better. (P1)

Theme (3): Barriers due to patient factors:

Nurses reported a few obstacles that stop utilizing NPPCM, which is related to patients. According to them, patients play a vital role in restricting the use of NPPCM. The theme clusters were the patient's pain sensitivity (tolerance) level, short-duration effect, and patient's poor knowledge.

One of the nurses mentioned that most of the patients are very sensitive to pain; therefore, analgesics are the first choice for instant relief.

Patients cannot tolerate pain at all no matter how mild is the pain…they are looking for fast pain relief (P5).

Some patients are poor in tolerating pain and they are very sensitive to pain. (P7)

Furthermore, nurses mentioned that the shorter effect of NPPCM lowers its preference for fast-acting analgesics.

NPPC measures are effective only for one hour then pain will increase and they would ask for painkillers. (P3)

Some patients think fast pain relief will stop the elevation of pain intensity that's why they ask for analgesics first. (P6)

In addition, nurses described that patients' lack of knowledge regarding the advantages of NPPCM negatively affects the utilization of NPPCMs.

The majority of patients do not know the benefits of NPPCM and this leads to poor cooperation which takes us time to convince them about the benefits of these measures. (P 6)

Some patients do not know the side effects of analgesics… don't understand their negative effects on their health. (P1)

Theme (4): Barriers' due to nurses' factors:

Nurses highlighted that other barriers regarding the utilization of NPPCMs could be related to nurses themselves. The common theme clusters were workload, limited resources, and inadequate healthcare professional support.

One respondent sheds light on the negative effect of workload on using NPPCM.

A common challenge we face is time. When there is more admission and procedures …or when staff are on sick leave. (P1)

During busy working days, there is no time to explain to the patient the benefits of NPPCM, especially with uncooperative patients so we give them prescribed medication. (P 4)

Furthermore, limited resources, such as the activity room, contributed to effective use of NPPCM.

Though there is free access to WIFI in the hospital yet having an activity room or some space is good for diversional activities. (P5)

Sometimes it is difficult to keep a patient in a single room. So, creating a quiet environment when two patients share same room is impossible. (P10)

One of the reported challenges was inadequate healthcare professionals' support. Nurses faced difficulties utilizing the NPPCM when physicians were poorly involved in convincing patients to accept NPPCM. Furthermore, the absence of physiotherapists can interfere with patients' pain control. In addition, nurses mentioned that the inactivation of the pain management nurse role interferes with the nurse's utilization of NPPCM.

Some physicians are not making enough effort to convince the patient to try NPPCM. (P 8)

Taking care of a patient with MSKP is a complete team responsibility. for example, a physiotherapist can assist the patient with some exercise to strengthen the muscle and reduce pain. (P10)

We lack the role of pain management nurse who is qualified and well-trained to utilize NPPCM. She can contribute effectively to nurses' practice by better implementation of NPPCM. (P5)

Discussion

This study aims to explore the nurses' practices and perceived challenges of using NPPCM with MSKP. The current study revealed four themes: constant observation and monitoring, selection of specific pain control measures and barriers related to patients' factors, and barriers related to nurses' factors.

Theme (1): Constant Observation and Monitoring

In the current study, nurses initiated NPPCM based on the pain assessment findings obtained as patients reported mild pain or showed facial expressions indicating discomfort. The practice of continuously assessing pain is supported at Joint Commission International-accredited hospitals as pain management is one of the key performance indicators in health quality initiatives for a safe opioid prescription (Joint Commission, 2017). Furthermore, The current pain management guidelines recommend the practice of regular pain assessment using valid and reliable tools (Hsu et al., 2019). Also, the recommendation suggested the significance of expanding pain assessment to include assessing the fatigue level, physical activity, and emotional status that result from MSKP (Hawker, 2017).

Theme (2): Select a Specific Nonpharmacological Pain Intervention

In this study, nurses reported a positive attitude toward incorporating NPPCM, notably when they witnessed a positive impact of these measures on their patients. Nurses commonly use the following measures with MSKP: heat and cold application, immobilization, breathing exercises, relaxation techniques, divisional activities, and creating a suitable environment. Literature reported the effectiveness of previously mentioned measures in alleviating pain (Fan & Chen, 2020; Guner & Kutluturkan, 2020). Furthermore, heat application (Hong et al., 2017) and physiotherapy exercise (Kligler et al., 2018) are beneficial in reducing MSKP. Yet, nurses in this study did not incorporate other informed, evidence-based NPPCM for MSKP, such as acupuncture and transcutaneous nerve stimulation therapy (Kligler et al., 2018). In the current study, nurses highlighted the compatibility of NPPCM with medical conditions. In congruence,

the literature showed the effectiveness of exercise and cognitive behavioral therapy with fibromyalgia, while relaxation therapy and guided imagery for postorthopedic surgeries (Fan & Chen, 2020). Moreover, a systemic review conducted by Geenen et al. (2018) showed the effect of MSK disease severity on determining the type and duration of selected NPPCM.

Regarding the subtheme of patient preference, in the present study, patients choose to pray as an effective NPPCM. Similarly, 87% of patients in Turkey prefer prayer to alleviate pain (Guner & Kutluturkan, 2020). Such findings indicate the necessity of considering patients' preferences in selecting NPPCM based on their value system. Patients' perceptions about MSKP guide the pain management practices (Caneiro et al., 2021). Assessing patients' preferences is essential to promote cooperation and prevent conflicts between patients' cultural practices and the modern pain management modality (Munkombwe et al., 2020). As a result, individualized pain management is recommended for effective pain control (Munkombwe et al., 2020).

In this study, although nurses reported a positive attitude toward using NPPCM, none of the nurses referred to a clear guideline that outlined the regimen protocol including an indication, duration, and frequency of using NPPCM when they were asked about the NPPCM guidelines.

Theme (3): Barriers due to Patient Factors

The study reveals the obstacles that hinder the utilization of NPPCMs due to patient factors. The present study showed patients with a high level of pain sensitivity are more demanding of analgesics, which is considered a barrier to using NPPCM. This finding is consistent with a cross-sectional study conducted by Samuelsen et al. (2017) to investigate the association between pain sensitivity and analgesic use. Results reveal a positive association between analgesic consumption and the high sensitivity level. Interestingly, the perceptions of pain severity are associated with poor psychological status (Sorel et al., 2019).

Another factor that interferes with the patient's selection of NPPCM is the short-duration effect of nonpharmacological measures compared to the analgesic effect. In agreement, a study by Becker et al. (2017) addressed patients' perceptions of NPPCM as less effective in reducing pain than analgesics. However, Tang et al. (2019) recommend that regular application of NPPCM produces a sustainable therapeutic effect.

Patients' lack of knowledge is another common barrier in this study. In congruence, Boateng et al. (2019) reported patients' lack of knowledge regarding NPPCM pain relief mechanisms discouraged its use. Moreover, poor knowledge of analgesic side effects is considered a barrier. Raja et al. (2020) reported that the public consume analgesics even with mild pain indicating the necessity of increasing public awareness about the side effects of the long-term use of analgesics (Almohammed, 2023)

Theme (4): Barriers due to Nurses' Factors

The workload is one of the obstacles related to nurses. A positive association was reported between workload and nurses' tendency to perceive analgesic administration as fast-acting in comparison to NPPCM (Lucas & Bevan, 2020). Moreover, the workload can negatively impact nurses' practices in using NPPCM by hindering them from attending pain management classes (Abu baker et al., 2019), which subsequently leads to poor knowledge and negatively impacts the utilization of NPPCM (Adams et al., 2020). On the other hand, a study by Uysal and Yilmazer (2021) reported poor utilization of NPPCM due to the lack of time associated with the workload. The workload increases with a poor nurse-patient ratio which interferes with nurses' utilization of NPPCM (Tekletsadik et al., 2021).

Limited resources such as space for diversional therapy or a single room are another identified barrier in this study. On the same line, literature addressed the negative effect of a lack of resources on nurses' attitudes toward using NPPCM (Bayoumi et al., 2021)

The other reported obstacle was inadequate healthcare professionals' support in using NPPCM. Nurses expressed that poor physicians' involvement hinders NPPCM use as prescribing analgesics is their first choice. Conversely, poor physician collaboration was reported as a barrier by Zeleke et al. (2021).

Physician-nurse collaboration is required for effective pain management. Also, physiotherapists' involvement is necessary to develop an exercise program to control patients' MSKP (Geenen et al., 2018). Another obstacle reported, which is the inactivation of the pain management nurse role, pain management nurses can actively promote the effective utilization of NPPCM. The core responsibility of pain management nurses is providing an individualized pain management plan considering all human elements; sociocultural, behavioral, and psychological (Rosa, 2017), conducting pain management classes, and participating in developing pain management policy (Sonneborn & Miller, 2021). Hence, pain management requires a multidisciplinary approach (Kligler et al., 2018). Evidence shows that effective team-based pain management contributes to overcoming the obstacles to effectively utilizing NPPCM (Guner & Kutluturkan, 2020).

Implication for Practice

Managing a patient's MSKP requires a patient-centered treatment plan indicating the importance of assessing the patient's knowledge about NPPCM and cultural practices. Furthermore, healthcare institution needs to create a culture that promotes the utilization of NPPCM. The supportive

culture integrates an evidence-based nonpharmacological pain approach for MSKP. Moreover, leaders need to activate the pain management nurse role and conduct regular training on using NPPCM. In addition, patient education about the benefits of NPPCM is essential for effective results.

Strength and Limitation

Three limitations are acknowledged in this study. First of all, the study sample did not include nurses who have a degree of Masters of Science in Nursing as they might have different perspectives and experiences in utilizing nonpharmacological pain management. Second, the study did not include nurses from the private sector, limiting the study findings' scope. Finally, it does not have patients' perspectives about using NPPCM.

To our knowledge, this is the first qualitative study in the region to explore nurse's experience and perceptions of challenges associated with NPPCM utilization during the care of MSKP.

Conclusion

This study revealed that nurses perceived challenges in utilizing NPPCM while caring for patients with MSKP. The emerging challenges were patients' poor knowledge, increased nurses' workload, and inadequate support from other health professionals. However, nurses had a positive attitude toward implementing NPPCM to alleviate MSKP. To overcome such challenges, interdisciplinary team effort is required to develop effective individualized pain management care.

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Declaration of Conflicting Interests

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Ethical Considerations

The ethical approval obtained from two institutional boards from RAKMHSU Research and ethics committee (RAK-MHSU-105-202/2021-F-N) and RAK Research and Ethic committee (MOHAP/REC/2021/16-2021-F-N). The purpose of the study was explained, and participants' right to withdraw at any time was mentioned. Written informed consent was obtained from all nurses willing to participate in the study. Permission for audio recording prior to the interview was obtained. The confidentiality was maintained by assigning codes for each interview.

Credit Author Statement

Manuscript title:

All authors participated sufficiently and take responsibility for the content, concept, design, analysis, writing, or revision of the manuscript.

Specific Contributions

Abuijlan I: Conceptualized the study design, participated in the data collection, reviewed and edited the manuscript. Also, participated in data analysis and theme formation. Muthu P: Participated in study design, revised the manuscript, and qualitative data analysis including theme formation. Nair MV: participated in providing the resources (instruments) for the study, qualitative data analysis including theme formation.

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References

Abu baker, N. A., Salim, N. A., Joshua, R., & Jose, A. (2019). Registered nurses perception about pain management of hospitalized patients in one of the government hospitals in Dubai, UAE: A cross sectional study. *Dubai Medical Journal*, *2*(3), 102–106. https://doi.org/10.1159/000502175

Adams, S. D. M., Varaei, S., & Jalalinia, F. (2020). Nurses' knowledge and attitude towards postoperative pain management in Ghana. *Pain Research and Management*, *2020*, 1–7. https://doi.org/10.1155/2020/4893707

Almohammed, B. A. (2023). Frequency and knowledge of analgesics self-use and their adverse effects in the Eastern Province of Saudi Arabia. *Cureus*, *15*(1), 1–9. https://doi.org/10.7759/cureus.33344

Alzahrani, H., Alshehri, M. A., Alotaibi, M., Alhowimel, A., Alodaibi, F., Alamam, D., Zheng, Y., & Tyrovolas, S. (2022). Burden of musculoskeletal disorders in the Gulf Cooperation Council countries, 1990–2019: Findings from the global burden of disease study 2019. *Frontiers in Medicine*, *9*, https://doi.org/10.3389/fmed.2022.855414

Awad, W. H. A., & Hashem, E. S. (2019). In-service training program regarding nurses' performance for non- pharmacological pain management among orthopedic patients. *Egyptian Journal of Health Care*. https://doi.org/10.21608/ejhc.2019.159677

Bayoumi, M., Khonji, L., & Gabr, W. F. M. (2021). Are nurses utilizing non-pharmacological pain management techniques in surgical wards? *PLOS ONE*, *16*(10), e0258668. https://doi.org/10.1371/journal.pone.0258668

Becker, W. E., Dorflinger, L. M., Edmond, S. N., Islam, L. Z., Heapy, A. A., & Fraenkel, L. (2017). Barriers and facilitators to use of non-pharmacological treatments in chronic pain. *BMC Family Practice*, *18*(1). https://doi.org/10.1186/s12875-017-0608-2

Blyth, F. M., & Noguchi, N. (2017). Chronic musculoskeletal pain and its impact on older people. *Best Practice & Research: Clinical Rheumatology*, *31*(2), 160–168. https://doi.org/10.1016/j.berh.2017.10.004

Boateng, E. A., Kumi, L. O., & Diji, A. K. (2019). Nurses and midwives' experiences of using non-pharmacological interventions for labour pain management: A qualitative study in Ghana. *BMC Pregnancy and Childbirth*, *19*(1). https://doi.org/10.1186/s12884-019-2311-x

Bonanni, R., Cariati, I., Tancredi, V., Iundusi, R., Gasbarra, E., & Tarantino, U. (2022). Chronic pain in musculoskeletal diseases: Do you know your enemy?. *Journal of Clinical Medicine*, *11*(9), 2609. http://dx.doi.org/10.3390/jcm11092609

Cahyani, S. L., Yaputra, F., & Widyadharma, I. P. E. (2018). The nurse' role in pain assessment and management of pediatric patient: A literature review. *International Journal of Medical Reviews and Case Reports*, *3*(3), 104. https://doi.org/10.5455/ijmrcr.role-nurse-pain-pediatric

Caneiro, J. P., Bunzli, S., & O'Sullivan, P. (2021). Beliefs about the body and pain: The critical role in musculoskeletal pain management. *Brazilian Journal of Physical Therapy*, *25*(1), 17–29. https://doi.org/10.1016/j.bjpt.2020.06.003

Colaizzi, P. (1978). Psychological research as a phenomenologist view it. In R. S. Valle, & M. King (Eds.), *Existential Phenomenological Alternatives for Psychology*. Open University Press.

Daneshmandi, H., Choobineh, A., Ghaem, H., Alhamd, M., & Fakherpour, A. (2017). The effect of musculoskeletal problems on fatigue and productivity of office personnel: A cross-sectional study. *PubMed*, *58*(3), E252–E258. https://pubmed.ncbi.nlm.nih.gov/29123372

Devečerski, G. (2021). Pain management in musculoskeletal disorders. *Acta Medica Saliniana*, *51*, 12–12.

El-Metwally, A., Shaikh, Q., Aldiab, A., Al-Zahrani, J., Al-Ghamdi, S., Alrasheed, A. A., Househ, M., Da'ar, O. B., Nooruddin, S., Razzak, H. A., & Aldossari, K. K. (2019). The prevalence of chronic pain and its associated factors among Saudi Al-Kharj population; a cross-sectional study. *BMC Musculoskeletal Disorders*, *20*(1). https://doi.org/10.1186/s12891-019-2555-7

El-Tallawy, S. N., Nalamasu, R., Salem, G. S., LeQuang, J. A., Pergolizzi, J. V., & Christo, P. J. (2021). Management of musculoskeletal pain: An update with emphasis on chronic musculoskeletal pain. *Pain and Therapy*, *10*(1), 181–209. https://doi.org/10.1007/s40122-021-00235-2

Fan, M., & Chen, Z. (2020). A systematic review of non-pharmacological interventions used for pain relief after orthopedic surgical procedures. *Experimental and Therapeutic Medicine*, *20*(5). https://doi.org/10.3892/etm.2020.9163

Friedman, B. M., Conway, J., Campbell, C., Bijur, P. E., & Gallagher, E. J. (2018). Pain one week after an emergency department visit for acute low back pain is associated with poor three-month outcomes. *Academic Emergency Medicine*, *25*(10), 1138–1145. https://doi.org/10.1111/acem.13453

Geenen, R., Overman, C. L., Christensen, R., Åsenlöf, P., Capela, S., Huisinga, K. L., Husebø, M. E. P., Köke, A. J., Paskins, Z., Pitsillidou, I. A., & Savel, C. (2018). EULAR Recommendations for the health professional's approach to pain management in inflammatory arthritis and osteoarthritis. *Annals of the Rheumatic Diseases*, *77*(6), 797. https://doi.org/10.1136/annrheumdis-2017-212662

Guner, C. K., & Kutluturkan, S. (2020). Non-pharmacological practices that are used by cancer patients for controlling chemotherapy-related pain. *International Journal of Caring Sciences*, *13*(1), 322.

Hawker, G. A. (2017). The assessment of musculoskeletal pain. *PubMed*, *35 Suppl 107*(5), 8–12. https://pubmed.ncbi.nlm.nih.gov/28967361

Hong, J. T., Song, K., Cho, J., & Lee, J. S. (2017). An updated overview of low back pain management in primary care. *Asian Spine Journal*, *11*(4), 653–660. https://doi.org/10.4184/asj.2017.11.4.653

Hsu, J. R., Mir, H. R., Wally, M. K., & Seymour, R. B. (2019). Clinical practice guidelines for pain management in acute musculoskeletal injury. *Journal of Orthopaedic Trauma*, *33*(5), e158–e182. https://doi.org/10.1097/bot.0000000000001430

Jira, L., Weyessa, N., Mulatu, S., & Alemayehu, A. (2020). Knowledge and attitude towards non-pharmacological pain management and associated factors among nurses working in Benishangul Gumuz regional state hospitals in Western Ethiopia, 2018. *Journal of Pain Research*, *13*, 2917–2927. https://doi.org/10.2147/JPR.S265544

Joint Commission (2017). Joint commission enhances pain assessment and management requirements for accredited hospitals. *The Joint Commission Perspectives*, *37*(7), 1–4.

Khalil, N. S. (2018). Critical care nurses' use of non-pharmacological pain management methods in Egypt. *Applied Nursing Research*, *44*, 33–38. https://doi.org/10.1016/j.apnr.2018.09.001

Kia, Z. Y., Allahbakhshian, M., Ilkhani, M., Nasiri, M., & Allahbakhshian, A. (2021). Nurses' use of non-pharmacological pain management methods in intensive care units: A descriptive cross-sectional study. *Complementary Therapies in Medicine*, *58*, 102705. https://doi.org/10.1016/j.ctim.2021.102705

Kligler, B., Bair, M. J., Banerjea, R., DeBar, L., Ezeji-Okoye, S., Lisi, A., Murphy, J. L., Sandbrink, F., & Cherkin, D. C. (2018). Clinical policy recommendations from the VHA state-of-the-art conference on non-pharmacological approaches to chronic musculoskeletal pain. *Journal of General Internal Medicine*, *33*(1), 16–23. https://doi.org/10.1007/s11606-018-4323-z

Li, Z., Tse, M. Y. M., & Tang, A. (2020). The effectiveness of a dyadic pain management program for community-dwelling older adults with chronic pain: A pilot randomized controlled trial. *International Journal of Environmental Research and Public Health*, *17*(14), 4966. https://doi.org/10.3390/ijerph17144966

Lucas, E., & Bevan, A. (2020). Nurses' underuse of non-pharmacological pain relief interventions in preterm infants. *PubMed*, *32*(1), 30–36. https://doi.org/10.7748/ncyp.2019.e1255

Morelli, J. (2021, July 9). Types of Pain Relief Medications: Uses, Side Effects & Comparison. *RxList*. https://www.rxlist.com/pain_medications/drugs-condition.htm.

Munkombwe, W. M., Petersson, K., & Elgán, C. (2020). Nurses' experiences of providing non-pharmacological pain management in palliative care: A qualitative study. *Journal of Clinical Nursing*, *29*(9-10), 1643–1652. https://doi.org/10.1111/jocn.15232

Nomikos, P. A., Hall, M. L., Fuller, A. L., Ogollah, R., Valdes, A. M., Doherty, M., Walsh, D. A., Nair, R. D., & Abhishek, A. (2022). Acceptability of a nurse-led non-pharmacological complex intervention for knee pain: Nurse and patient views and experiences. *PLOS ONE*, *17*(1), e0262422. https://doi.org/10.1371/journal.pone.0262422

Pelentsov, L. J., Laws, T. R., & Esterman, A. (2015). The supportive care needs of parents caring for a child with a rare disease: A scoping review. *Disability and Health Journal*, *8*(4), 475–491. https://doi.org/10.1016/j.dhjo.2015.03.009

Pozza, D. H., Azevedo, L. F., & Lopes, J. M. (2021). Pain as the fifth vital sign—A comparison between public and private healthcare systems. *PLOS ONE*, *16*(11), e0259535. https://doi.org/10.1371/journal.pone.0259535

Raja, M. a. G., Al-Shammari, S. S., Alotaibi, N. M., & Amjad, M. (2020). Public attitude and perception about analgesic and their side effects. *Journal of Pharmaceutical Research International*, 35–52. https://doi.org/10.9734/jpri/2020/v32i330412

Rosa, W. E. (2017). Transcultural pain management: Theory, practice, and nurse-client partnerships. *Pain Management Nursing*, *19*(1), 23–33. https://doi.org/10.1016/j.pmn.2017.10.007

Samuelsen, P., Nielsen, C. S., Wilsgaard, T., Stubhaug, A., Svendsen, K., & Eggen, A. E. (2017). Pain sensitivity and analgesic use among 10,486 adults: The Tromsø study. *BMC Clinical Pharmacology*, *18*(1). https://doi.org/10.1186/s40360-017-0149-2

Savvakis, M., & Kolokouras, N. (2019). Quality of life and chronic pain: Coping practices and experiences of patients with musculoskeletal diseases. *International Journal of Caring Sciences*, *12*(3), 1423–1429.

Sebbag, E., Felten, R., Sagez, F., Sibilia, J., Devilliers, H., & Arnaud, L. (2019). The world-wide burden of musculoskeletal diseases: A systematic analysis of the world health organization burden of diseases database. *Annals of the Rheumatic Diseases*, *78*(6), 844–848. https://doi.org/10.1136/annrheumdis-2019-215142

Sonneborn, O., & Miller, C. (2021). The pain nurse practitioner and pain nurse's role and views on opioid management in Australia: A national questionnaire survey. *Pain Management Nursing*, *22*(6), 740–746. https://doi.org/10.1016/j.pmn.2021.05.002

Sorel, J. C., Veltman, E. S., Honig, A., & Poolman, R. (2019). The influence of preoperative psychological distress on pain and function after total knee arthroplasty. *The Bone & Joint Journal*, *101-B*(1), 7–14. https://doi.org/10.1302/0301-620x.101b1.bjj-2018-0672.r1

Tang, S. K., Tse, M. Y. M., Leung, S. F., & Fotis, T. (2019). The effectiveness, suitability, and sustainability of non-pharmacological methods of managing pain in community-dwelling older adults: A systematic review. *BMC Public Health*, *19*(1). https://doi.org/10.1186/s12889-019-7831-9

Tekletsadik, E. A., Desta, A. A., & Workneh, B. D. (2021). Knowledge, attitude, and associated factors towards nonpharmacological pain management among nurses working at Amhara region comprehensive specialized hospitals, Ethiopia. *Critical Care Research and Practice*, *2021*, 1–11. https://doi.org/10.1155/2021/7374915

Uysal, N., & Yilmazer, T. (2021). The effect of pain management training on the nurses' knowledge and practices for pain. *International Journal of Caring Sciences*, *14*(1), 581.

Wang, C., Pu, R., Bishwajit, G., & Tang, S. (2018). Chronic musculoskeletal pain, self-reported health and quality of life among older populations in South Africa and Uganda. *International Journal of Environmental Research and Public Health*, *15*(12), 2806. https://doi.org/10.3390/ijerph15122806

Willis, D. G., Sullivan-Bolyai, S., Knafl, K. A., & Cohen, M. L. (2016). Distinguishing features and similarities between descriptive phenomenological and qualitative description research. *Western Journal of Nursing Research*, *38*(9), 1185–1204. https://doi.org/10.1177/0193945916645499

Wittkopf, P. G., Zomkowski, K., Cardoso, F. L., & Sperandio, F. F. (2017). The effect of chronic musculoskeletal pain on several quality of life dimensions: A critical review. *International Journal of Therapy and Rehabilitation*, *24*(8), 327–336. https://doi.org/10.12968/ijtr.2017.24.8.327

World Health Organization: WHO. (2022). Musculoskeletal health. www.who.int. https://www.who.int/news-room/fact-sheets/detail/musculoskeletal-conditions.

Zeleke, S., Kassaw, A., & Eshetie, Y. (2021). Non-pharmacological pain management practice and barriers among nurses working in debre tabor comprehensive specialized hospital, Ethiopia. *PLoS One*, *16*(6). https://doi.org/10.1371/journal.pone.0253086