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Using of Non-Pharmacological Pain Methods, and The Perceived Barriers, Among Nurses in Critical Care Unit in Palestine

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Approval form

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This thesis was defended successfully on 1st March, 2023 and approved by:

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Declaration

I declare that this Master thesis has been composed by me and is based on my own work, unless stated otherwise. I confirm that this Master's thesis is my own work and I have documented all sources and material used; no other person's work has been used without due acknowledgement.

All references and verbatim extracts have been quoted, and all sources of information, including graphs and data sets, has been specifically acknowledged. To my best knowledge, this Master thesis has not been accepted in any other previous application for a degree, in whole or in part.

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Dedication

I dedicate this work to my beloved parents, brothers, and my loved sister Sela. I also dedicate this achievement to my dear husband, Ashraf, who did not hesitate to provide all support in all situations that supported my arrival to this stage. I also dedicate this work to my beloved son Jihad. I ask Almighty God to protect my family.

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List of Abbreviations

No.	Acronym	Abbreviation
1.	ICU	Intensive Care Unit
2.	NSAIDs	Nonsteroidal Anti-inflammatory Drugs
3.	CCU	Coronary Care Unit
4.	CDC	Centers for Disease Control and Prevention
5.	TENs	Transcutaneous Electrical Nerve Stimulations
6.	IV	Intravenous
7.	CNS	Central Nervous System
8.	TCA	Tricyclic Antidepressant
9.	SNRIS	Serotonin and Norepinephrine Reuptake Inhibitors
10.	MOH	Ministry of Health
11.	NGOs	Non-governmental Organizations
12.	SD	Standard Deviation
13.	SPSS	Statistical Package of Social Science
14.	ANOVA	Analysis of Variance
15.	M	Mean

ABSTRACT

Using of Non-Pharmacological Pain Methods, and The Perceived Barriers, Among Nurses in Critical Care Unit in Palestine

By

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Supervised by

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Background: Despite significant progress in critical illness pain evaluation and analgesia, pain in critical illness remains an unsolved topic (Gélinas et al., 2016; Glowacki et al., 2015). Pain is alleviated in one of the two common approaches, pharmacological or non-pharmacological intervention. Using non-pharmacological methods such as relaxation techniques, meditation, listening to relaxing sounds or music or Quran and other complementary modalities, may have beneficial effect on patients' level of pain by reducing it and decreasing the chance of pharmacological methods side effects.

Aim: The aims of this study are to assess ICU Palestinian nurses use of non-pharmacological pain management modality to decrease ICU patients' pain, and to examine the barriers to implement this modality.

Method: A quantitative cross-sectional design was used. This study had three instrument packages (Appendix A). The first part demographic data, including the age, sex, health care sector and others. The second section is a tool that used 4-point Likert scale to examine ICU nursing use of non-pharmacological pain methods and it consisted of 16 items. The third section is six items of perceived barriers to use non-

pharmacological pain methods. A convenient sample of 215 ICU nurses were included in the analysis of this study.

Results: More than two-thirds of the nurses hold a bachelor's degree. In addition, more than half of the nurses have 1-5 years of professional experience in nursing. Most of education sources on non-pharmacological pain management were from books and colleagues with 37.7% and 32.6% respectively. More than two-thirds of the nurses used non-Pharmacological Pain Methods in ICU. 60% of the nurses have high level, 10.2% have very high level. On the other hand, 27.4% are moderate and 2.3% are low. In terms of perceived barriers, the two highest barriers were the lack of time, workload and patient instability with 83.7% (n = 180), and 77.2% (n = 166), respectively.

Conclusion: This study is the first of its kind in Palestine that assessed using nonpharmacological pain management and addressed the barriers among ICU nurses. The results revealed that more than two-thirds of nurses were using the non-Pharmacological Pain Methods in ICU.

Implication and recommendation: Other future studies with different designs, such as observational and interventional studies, are needed to dig deep in this issue. We strongly recommend involving ICU patients in future studies to examine the efficacy of different nonpharmacological pain methods on their level of pain.

Key words: The key words used for search were "non-pharmacological pain methods", "ICU", "Nurses", "Barriers to implement non-pharmacological pain methods", "nurse's knowledge and practice", "nurse's use of."

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The purpose of this chapter is to highlight the research problem regarding usage of non-pharmacological pain management methods and barriers by critical care nurses in Palestine. This chapter includes the background, problem statement, study significance, theoretical and operational definitions, purpose of the study, and research questions.

1.2 Background

Pain is defined by The International Association for the Study of Pain as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage." (Malik, 2020). Zeleke et al. (2021) also define pain as, whatever the patient says it is, and it exists whenever the patient says it does. Millions of people worldwide are suffering from pain, whether they are in the hospital, at homes, or assisted living facilities (Goldberg & McGee, 2011). Pain in the critically ill is linked to negative physiological and psychological outcomes (Barr et al., 2013), and it has an impact on the quality of life of patients when they are discharged from the intensive care unit (ICU) (Battle et al., 2013; Schelling et al., 2003). Quality of life, bodily function, social relationships, and mental health are all impacted by pain. Pain is frequently accompanied by other symptoms such as exhaustion, sleep disturbances, appetite loss, and worry (Dong et al., 2014). Despite significant progress in critical illness pain evaluation and analgesia, pain in critical illness remains an unsolved topic (Gélinas et al., 2016; Glowacki et al., 2015).

Pain is alleviated in one of the two common approaches, pharmacological or non-pharmacological intervention. The first method is widely used to decrease the level of client's pain by administering the wide-range regimens of opioids such as morphine, fentanyl (Collier, 2018), or non-opioids such as Nonsteroidal Anti-Inflammatory Drugs (NSAID). However, these kinds of drugs have many side effects like nausea and vomiting, and sometimes they have adverse or serious effects which may be fatal such as respiratory depression.

Using non-pharmacological methods such as relaxation techniques, meditation, listening to relaxing sounds or music or Quran and other complementary modalities, may have beneficial effect on patients' level of pain by reducing it and decreasing the chance of side effects. Moreover, when non-pharmacological methods are utilized, the pharmacological intervention may be reduced or even substituted by the non-pharmacological methods which may decrease harm on patients and increase quality of life (Arnstein, 2011; Maciel et al., 2019). Pain should be treated with a multimodal approach that includes both pharmacologic and nonpharmacologic treatments (King & Fraser, 2013).

There are many barriers to implementing non-pharmacological methods to decrease pain. Lack of education and high nurse workload are two examples of barriers. First, lack of education is one of which has been shown in literature that a lack of information among both health care personnel and patients is one of the most significant hurdles to treating pain in ways other than medications. Plaisance and Logan (2017) find that, despite major efforts from statewide Pain Initiatives and certifying organizations, knowledge of pain treatment is still inadequate, and that further education is needed. Patients' strong belief in only pain medication, according to Kimbi et al.

(2016), was the number one reason for not requesting or trusting nonpharmacologic methods of pain management when polled through a questionnaire.

Pain management education for nurses and nursing students is also needed. Stewart and Cox-Davenport (2015), nurse researchers, investigated how nurses and nursing students feel about applying nonpharmacologic pain therapies. Only 65% of nursing students and 51% of nurses said they were sufficiently educated on the subject. The fact that just half of registered nurses believe they are informed on this topic, so it is important to provide a comprehensive patient care and highlight the need for further education.

Second, regarding high nurse workloads, a literature review completed by Gumus et al. (2020) points out that in general, the factors that complicate and prevent the use of the nonpharmacologic methods are not merely limited to a lack of relevant education. Although that is the largest issue overall, other barriers include high nurse workload, desire to control acute pain as quickly as possible, and not having the available resources. 40% of nurses in a descriptive study with self-administered questionnaire stated that their workload is too high to regularly implement nonpharmacologic methods of pain management (Kimbi et al. 2016). Another study conducted by Khalil (2018) has found the same findings as Kimbi and colleagues s that the lack of time was the most significant obstacle to implement non-pharmacological interventions. Therefore, the aims of this study are to assess ICU Palestinian nurses use of non-pharmacological pain management modality to decrease ICU patients' pain, and to examine the barriers to implementing this modality.

1.3 Problem Statement

Pharmacological pain management module is the dominant approach to decrease pain. This method has many side effects and adverse effects which may be fatal such as respiratory depression. These side effects may impact the care of healthcare providers about pain, and eventually interfere negatively with patients' quality of life. In Palestine and up to the researcher knowledge, no studies were found to examine using nonpharmacological pain management.

Salameh (2018) conducted a descriptive cross-sectional study in Palestine, to assess nurse's knowledge of pain management in high acuity units {ICU, Coronary Care Unit (CCU), Emergency and Pediatric ICU units, and she concluded that the participants in critical care units have insufficient knowledge on pain management of both pharmacological and non-pharmacological methods. Moreover, Toba et al. (2019) conducted another study in Palestine among nurses to examine their knowledge of cancer pain management, and they pointed out the same result as Salameh (2018), where nurse have a shortage of knowledge on pain management, and they concluded that lack of education was one of the main barriers.

1.4 Significance of the Study

This study is expected to establish baseline data in Palestine regarding the use of non-pharmacological methods. The result of this study will have a beneficial effect on three areas, namely practice, education and research. First, regarding practice, the usage of non-pharmacological pain management in ICU will decrease the suffering of ICU patients and reduce prescribing pharmacological pain killer that most of them have undesirable adverse effect. In terms of education, nursing curriculum may adopt the

teaching of non-pharmacological method to nursing students to acquire knowledge and skills in this field. Finally, based on the result of this descriptive study, it may guide future research in Palestine to conduct other studies with different design such as Quasi-experimental and qualitative studies. Salameh (2018) said that Universities and hospitals should look for ways to improve nurses' pain management understanding. In addition, she stated that Universities should emphasize pain management in their curricula and devote more time to helping students comprehend it as part of any nursing program's profile.

1.5 Purpose of the Study

The aims of this study are to assess ICU Palestinian nurses use of non-pharmacological pain management modality to decrease ICU patients' pain, and to examine the barriers to implement this modality.

1.6 Research Questions

To achieve the aims of this study, three main research questions were formulated in order to meet the objectives of the study.

These questions are as follows:

1) What is the level of ICU nurses use of non-pharmacological pain management in Palestinian Hospitals ICUs?

2) What are the barriers to using non-pharmacological pain management in ICUs at Palestinian Hospitals?

3) Are there differences among ICU nurses in terms of using non-pharmacological pain management based on their demographic data (Gender, Age, level of education, hospital category)?

1.7 Variables of the Study

The current study has two main variables including non-pharmacological pain management and barriers of implementing non-pharmacological pain management. Each mentioned variable will be defined conceptually and operationally.

Non-Pharmacological Pain Management Use

Conceptual Definition. "Management of pain without medications. Techniques include behavioral therapy, relation techniques, and hot and cold application" (Buyukyikmaz, 2014)

Operational Definition. Nurse utilization of non-pharmacological pain management tool used by Khalil (2018) and Kia et al. (2021) using 1 "Never" to 4 "Frequently".

Perceived Barriers of Implementing Non-Pharmacological Pain Management

Conceptual Definition. "Something material that blocks or is intended to block passage" (Merriam, 2022).

Operational Definition. Checklist was also used to examine nurses' perspectives on the obstacles that hinder the use of non- pharmacological pain management methods in ICUs. Data related to nurses' self-reported barriers to the use of non-pharmacological pain interventions were collected. Nurses were asked to answer six items if they are perceived barriers or not (Khalil., 2018).

1.9 Summary

Non-pharmacological pain management is a good alternative or an adjunctive to pharmacological method in decreasing pain level among people including ICU patients. Considering the non-pharmacological approach may decrease the side effects of pharmacological methods such as respiratory depression and cardiac arrest. In literature, using of non-pharmacological pain management is underestimated and little evidence was found worldwide by ICU nurses with no study found in Palestine. Some of the barriers to implementing non-pharmacological pain management include lack of education by professionals as nurses and doctors, lack of resources such as staff, and lack of time.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will present the most relevant evidence to our study, including non-pharmacological methods to decrease pain utilized in ICU and the perceived barriers to implement them among ICU nurses. Summarizing this evidence will guide us for the most relevant and important information about the usage and perceived barriers of nonpharmacological pain methods.

2.2 Search Strategy

The search included articles with specific criteria for this study. The data were sought from the Arab American University Palestine electronic database for research including, EBESCO host, PubMed, ProQuest in addition to Google Scholar. The timeframe covers the period from 2015 to 2022 and the language of search was English. The key words used for search were “non-pharmacological pain methods”, “ICU”, “Nurses”, “Barriers to implement non-pharmacological pain methods”, “nurse’s knowledge and practice”, “nurse’s use of”. The results of the search revealed descriptive studies that assessed the level of nurses’ knowledge and practice concerning non-pharmacological pain methods in ICU.

2.3 Introduction

The opioid crisis is a nationwide emergency that is leading to addiction, overdose, and death. Nonpharmacological pain treatment approaches have a lot of research backing them up, yet nurses rarely use them in clinical practice (Büyükyýlmaz,

2014). It is imperative for ICU nurses to have an in-depth understanding of the non-pharmacological pain methods. Utilizing the non-pharmacological pain methods by ICU nurses may decrease the side effects of the pharmacological methods which may improve patient outcomes and increase quality of life.

2.4 Pain Definition

Pain is defined in many ways by different resources. For instance, according to Merriam-Webster online dictionary (2022) pain is "a localized or generalized unpleasant bodily sensation or complex of sensations that causes mild to severe physical discomfort and emotional distress and typically results from bodily disorder (such as injury or disease)". Furthermore, pain is defined by The International Association for the Study of Pain as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage" (Malik, 2020). Zeleke et al. (2021) also define pain as, whatever the patient says it is, and it exists whenever the patient says it does. Millions of people worldwide are suffering from pain, whether they are in the hospital, their homes or assisted living facilities (Khalil, 2018). Pain Management includes pharmacological, nonpharmacological, and other methods for preventing, reducing, or eliminating pain symptoms. The opioid epidemic is a public health crisis affecting populations across the lifespan. From 1999 to 2016 in the United States, more than half a million people died from drug overdose, with overdose deaths and opioid-involved deaths continuing to increase in the United States (Centers for Disease Control and Prevention [CDC], 2017). Furthermore, even though these drugs are necessary for relieving pain in ICU patients, they have side effects such a higher risk of delirium, hypotension, and respiratory failure (Wang et al., 2022). Therefore, looking

for another less-side effect interventions to alleviate pain is crucial such as no-pharmacological pain management.

2.5 Non-Pharmacological Pain Methods

Non-pharmacological pain management is the management of pain without medications. This method utilizes ways to alter thoughts and focus concentration to better manage and reduce pain**,** including education and psychological conditioning, Hypnosis, Comfort therapy and neurostimulation.

Non-Pharmacological Pain Methods defined in many ways by different researchers and institutions. Non-pharmacological pain management is a kind of therapy to reduce pain by utilizing different kinds of interventions including three main parts, physical, psychological, and others. These kinds of interventions are intended to alleviate patients suffering, decrease stress, fear, anxiety and decrease pain level (El Geziry et al., 2018). El Geziry and colleagues divided these interventions into three main categories. The first one is physical interventions, and usually patient-specific, physical (sensory) therapies block nociceptive input and pain perception. Some methods of physical therapies, like massage, positioning, heat and cold therapy, transcutaneous electrical nerve stimulation (TENS), acupuncture, and progressive muscle relaxation, can lessen the severity of pain and enhance the patient's quality of life.

The second kind of therapy to decrease pain by non-pharmacological method is psychological therapy. Such a therapy is one of those that combat the continuous suffering from pain that may result in the development of maladaptive statuses and behaviors that degrade daily functioning, raise distress levels, or heighten pain perception. Patients who are in pain often exhibit greater susceptibility to a range of

psychiatric problems, such as posttraumatic stress disorder and depressive and anxiety disorders. In fact, there may be a bidirectional association between sadness and pain, making the presence of a depressive disease one of the major risk factors for the transition. The third and last type is other therapies, including spirituality and religious activities as well as music therapy (El Geziry et al., 2018).

Investigating non-pharmacological methods is an intriguing course of action. Non-pharmacological interventions are therapies and procedures that do not entail taking medication and are frequently used by nurses. Examples include breathing exercises, massage, posture, and music therapy (Park & Lee, 2022). Additionally, during uncomfortable operations, employing a soothing voice, delivering information, and deep breathing were the most often used techniques (Leutualy et al, 2022).

In addition, non-pharmacological interventions also yield other benefits, such as lower medical costs, greater availability to patients, diversification and ease of use, and greater patient satisfaction (Kia et al,2021)

Since non-pharmacological pain relief techniques have received little attention and the effectiveness of these techniques is poorly understood, the majority of nurses choose to utilize pain relief drugs (Gokhale 2017). The amount to which non-pharmacological pain management techniques are used relies on nurses' knowledge of these techniques, their abilities, their prior knowledge, and their attitudes about the efficacy of these techniques (Svendsen, & Bjrk, 2014).

Nurses use these non-pharmacological pain techniques when providing care for patients to decrease their suffering. For instance, critical care nurses use non-pharmacological pain intervention techniques to address the emotive, cognitive, behavioral, and sociocultural aspects of pain (Komann et al,2019). Non-

pharmacological measures such as deep breathing, massage, music therapy, and positioning were noted to be used by critical care nurses for the management of pain in the ICU (Karabulut et al, 2016).

One of the non-pharmacological pain relief interventions is music therapy. It decreases pain intensity and the frequency of analgesic drug administration in postoperative ICU patients during mobilization and following percutaneous coronary interventions (Liu & Petrini, 2015). Moreover, two previous studies investigated the effect of listening to music on pain and recorded remarkable results (Mofredj et al 2016 & Hole et al,2015).

Another non-pharmacological nursing intervention for pain management tested in the ICU is ice therapy. The most common implementation is ice pack applications, which have been mentioned by many authors to relieve post-operative pain (Chou et al,2016), which has been explained by the fact that application of local ice packs blocks nerve conduction velocity and increases pain tolerance. Recently, Khalil (2017) investigated the effect of applying local ice packs for 10 min on reducing arterial puncture pain and recorded remarkable decrease in pain scores among the experimental group. As well, deep breathing has also produced remarkable relief of pain when used in combination with analgesics following chest tube removal compared with those who only received an analgesic (Agoston & Sieberg, 2016).

An Egyptian descriptive study conducted by Khalil (2018) to examine critical care nurses' practice of non-pharmacological pain management intervention revealed that non-pharmacological pain treatment techniques were not used by the majority of nurses. Additionally, just 6.7% of nurses employed non-pharmacological therapies other than positioning the patient comfortably. Additionally, there were no statistically

significant variations in nurses' non-pharmacological pain management methods according to their educational background.

ICU nurses in Iran used non-pharmacological pain management techniques at a rate of 55.8% (Mean (M) = 1.68). Repositioning (M = 2.72), employing comfort-enhancing equipment (such inflatable mattresses) (M = 2.53), and providing patients with a calm and comfortable atmosphere (M = 2.28) were the three techniques that nurses employed the most frequently. Less often employed techniques included acupuncture, acupressure, reflexology (M =.31), urging patients to drink herbal teas (M =.77), and hydrotherapy (M = 1.12) (Kia et al., 2021).

2.6 Pharmacological Pain Methods

Traditionally, pharmacological pain management therapy has been the best choice for managing pain, accompanied by unlikely side effects physically, cognitively, and economically (Karabulut et al., 2016). Therefore, nurses considered that non-pharmacological pain management should be applied when patients had less pain intensity (Thomas & Weiss, 2000).

Pharmacological pain management is one of many treatment options available to provide pain relief and better quality of life. Because pain is a complicated phenomenon with various underlying processes, managing it safely and effectively necessitates the use of multiple analgesics (Manworren, 2015). For ICU patients, Inadequate pain management can cause short- and long-term physical and mental health issues, including hemodynamic dysfunction, hyperglycemia, infection, delirium, and anxiety. There are many of medications available to clients who complained of acute or chronic pain, ranging from over the counter to prescription medications.

Appropriate pharmacological management of pain requires the clinician to distinguish acute from chronic pain. Acute pain has been defined as lasting less than 6 weeks and related to an obvious occasion such as surgery or trauma. Chronic pain has been defined as pain lasting more than 6 weeks and related to an ongoing pathophysiology. Difficult pain is that chronic pain whose cause, if known, is not expected to improve.

To determine the best pharmacologic approach, opioids and NSAID are often used pharmacological pain methods in alleviating post-operative pain (Genord et al,2017). These methods have potential risks and high costs, as patients may develop drug dependency and severe adverse effects, such as respiratory depression which can be life-threatening and lead to vital organ damage. The inconsistency in the finding of opioids can make it difficult for them to be available in developing countries, where patients may be at risk from frequent administration of pharmacological methods in postoperative care (Masigati & Chilonga, 2014).

Since pain is a complicated phenomenon with numerous underlying processes, managing it safely and effectively necessitates the use of different analgesics. Multimodal analgesia is the suggested method for treating all types of pain in all age groups (Manworren, 2015). This method could be risky and expensive, as patients could become drug dependent and have serious side effects like life-threatening respiratory depression and vital organ damage. There are many methods that are used to administer medication to the body, and they vary according to the need for them, in addition to the health status of the patient.

2.7 Some Routes of Administer Medication

Oral Route. When possible, the oral route of analgesic administration should be chosen because it is typically the least expensive, most well-tolerated, and simplest to use (MacIntyre & Schug, 2015).

Intravenous Route. The intravenous (IV) route is the preferred method of administering analgesics in the initial postoperative period; patients are switched to the oral route as tolerated.

Rectal Route. When oral or IV analgesic medications are not an option (for example, for palliative purposes), the rectal route of analgesic delivery is a substitute method.

Topical Route. Both acute and chronic pain are treated with this mode of administration. For instance, the non-opioid diclofenac is offered in gel and patch forms for direct administration over painful locations. Local aesthetic creams, such as EMLAring end-of-life care) (MacIntyre & Schug, 2015).

Intraspinal Analgesia. Utilizing catheter procedures, some of the more intrusive pain management approaches, such as intraspinal analgesia, sometimes known as "neuraxial" analgesia, are carried out. In order to administer analgesics via the intraspinal routes, either a needle must be inserted into the subarachnoid space or the epidural space (for intrathecal [spinal] analgesia) or a catheter must be threaded through the needle and temporarily taped in place (for bolus dosing or continuous administration).

2.8 Categories of Analgesic Agents

Analgesic agents are categorized into three main groups:

Nonopioid Analgesic Agents. Acetaminophen and NSAIDs comprise the group of nonopioid analgesic agents. Nonopioids are adaptable analgesics used to treat many different types of painful disorders. They are appropriate alone for mild to some moderate nociceptive pain (such as that caused by surgery, trauma, or osteoarthritis). When treating more severe nociceptive pain, they are used with opioids, local anesthetics, and/or anticonvulsants as part of a multimodal analgesic regimen (Manworren, 2015).

Acetaminophen and an NSAID may be given concurrently, and there is no need for staggered doses. Unless contraindicated, all surgical patients should routinely be given acetaminophen and an NSAID in scheduled doses throughout the postoperative course, rather initiated preoperatively (Komann et al, 2019).

Adverse Effects of Nonopioid Analgesic Agents. One of the most secure and well-tolerated painkillers is acetaminophen (Lehne, 2013). Hepatotoxicity, or liver damage brought on by an overdose, is its most severe side effect. A maximum daily dosage below 4000 mg is almost ever linked to liver damage in healthy adults. NSAIDs have far more side effects than acetaminophen, the most frequent of which are stomach toxicity and ulceration (Gnjidic, et al., 2014).

Opioid Analgesic Agents. First-line opioid analgesics are those that are most effective (e.g., morphine, hydromorphone, fentanyl, and oxycodone).

Administration of Opioid. An individual treatment plan must be created based on a thorough pain assessment in order to utilize opioid analgesics safely and effectively. This plan must involve defining the therapy's objectives and going over

possibilities with the patient and their family (Lehne, 2013). Depending on patient response and, in certain situations, illness development, goals are routinely reevaluated and modified.

Adverse Effect. Tolerance, physical dependence, and addiction. Opioids' most frequent side effects are drowsiness, hypotension, nausea, vomiting, pruritus, and constipation (Lehne, 2013). Although less frequent, respiratory depression is the most significant and dreaded of the opioid side effects (Imam et al, 2018). When additional drugs that have depressive effects on the Central Nervous System (CNS), such benzodiazepines (like diazepam [Valium]), alcohol, and barbiturates (like phenobarbital), are taken alongside opioids, the risk of respiratory depression increases (Imam, et al 2018). Postoperative ileus can develop into a serious complication in surgical patients. By dilating the veins and arterioles in the periphery, morphine reduces blood pressure. Dehydration or concurrent use of hypotensive medications may cause postural hypotension.

Adjuvant Analgesic Agents. The adjuvant analgesic agents comprise the largest group of analgesic; nonetheless, individual responses to these drugs, even those from the same class, can vary greatly. In the outpatient context, "trial and error" is frequently employed. In the outpatient context, neuropathic pain is generally treated with modest initial dosages and progressive dose increases to allow tolerance to side effects. For instance, local anaesthetics have a long history of usage in all forms of pain treatment that is both safe and effective. Anticonvulsants. In order to treat the neuropathic component of surgical pain, anticonvulsants gabapentin (Neurontin) and pregabalin (Lyrica) are increasingly being included in postoperative pain management programs (MacIntyre & Schug, 2015).

Antidepressants. Tricyclic antidepressants (TCAs) and serotonin and norepinephrine reuptake inhibitors (SNRIs) are the two main classes of antidepressant adjuvant analgesics. According to evidence-based guidelines, the TCAs desipramine (Norpramin), nortriptyline (Aventyl), and venlafaxine (Effexor), as well as the SNRIs duloxetine (Cymbalta) and venlafaxine (Effexor), should be used as first-line treatments for neuropathic pain. Low dosages of analgesic antidepressant treatment are used to start it off, and the dose is increased based on the patient's reaction.

Side Effect of Antidepressant. Everyone reacts to medicines differently, but some side effects are typical. These include: nausea, Weight, Tiredness, Trouble, Blurred vision, Constipation and Anxiety.

The best pain treatment can only be provided when people with pain, their families, and the medical staff work together as a team. Regarding the analgesics and nonpharmacologic pain management techniques, everyone participating must have common objectives, a shared knowledge base, and a common language (Lehne, 2013). Long-term opioid usage may lead to opioid-induced testosterone insufficiency and respiratory problems during sleep (Gudin et al, 2015).

2.9 Nurses' Knowledge about Non-Pharmacological Pain Management

One of the main roles of healthcare professionals is to lessen the severity of pain. In fact, nurses' role is essential to the care of patients having surgery while implementing non-pharmacological pain management techniques (Komann et al, 2019). Thus, nurses' knowledge and attitude have an important effect in utilizing non-pharmacological pain management therapies (Jira et al, 2020).

2.10 Nurses' Practices of Non-Pharmacological Pain Management

The most effective physical methods of non-pharmacological pain management are incorporated into routine nursing interventions during the postoperative phase, although thermal regulation and massage application are used at a minimum level, making positioning one of the highest methods that nurses can use to reduce pain (He & Jahja, et,al 2010).

Gelinas et al. (2013) conducted research that was comparable to this one, evaluating the nurses' and patients' viewpoints on non-pharmacological pain treatment, and they found that massage therapy was beneficial for relieving physical pain in critically sick patients.

According to a recent study conducted in Ghana, there was no statistically significant association between postoperative pain management knowledge, attitude, years of experience and how long they have worked in the surgical ward among nurses (Adams,2020). Salantera et al. carried out single research in 1999, which showed critical significance of knowledgeable nurses in the application of non-pharmacological pain treatment strategies.

Regular pain evaluation using a pain assessment instrument is advised when treating pain as the fifth vital sign. Their study identified a paucity of pain assessment among nurses, which is in line with Ung et al 2016. emphasis on the significance of pain evaluation. The authors also stress the importance of the pain evaluation in terms of reducing discomfort.

2.11 Barriers to Implement Non-Pharmacological Pain Methods

Effective non-pharmacological treatment must be implemented by trained, competent nurses. Numerous research has revealed that in order to lessen patients' pain intensity, nurses need to be better knowledgeable about non-pharmacological pain treatment **(**ALBAQAWI et al, 2016, Adams et al, 2020).

More than half of the subjects (75%, 63.3%, and 58.3%, respectively) perceived that the factors that might affect their abilities to use non-pharmacological interventions practices were lack of education, nursing workload, and patient instability, e.g., unstable hemodynamic (Khalil, 2018).

Kia et al (2021) conducted a descriptive study in Iran to examine the obstacles faced ICU nurses in utilizing nonpharmacological pain management pointed out that ICU nurses reported that weariness, multi tasks, hard workload, and lack of nurses per shift were the most common barriers to using nonpharmacological pain management techniques (M = 2.92, 2.91, 2.86, and 2.82, respectively).

2.12 Summary

This chapter presented the most relevant evidence to our study, including non-pharmacological methods, to decrease pain used in ICU and the perceived barriers to implement them among ICU nurses. Most studies illustrated that ICU nurses have insufficient use of non-pharmacological pain methods to decrease ICU patients' pain. The studies revealed that nurses rely heavily on pharmacological methods rather than nonpharmacological methods. In term of perceived barriers to implement non-pharmacological methods, lack of education, time and workload were the most highlighted barriers.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The aim of this study is to assess ICU Palestinian nurses use of non-pharmacological pain management modality to decrease ICU patients' pain, and to examine the barriers to implement this modality. This chapter will illustrate the concepts of methodology in this study. It will also include a description of the research design used in this study, in addition to the sampling selection, instrument, sample size, settings and statistical analysis.

3.2 Research Design

A descriptive design using cross-sectional survey was used for the purpose of this study. A survey was used at point of time to examine subjects' use of nonpharmacological pain management and barriers among ICU nurses to decrease ICU patients' pain level. Descriptive design is suitable for this study because the purpose is to describe and document aspects of using nonpharmacological pain management and barriers., and it is efficient in collecting large amount of data in short time about the problem (Polit & Beck, 2013). Descriptive design does not focus on examining causal relationship as experimental designs which is not among the aims of this study. However, it has many drawbacks such as lack of randomization and subsequent possible incorrect interpretations and lack of manipulation of the independent variables to observe the effect on the dependent variables (Polit & Beck, 2013). The study design fits into research purpose because it describes the main variables of the study at a fixed

point of time without manipulation of the independent variable, randomization into groups, or control (Polit & Beck, 2013).

3.3 Setting

According to the Ministry of Health (MOH) in Palestine, hospitals are divided into four main sectors: Governmental, private, non-governmental organizations (NGOs), and educational hospitals. The researcher selected one large private hospital and one large governmental hospital from the north, middle and south of West Bank. These hospitals are Rafidia Governmental Hospital and Specialty Hospital from the city of Nablus in the northern West Bank; Ramallah Medical Complex and Istishari Arab Hospital from the city of Ramallah in the Central West Bank as well as the Hebron Governmental Hospital (Alia Hospital) and Al-Ahli hospital from the city of Hebron in the southern West Bank. All ethical approvals were obtained before starting data collection.

3.4 Sampling

According to the Palestinian Ministry of Health (2013), there are 10315 registered nurses in Palestine. Palestine has 79 hospitals, with a total of 5,487 beds. Twenty-five of these are government hospitals, offering 2,979 beds representing 54.3 per cent of the total number of beds. Fifty-four hospitals are private, with 2,508 beds representing 45.7 per cent of the total number of beds. The sample of ICUs has represented the selected hospitals. The included ICUs and post cardiac were surgical, medical, cardiac, and mixed surgery units. The target population for this study has included all Palestinian nurses working in ICUs while the accessible population has

included nurses working in the ICUs in the selected hospitals. The inclusion criteria for nurses were as follows; holding a Diploma degree as a minimal level of education, has a minimum of one-year experience in ICUs, full-time employees as practicing nurses. Exclusion criteria included administrators. Nurses were conveniently recruited for using nonpharmacological pain management and barriers. The sample type in this study was a convenient sample.

3.5 Critical Care Nurses in Palestine

The entire study population is required as a basis to calculate the sample size for this study. Although the MOH in Palestine was contacted and searched via its official website, no data on the accurate number of all ICU nurses in Palestine were available. For this reason, the researcher herself contacted all hospitals and visited some of them for the purpose of learning about the number of ICU nurses in each hospital. The researcher met one of the administrator hospitals and concluded that the entire population was 500 ICU nurses.

3.6 Sample Size

The sample size was calculated according to the online sample size calculator formula (Calculator.net) with consideration to the confidence interval 85%, margin of error 15% and population of 500 nurses. The required sample size was 215, this number has increased to 250 nurses to compensate for the possibility of low response rate with an increase of 15%.

3.7 Instrument

This study had three instrument packages (Appendix A). The demographic data, the use of nonpharmacological pain method, and the barriers to use nonpharmacological pain method. The first section established by the researcher includes demographic variables such as sex, age, level of education, years of experience as a nurse, years of experience as ICU nurse, working area (type of ICU), health work sector, education source on non-pharmacological pain methods.

The second section is a tool that used 4-point Likert scale to examine ICU nursing use of non-pharmacological pain methods. This tool was developed and created by Khalil (2018) after a literature review. It consisted of a list of 16 intervention methods related to non-pharmacological pain methods). This tool consisted of 16 items, each of which required responses to be recorded on a four-point Likert scale, which ranged from 1 (never), 2 (few times), 3 (sometimes), and 4 (frequently). The tool was reviewed and validated by a panel of experts in critical care nursing and pain management. Test and retest were carried out, and the correlation coefficient was 0.7 (Khalil, 2018). Furthermore, the intra class correlation coefficient of this tool was 0.99 by Iranian researcher who used the same tool, but they translated it to Persian language (Kia, 2021). In addition, the researcher calculated the reliability (reliability coefficient) of the non-pharmacological pain methods items and the Cronbach's Alpha of the items was 0.84. Table 1 shows the reliability coefficient of the non-pharmacological pain methods items. This reliability was calculated via SPSS version 28.0. Items for using nonpharmacological pain management were inserted to the SPSS and the results are shown in table 1 below.

Table 1

Reliability coefficient

Variables	n	Cronbach's Alpha
Non-pharmacological pain methods items	16	.835

The third and the last section of the instrument package include the barriers. In this section, six items of perceived barriers to use non-pharmacological pain methods were detected and nurses were asked to state whether these items are barriers to use these methods, or they are not barriers.

3.8 Ethical Considerations

Approval forms the Scientific Research Committee at the School of Nursing-The Arab American University was obtained. In addition, the approvals from the Ethical Committees at each selected hospital were obtained before data collection. The subjects' permission was received after the meeting and before recruiting them. The researcher has explained to nurses the purpose of the study and the subjects' rights were preserved. They were informed that participation in this study is voluntary, and the researcher will maintain the anonymity by recording no personal identification. Moreover, detailed information about the objectives of the study, the needed time to complete the questionnaire were contained in a cover letter (the maximum time needed is 15 minutes) (appendix A), which was attached at the beginning of the questionnaire. The data collection took place in the ICUs of the selected hospitals, and the questionnaires were collected from each participant by the researcher herself. The researcher has expressed her thanks and appreciation for each participant for taking part in this study. Only the

researcher and the academic supervisor had access to the questionnaire, and after five years, all the questionnaires will be shredded. All ethical approvals for this study are attached in Appendix (B).

3.9 Data Collection Procedure

When the required ethical approvals were obtained, the researcher made an appointment with nursing directors of each selected hospital and met them. These meetings with nursing directors were for the following purposes: for the researcher to be introduced to the administrators, explain the purpose of the current study and to facilitate the approach to head nurses and nurses in ICUs. After that, the researcher met all nurses (as a group) who met the eligibility criteria in a special room. The purpose of the study was explained, and they were invited to participate in the study. This was during their duties (during 24 hours on day and night shifts), and sometimes there was a work overload on nurses, so the researcher met some of them individually and in appropriate times for them as work interruption was prevented. Verbal permission was obtained from each subject who wants to participate in this study. Then, questionnaires were distributed to the eligible subjects who verbally confirmed their participation in this study. The participation in this study was voluntary and this was explained to subjects. The researcher was available in ICUs next to nurses for any clarification, explanation, and questions from nurses regarding the questionnaires and the study. Then the questionnaires were distributed to the targeted sample. It took each nurse about 8 minutes to complete the questionnaire. When the subjects finished filling out the questionnaires, the researcher collected them, and she expressed her thanks and appreciation for their participation and efforts.

3.10 Data Analysis

All statistical procedures were analyzed using Statistical Package of Social Science (SPSS, Chicago, IL, USA) version 28. The assumptions for each test were checked before carrying out the test. Descriptive statistics conducted to calculate means, Standard Deviation (SD) and frequencies of the study variables. Furthermore, Independent t-test was conducted to compare using nonpharmacological pain methods among male and female while one way analysis of variance (ANOVA) was used to compare the level of using nonpharmacological pain methods among the variables that have three or more options (i.e., level of education) (Munro, 2013). For instances, small sample size, the data are not normally distributed, no homogeneity of variance, or the variables are not continuous, according to Munro (2013). To answer research questions number one, two and three descriptive statistics were conducted. Missing data was treated according to the conditions, and there were two methods of treating the missing value. The first manner is to replace the missing value by the mean, such as age, but in some cases, the questionnaire should be deleted if many items were missed, and this depends on the situation (Polit & Beck, 2013).

Data entry was performed and double-checked for outliers or errors. Data was tested for normality using the Shapiro-Wilk tests. Table 2 presents the Shapiro-Wilk tests which shown that the total mean score was normally distributed ($p= 0.171$). Data analysis of descriptive and inferential statistics was conducted. Regarding descriptive statistics, frequency, percentages, mean score and Standard Deviation (SD) were used to describe the study variables. Regarding inferential statistics, the parametric tests included the independent t-test and One Way ANOVA were used to assess the differences between variables.

Table 2.

Tests of Normality

Variable	**Shapiro-Wilk test**		
	Statistic	df	Sig.
Total mean score of using non-pharmacological pain methods	.990	215	.171

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results of this study including the descriptive and inferential statistics and their results. In the first section, descriptive findings are displayed in tables, figures, and in narrative. The second section includes the relations among study variables. The result includes the use of nonpharmacological pain method by ICU nurse to decrease pain among ICU patients and the barriers to use these methods.

4.2 The use of Nonpharmacological Pain Methods Among ICU Nurses

Table 3 presents the socio-demographic characteristics of the nurses in the ICU. Out of 250 questionnaires, 215 were obtained giving a response rate 86%. 60.9% of the nurses were males while the rest were females. More than two-thirds of the nurses hold a bachelor's degree. In addition, more than half of the nurses have 1-5 years of professional experience in nursing. Most of education sources on non-pharmacological pain management were from books and colleagues with 37.7% and 32.6% respectively. More details are shown in table 3.

Table 3

Socio-demographic characteristics of the nurses in the ICU (n= 215)

Variables		n	%
Gender	Male	131	54.6
	Female	84	39.1
Age groups	20-25 years old	86	40.0
	26-30 years old	58	27.0
	31-35 years old	47	21.9
	36-40 years old	13	6.0
	41-45 years old	11	5.1
Level of education	Diploma	30	14.0
	Bachelor's Degree	167	77.7
	Master's degree	18	8.4
Years of experience in nursing	1-5 years	121	56.3
	6-10 years	50	23.3
	11-15 years	26	12.1
	16-20 years	10	4.7
	21-25 years	8	3.7
Years of experience in ICU	1-5 years	162	75.4
	6-10 years	34	15.8
	> 10 years	19	8.8
Working area (type of ICU)	Surgical ICU	65	30.2
	Medical ICU	81	37.7
	CCU	69	32.1
Health sector type	Governmental	114	53.0
	Private	101	47.0
Which education source on non-pharmacological pain management you have	Opinion	22	10.2
	Book	81	37.7
	Colleague	70	32.6
	Published work (articles)	15	7.0
	In-service education	20	9.3
	None	7	3.3

Figure 1 illustrates the percentages of nurses that have used non-pharmacological pain methods in ICU. More than two-thirds of the nurses used non-Pharmacological Pain

Methods in ICU. 60% of the nurses have high level, 10.2% have very high level. On the other hand, 27.4% are moderate and 2.3% are low.

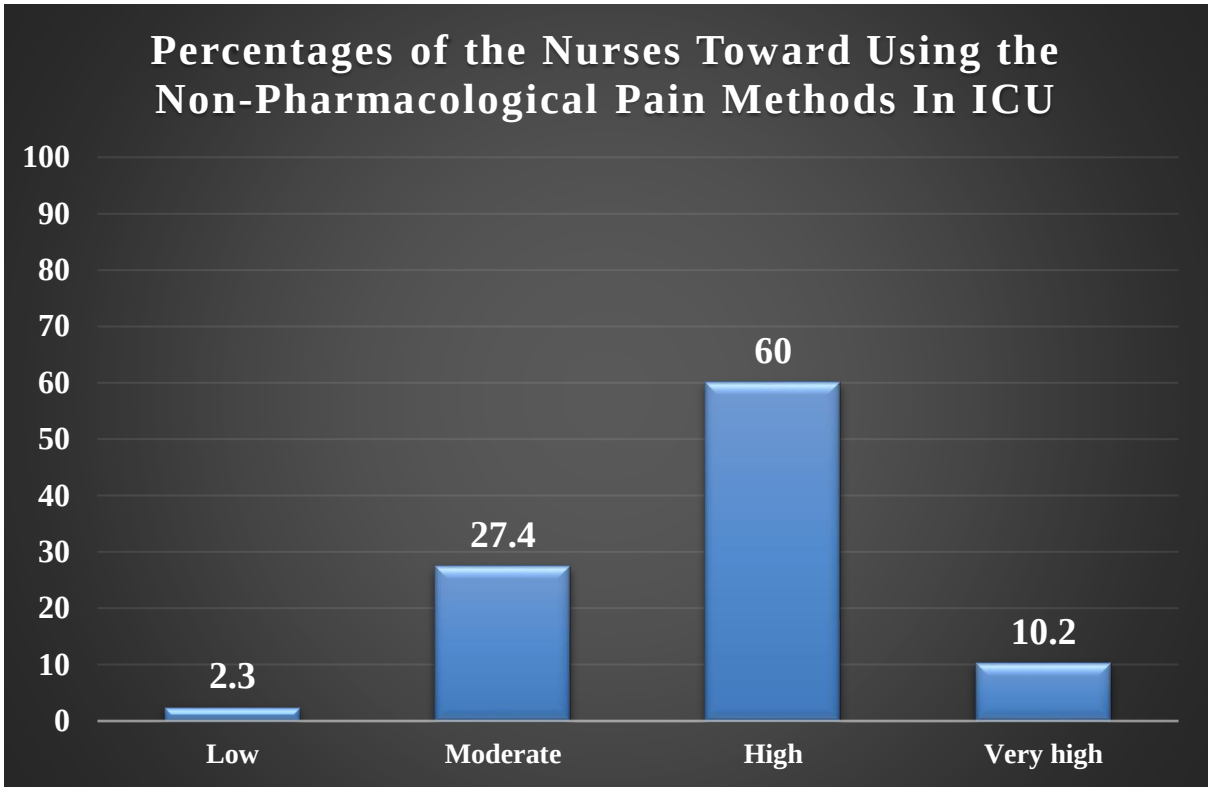

Figure 1. *Percentages of Nurses that have used Non-Pharmacological Pain Methods in ICU*

Table 4 shows the mean score for each item relevant to non-pharmacological pain management methods. The total mean score for all times was 2.71 (SD, 0.46). The highest methods used by nurses in terms of non-pharmacological pain management were placing the patient in a comfortable position and communicating with the patient & family with M= 3.40, SD= 0.801 and M=3.27, SD= 0.764 respectively.

However, the lowest methods used were Distracting the patient by listening to light music/watching TV and acupuncture/acupressure/reflexology with M= 1.97, SD=1.016 and M=1.98, SD=0.888 respectively. More details are shown in table 4.

Table 4

Mean score for each item toward non-pharmacological pain management methods (n=215)

Item	M	SD	%
Put the patient in comfortable position	3.40	.801	85.0%
Apply hot or cold local packages	2.79	.778	69.8%
Encourage patient to drink herbal drinks	2.62	.904	65.5%
Apply breathing techniques	3.08	.864	77.0%
Conduct hydrotherapy (partial bath)	2.77	.948	69.3%
Apply movement restriction-resting	2.81	.795	70.3%
Communicate with patient, &family	3.27	.764	81.8%
Use therapeutic touch	2.63	.897	65.8%
Apply massaging techniques	2.51	.814	62.8%
Distract the patient by listening to light music/watching TV	1.97	1.016	49.3%
Help the patient to pray	2.64	.885	66.0%
Apply guided imagery technique	2.27	.904	56.8%
Provide quiet and comfortable room	2.92	.893	73.0%
Use comfort devices (special mattress)	2.85	.920	71.3%
Counselling/Provides education for patient and his family	3.00	.788	75.0%
Acupuncture/acupressure/reflexology	1.98	.888	49.5%
Total Mean Score (16 items)	2.71	.465	67.8%

4.3 Barriers to Use Nonpharmacological Pain Methods Among ICU Nurses

Table 5 presents the barriers to use nonpharmacological pain methods among ICU nurses to decrease ICU patient level of pain. As shown in table 5, the two highest barriers were the lack of time, workload and patient instability with 83.7% (n = 180), and 77.2% (n = 166), respectively. On the other hand, lack of education and low priority of pain management were considered as the two lowest barriers according to the participants' responses with 49.3 % (106), and 54.4 % (117), respectively.

Table 5

Barriers to use non-pharmacological pain management among ICU nurses (n=215)

Item	Yes		No	
	n	%	n	%
Lack of time and high workload	180	83.7	35	16.3
Lack of equipment	153	71.2	62	28.8
Lack of education	106	49.3	109	50.7
Patient instability	166	77.2	49	22.8
Patient inability to communicate	148	68.8	67	31.2
Low priority of pain management	117	54.4	98	45.6

4.4 Differences of Using Nonpharmacological Pain Methods Based on Demographics

Table 6 shows the differences among socio-demographic characteristics in terms of the total mean score of using the non-pharmacological pain management among ICU nurses. The Independent t-test and One Way ANOVA were used to assess the differences among variables. The Independent t test has shown that there are no

significant differences in gender (p=0.090) and types of hospitals (p=0.574). In addition, One Way ANOVA has shown that there are no significant differences in level of education (p=0.292), years of experience in nursing (p=0.252), years of experience in ICU (p=0.964), work area (p=0.666) and education source (p=0.627).

However, a significant difference between age groups was found (F=2.633, p=0.035). According to the Tukey post-hoc test, ICU nurses who aged between 20-25 years old (M=2.83, SD=0.456) have higher mean score than nurses aged between 26-30 years old (M=2.59, SD=0.403) (p=0.020).

Table 6

Differences among socio-demographic characteristics in terms of the total mean score of using the non-pharmacological pain management among ICU nurses (n=215)

Variables		n	Mean	SD	Statistical value	P-value
Gender	Male	131	2.67	.457	t= -1.703	.090
	Female	84	2.78	.473	df= 213	
Age groups	20-25 years old	86	2.83	.456		
	26-30 years old	58	2.59	.403	F= 2.633	.035*
	31-35 years old	47	2.68	.454	df= 4	
	36-40 years old	13	2.65	.573		
	41–45-year-old	11	2.64	.620		
Level of education	Diploma	30	2.84	.544		
	Bachelor's Degree	167	2.70	.453	F= 1.238 df= 2	.292
	Master's degree	18	2.67	.428		
Years of experience in nursing	1-5 years	121	2.76	.436		
	6-10 years	50	2.66	.470	F= 1.351	.252
	11-15 years	26	2.71	.477	df= 4	
	16-20 years	10	2.46	.494		
	21-25 years	8	2.62	.726		
Years of experience in ICU	1-5 years	162	2.71	.468	F= .037	.964
	6-10 years	34	2.71	.385	df=2	
	> 10 years	19	2.74	.584		
Working area (type of ICU)	Surgical ICU	65	2.75	.506	F= .407	.666
	Medical ICU	81	2.68	.366	df=2	

	CCU	69	2.73	.529		
Working health sector	Government	114	2.70	.500	t= -.564 df= 213	.574
	Private	101	2.73	.425		
Which education source on non-pharmacological pain management you have	Opinion	22	2.72	.372		
	Book	81	2.70	.459		
	Colleague	70	2.76	.462		
	Published work (articles)	15	2.82	.400	F= .697 df=2	.627
	In-service education	20	2.62	.586		
	None	7	2.52	.626		

**Significant at p=≤0.05*

Independent t test and One Way ANOVA

4.5 Summary

Nurses in Palestinian ICUs pointed out that non-pharmacological pain methods to decrease ICU patients' pain level were used by more than 60 % of participants regardless of their demographics except the age level. Critical care nurses who aged between 20-25 years demonstrated the highest mean score of using non-pharmacological pain methods. The highest methods used by nurses about non-pharmacological pain management were placing the patient in a comfortable position and communicating with the patient and family. However, the lowest methods used were distracting the patient by listening to light music/watching TV and acupuncture/acupressure/reflexology. Regarding the barriers to use non-pharmacological pain methods, lack of time and high workload were among the highest barriers. Whereas lack of education was the lowest barrier.

CHAPTER FIVE

DISCUSSION

5.1Introduction

This chapter presents a discussion regarding using nonpharmacological pain management and barriers among ICU nurses, in the context of other studies. Furthermore, this chapter is providing the implications of this study to the nursing field in terms of knowledge, research, administration, and education. Recommendations and limitations as well as conclusion are presented as well.

5.2Using of nonpharmacological pain management

The results of this study showed the percentages of nurses using the non-pharmacological pain methods in ICUs. More than two-thirds of nurses were using the non-Pharmacological Pain Methods in ICU. Sixty percent of nurses have used these methods at a high level, 10.2% at a very high level while 27.4% at a moderate level and 2.3% at a low level. In the same context, Kia et al. (2021) as shown in our result revealed that a moderate number of ICU nurses used non-pharmacological pain management methods (55.8 %) out of 224 ICU nurses.

On the other hand, Khalil (2018) and Zeleke et al (2021) reflected inconsistent results in our study as they concluded that most nurses didn't apply non-pharmacological pain management approaches. For instance, only 26% nurses used nonpharmacological pain methods. An interesting point in our study and the two previously mentioned studies is that the ICU nurses used placing the patients in a comfortable position as the most frequent method to decrease their pain. Some difference in the location of these two studies and our study may influence the results.

For example, our study was conducted in a variety of health sector hospitals in Palestine, while Khalil study (2018) was conducted in a single hospital in Egypt, and Zeleke et al (2021) study was conducted in a single hospital in Ethiopia. Moreover, the sample size included 60 nurses and 169 nurses in Khalil and Zeleke, respectively while our sample size was larger, and it included 215 ICU nurses.

Khalil (2018) stated that the lack of education and inadequate knowledge were a frequent barrier that prevented critical care nurses from applying non-pharmacological pain management approaches. This was incongruent with the participants of our study who claimed that lack of education was the lowest barrier to use nonpharmacological pain methods to decrease ICU patient pain. This may give the impression that nursing education in Palestine have emphasized using nonpharmacological pain methods rather than the case in Egypt and Ethiopia. According to The World Bank classification, Palestine is a lower-middle income economy while Ethiopia is a low-income economy, which may be considered as another reason (The World Bank, 2023).

The lack of time and nurses' high workload were the most perceived barrier to use nonpharmacological pain method by ICU nurses to decrease ICU patient level of pain in the Iranian study (Kia et al., 2021). These results go along with our study result which revealed that approximately 84% of participants have the same barrier.

Regarding the demographics, our study pointed out no statistically significant relationships between using the nonpharmacological pain method and sex, years of experience, working area and level of education. Our findings are consistent with Kia et al. (2021) and Khalil (2018). In terms of age, Khalil (2018) revealed that a few nurses with more experience (over 20 years) used more nonpharmacological pain intervention practices than those with 2–4 years of experience. On contrast, the present study stated

that the age group between 20-25 years have higher mean score to use nonpharmacological pain method.

5.3Implications and Recommendations

The findings of this study could be beneficial to the clinical area where they could be applied and may give some recommendations regarding this vital concern. The results regarding using a nonpharmacological method and the barriers raised can be used as a base line data for healthcare professions, and more attention can be paid for using more structural guidelines regarding this concern.

Other future studies with different designs, such as observational and interventional studies, are needed to explore this issue, and the hospital staff in Palestine are recommended to use these studies and they are recommended to have a large sample size to increase the representativeness and generalizability of results. Also, nurses' practice regarding using nonpharmacological care should be studied with other designs to assure that nurses implement such an approach as well as monitor the patients' outcome. Finally, we strongly recommend involving ICU patients in future studies to examine the efficacy of different nonpharmacological pain methods on their level of pain.

5.4Limitations and Strengths

A few limitations may have an effect on the findings of this study. Although the researcher strives to find the exact number of ICU nurses in Palestine, no information was found by official institutions such as MOH in Palestine. However, the researcher visited and made phone calls with the administrators of each hospital and obtained the

exact number of each ICU nurses in Palestine. The convenience sampling technique was used to approach ICU nurses, which may have a possibility of bias. Also, the data were collected form nurses to assess their usage of nonpharmacological pain method through the self-administered questionnaire, but this self-reporting method may have a possibility of bias. On the other hand, up to the researcher knowledge, this is the first study that have been conducted in Palestine which is a strength and an added value to our study. All studies that have been found concerning this issue were conducted in a single hospital and they focused on general nurses or al the nurses in the hospital, but our study has focused on ICU nurses rather than general nurses or the registered nurses in the hospital entirely, which is also another strength to our study.

5.5Conclusion

This study is the first of its kind in Palestine that assessed using nonpharmacological pain management and addressed the barriers among ICU nurses. The results revealed that more than two-thirds of nurses were using the non-Pharmacological Pain Methods in ICU. The results revealed no differences between the total usage score and the nurses' demographics except the age group. Developing, implementing and continuous monitoring of guidelines regarding using nonpharmacological for nurses and physicians are recommended which will be reflected positively on patients' outcomes.

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Appendices

Appendix (A) (Instrument Package)

عزيزي الممرض / الممرضة

شكرا" لاهتمامكم ورغبتكم بالمشاركة في هذا البحث العلمي.

تهدف هذه الدراسة الموسومة ب " **استخدام ممرضي العناية المكثفة للوسائل اللادوائية لتخفيف ألم المرضى والمعيقات لذلك في أقسام العناية المكثفة في فلسطين** " إلى قياس مدى استخدام الممرضين في العناية المكثفة للوسائل اللادوائية لتخفيف ألم مرضى العناية المكثفة في فلسطين وأيضا قياس المعيقات لإستخدام هذه الوسائل.

ستعامل البيانات جميعها بسرية تامه ، ولا يحق لاي شخص الاطلاع على هذه البيانات باستثناء الباحثين. وستحفظ البيانات في اماكن خاصة لا يصل اليها الا الباحثون .

لا يتطلب الاشتراك في البحث ذكر اسمك او ما يدل عليه. ومهما كانت اجابتك او رأيك فان هذه الاجابات والآراء لن تؤثر بأي شكل كان عليك، ولك الحق بالاشتراك في الدراسة او رفضه حيث أن المشاركة في البحث طوعية وبمحض اختيارك.

لقد حصلت هذه الدراسة على موافقة المؤسسة التي تنتمي إليها بحيث يسمح للباحث بجمع البيانات من المشاركين في الدراسة.

يستغرق ملئ الاستبيانات حوالي "15 دقيقة " من الوقت كحد أعلى .

يحق لك كمشارك في الدراسة الإستفسار من الباحث عن أي أمر يتعلق بالدراسة وكذلك يحق لك الحصول على نتائج البحث عند الانتهاء منه .

توقيع المشارك: _____

الباحث الرئيس :-

وفاء جميل طحل

كلية التمريض / الجامعة العربية الأمريكية-فلسطين

بريد الكتروني: Wafaa.tohol1998@yahoo.com

هاتف رقم : 00972599509366

Study Title

"Using of Non-Pharmacological Pain Method, and the Perceived Barriers, Among Critical Care Nurses to Decrease Patients Pain in Intensive Care Units in Palestine"

Part one: (Demographic data):

1.Sex: □ Male □ Female

2. Age: □ 20-25 □ 26-30 □ 31-35 □ 36-40 □ 41-45

3. Level of education: □ Diploma □ Bachelor □ Master

4. Year of experience in nursing: □ 1-5 □ 6-10 □ 11-15 □ 16-20 □ 21-25

5. Year of experience in ICU: □ 1-5 □ 6-10 □ 11-15 □ 16-20 □ 21-25

6. Working area (type of ICU): □ Surgical ICU □ Medical ICU □ CCU □ Emergency

7. Working health sector: □ Government □ Private

8. Which education source on non-pharmacological pain management you have:

□ Opinion □ Book □ Colleague

□ Published work (articles) □ In-service education □ None

Part two: (Using of non-pharmacological pain methods):

Tool to measure using of non-pharmacological interventions by ICU nurses.

No.	Item	Never	Few times	Sometimes	Frequently
1.	Put the patient in comfortable position				
2.	Apply hot or cold local packages				
3.	Encourage patient to drink herbal drinks				
4.	Apply breathing techniques				
5.	Conduct hydrotherapy (partial bath)				
6.	Apply movement restriction-resting				
7.	Communicate with patient, &family				
8.	Use therapeutic touch				
9.	Apply massaging techniques				
10.	Distract the patient by listening to light music/watching TV				
11.	Help the patient to pray				
12.	Apply guided imagery technique				
13.	Provide quiet and comfortable room				
14.	Use comfort devices (special mattress)				
15.	Counselling/Provides education for patient and his family				
16.	Acupuncture/acupressure/reflexology				

Part three: (Perceived barriers to use non-pharmacological pain management):

No.	Item	Yes	No
1.	Lack of time and workload		
2.	Lack of equipment		
3.	Lack of education		
4.	Patient instability		
5.	Patient inability to communicate		
6.	Low priority of pain management		

Other Barriers:

_____.

Appendix (B) (Ethical Approvals)

Ministry of Health (MOH) Ethical Approval

State of Palestine
Ministry of Health
General Directorate of Education in
Health and Scientific Research

دولة فلسطين
وزارة الصحة
الإدارة العامة للتعليم الصحي
والبحث العلمي

Ref.: .....
Date:.....

الرقم: ع.ص/١٨٧/٢٠٢٢
التاريخ: ٢٠٢٢/٩/١٧

عطوفة الوكيل المساعد لمجمع فلسطين الطبي المحترم،،،
الأخ مدير عام الادارة العامة للمستشفيات المحترم،،،
تحية واحترام،،،

الموضـــوع: تسهيل مهمة بحث

يرجى التكرم بتسهيل مهمة الطالبة: **وفاء جميل كمال طحل- ماجستير عناية مكثفة- الجامعة العربية الامريكية**، لعمل بحث بعنوان:

استخدام ممرضي العناية المكثفة للوسائل اللادوائية لتخفيف ألم المرضى والمعيقات لذلك "لذلك في أقسام العناية المكثفة في فلسطين"

حيث سيقوم الباحث بجمع معلومات من خلال تعبئة استبانة الدراسة من المرضى، تحت اشراف د. عماد فشافشة، وذلك في:

- **مجمع فلسطين الطبي**
- **مستشفى رفيديا – مستفى الوطني – مستشفى عاليه – مستشفى طولكرم**

على ان يتم الالتزام بالمحافظة على اخلاقيات البحث العلمي وسرية المعلومات.
على ان يتم الالتزام بجميع تعليمات واجراءات الوقاية والسلامة الصادرة عن وزارة الصحة بخصوص جائحة كورونا، وتحت طائلة المسؤولية. وابراز شهادة التطعيم قبل دخول مرافق وزارة الصحة.
على ان يتم تزويد الوزارة بنسخة PDF من نتائج البحث، التعهد بعدم النشر لحين الحصول على موافقة وزارة الصحة.

مع الاحترام،،،

د. عبد الله القواسمي
رئيس وحدة التعليم الصحي والبحث العلمي

نسخة: عميد كلية الدراسات العليا المحترم/ الجامعة العربية الامريكية

Istishari Hospital Ethical Approval

المستشفى الإستشاري العربي
ISTISHARI ARAB HOSPITAL
أكثر من مجرد مستشفى

IAH Research Application Form

Date	12.10.2022
Name of investigator	Wafaa Jamel Tohol
Mobile No.	0599509366
Email	Wafaa.tohol1998@yahoo.com
Expected start date	20.10.2022
Expected completion date	27.10.2022
Name of Company/University	Arab American University Palestine
Attached needed	
Investigator CV	√☐Yes ☐No
Study Proposal	√☐Yes ☐No
Consent Form	√☐Yes ☐No
Data Collection Tools	√☐Yes ☐No
Informed Consent (Arabic & English)	√☐Yes ☐No
For HR Department	
Receiving Date	
Application completed	☐Yes ☐No
Transfer Date	
Educational Officer Signature	
For Ethical Committee	
Receiving Date	17/10/2022
Ethical Committee Approval	☐Yes ☐No
Ethical Committee Note	questionaire ,Descriptive study nothing to declare. Approve
Head of Ethical committee Sig.	17/10/2022
CEO Note	OK
CEO Sig.	17/10/2022

- For Non-Experimental Research only

Al-Ahli Hospital Ethical Approval

Back Archive Move Delete Spam

Imad Hussein Deeb Fashafsheh <imad.fashafshi@aaup.edu>
To: Wafaa Tohol

Tue, Nov 29 at 11:42 AM

السلام عليكم

From: Murad Amro <qualityadvisor@ahli.org>
Sent: Monday, November 28, 2022 9:07 AM
To: Imad Hussein Deeb Fashafsheh <imad.fashafshi@aaup.edu>
Cc: Dr.Yousef Takrori <g.manager@ahli.org>; basaafeen@yahoo.com <basaafeen@yahoo.com>
Subject: Re: Ethical Approval

حضرة د. عماد فشافشة المحترم،
الجامعة العربية الأمريكية / كلية الدراسات العليا،

تحية طيبة،،،

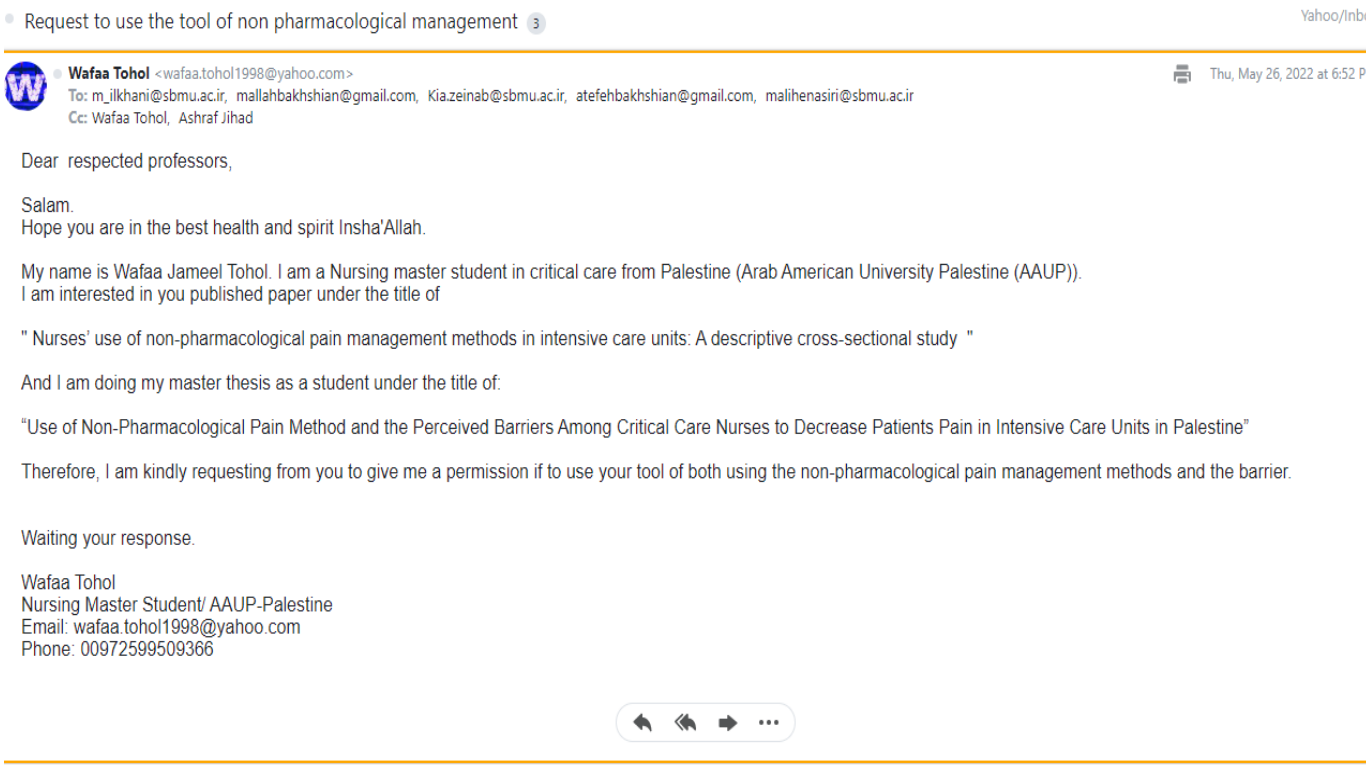
يسعدنا أن نبلغكم موافقتنا على تسهيل مهمة الطالبة **وفاء الطحل** لجمع البيانات اللازمة لبحاثها المتعلق ب **" الأساليب غير الدوائية لتخفيف ألم مرضى العناية المكثفة والمعيقات التي تواجه الممرضين ".**
نأمل من الطالبة وفاء القيام هي نفسها بتوزيع استماراتها وجمعها، مصطحبة معها نسخة من هذه الموافقة للأقسام المعنية.
كما نتوقع منها الالتزام التام بأخلاقيات البحث العلمي والحفاظ على السرية واحترام رغبة المشاركين في الانسحاب أو الامتناع عن المشاركة في الدراسة، وعدم مشاركة معلومات تخص المرضى أو وثائق المستشفى بأي وسيلة كانت عدا عن اغراض الدراسة.
ونتطلع الى أن تشاركونا نتائج وتوصيات دراستكم مع امنياتنا لطالبتكم بالنجاح والتوفيق

واقبلوا فائق الاحترام

*للمتابعة: تفضلي عليكم أرفاق نسخة من الاستمارة

Murad Y. Amro, BSN, SON, HCQP, MPH(Epi)
Quality Improvement & Infection Prevention Advisor,
Coordinator for research and student's clinical training,

Al Ahli Hospital- Hebron
Tel: 09972- 2- 2220212/5| Fax: 00972-2-2229247
Email: qualityadvisor@ahli.org | amro.amro@gmail.com
WhatsApp number: +972598231813 | +972525024499
Mobile: +972-0598-231813



Request to use the tool of non pharmacological management 3

Yahoo/Inbo

Wafaa Tohol <wafaa.tohol1998@yahoo.com>
To: m_ilkhani@sbmu.ac.ir, mallahbakhshian@gmail.com, Kia.zeinab@sbmu.ac.ir, atefehbakhshian@gmail.com, malihenasiri@sbmu.ac.ir
Cc: Wafaa Tohol, Ashraf Jihad

Thu, May 26, 2022 at 6:52 P

Dear respected professors,

Salam.
Hope you are in the best health and spirit Insha'Allah.

My name is Wafaa Jameel Tohol. I am a Nursing master student in critical care from Palestine (Arab American University Palestine (AAUP)).
I am interested in you published paper under the title of

" Nurses' use of non-pharmacological pain management methods in intensive care units: A descriptive cross-sectional study "

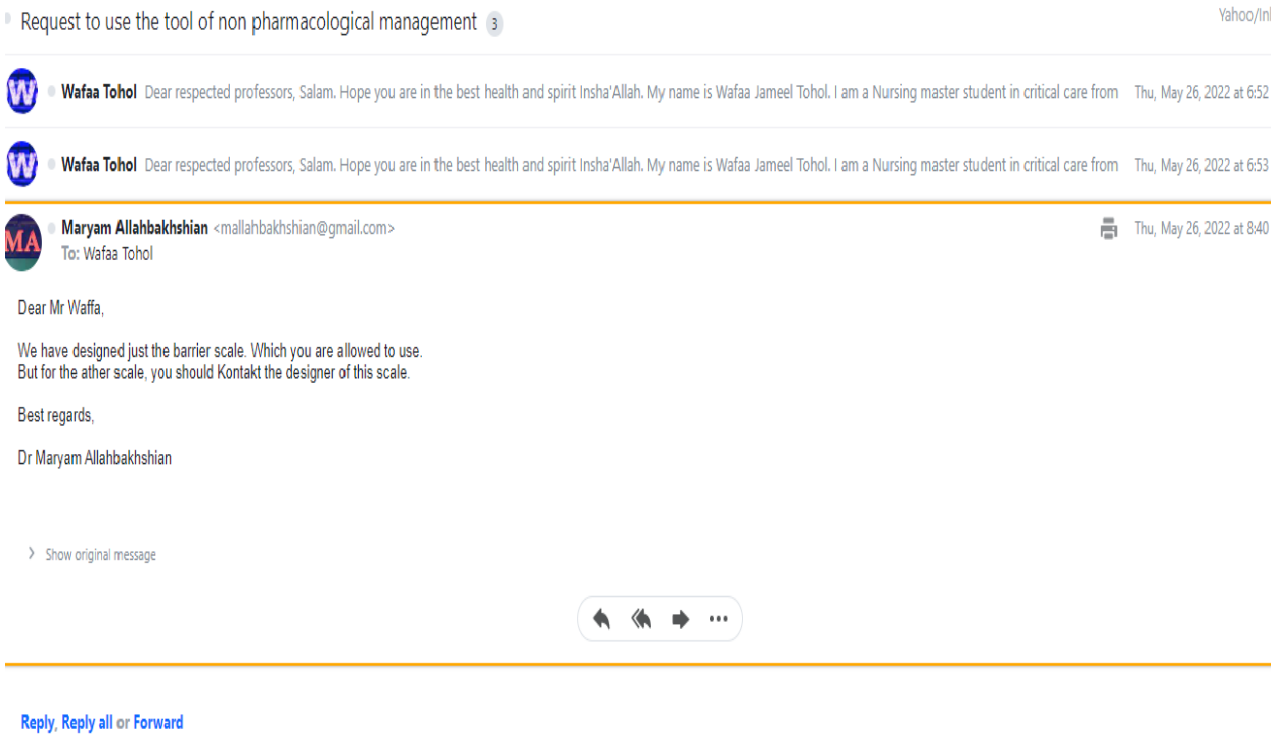
And I am doing my master thesis as a student under the title of:

"Use of Non-Pharmacological Pain Method and the Perceived Barriers Among Critical Care Nurses to Decrease Patients Pain in Intensive Care Units in Palestine"

Therefore, I am kindly requesting from you to give me a permission if to use your tool of both using the non-pharmacological pain management methods and the barrier.

Waiting your response.

Wafaa Tohol
Nursing Master Student/ AAUP-Palestine
Email: wafaa.tohol1998@yahoo.com
Phone: 00972599509366



Request to use the tool of non pharmacological management 3

Yahoo/Inl

Wafaa Tohol Dear respected professors, Salam. Hope you are in the best health and spirit Insha'Allah. My name is Wafaa Jameel Tohol. I am a Nursing master student in critical care from Thu, May 26, 2022 at 6:52

Wafaa Tohol Dear respected professors, Salam. Hope you are in the best health and spirit Insha'Allah. My name is Wafaa Jameel Tohol. I am a Nursing master student in critical care from Thu, May 26, 2022 at 6:53

Maryam Allahbakhshian <mallahbakhshian@gmail.com>
To: Wafaa Tohol

Thu, May 26, 2022 at 8:40

Dear Mr Waffa,

We have designed just the barrier scale. Which you are allowed to use.
But for the ather scale, you should Kontakt the designer of this scale.

Best regards,

Dr Maryam Allahbakhshian

Show original message

Reply, Reply all or Forward

الملخص

المقدمة: على الرغم من التقدم الكبير في تقييم الألم المرضي الحرج وتسكين الألم ، يظل الألم من الأمراض الخطيرة موضوعًا لم يتم حله) يتم تخفيف الألم بأحد النهجين الشائعين ، التدخل الدوائي أو غير الدوائي. قد يكون لاستخدام الأساليب غير الدوائية مثل تقنيات الاسترخاء والتأمل والاستماع إلى أصوات الاسترخاء أو الموسيقى أو القرآن والطرق التكميلية الأخرى تأثير مفيد على مستوى الألم لدى المرضى من خلال تقليله وتقليل فرصة الآثار الجانبية للطرق الدوائية.

الهدف: تهدف هذه الدراسة إلى تقييم استخدام الممرضين الفلسطينيين في وحدة العناية المركزة لطريقة إدارة الألم غير الدوائية لتقليل آلام مرضى وحدة العناية المركزة ، وفحص العوائق التي تحول دون تنفيذ هذه الطريقة.

منهجية البحث: تم استخدام تصميم المقطع العرضي الكمي. تضمنت هذه الدراسة ثلاث مجموعات أدوات. الجزء الأول البيانات الديموغرافية وتشمل العمر والجنس وقطاع الرعاية الصحية وغيرها. القسم الثاني عبارة عن أداة تستخدم مقياس ما يسمى " ليكرت " المكون من 4 نقاط لفحص استخدام تمريض وحدة العناية المركزة لطرق الألم غير الدوائية ويتكون من 16 عنصرًا. القسم الثالث هو ستة عناصر من العوائق لاستخدام طرق الألم غير الدوائية. تم تضمين عينة ملائمة من 215 ممرضة في وحدة العناية المركزة في تحليل هذه الدراسة.

النتائج: أكثر من ثلثي الممرضين حاصلين على درجة البكالوريوس. بالإضافة إلى ذلك ، يتمتع أكثر من نصف الممرضين بخبرة مهنية تتراوح بين 1 و 5 سنوات في مجال التمريض. كانت معظم مصادر التثقيف حول إدارة الألم غير الدوائية من الكتب والزملاء بنسبة 37.7٪ و 32.6٪ على التوالي. استخدم أكثر من ثلثي الممرضين طرق الألم غير الدوائية في وحدة العناية المركزة. 60٪ من الممرضين يتمتعون بمستوى عالٍ ، و 10.2٪ يتمتعون بمستوى عالٍ جدًا. من ناحية أخرى ، 27.4٪ متوسطون و 2.3٪ منخفضون. من حيث العوائق، كان أكبر عائقين هما قلة الوقت وعبء العمل وعدم استقرار المريض بنسبة 83.7٪ (ن = 180) و 77.2٪ (ن = 166) على التوالي.

الخلاصة (المستخلص): هذه الدراسة هي الأولى من نوعها في فلسطين التي قيمت باستخدام إدارة الألم غير الدوائي وتناولت العوائق بين ممرضي العناية المركزة. أظهرت النتائج أن أكثر من ثلثي الممرضين كانوا يستخدمون طرق الألم غير الدوائية في وحدة العناية المركزة.

التضمين والتوصية: هناك حاجة إلى دراسات مستقبلية أخرى بتصاميم ومنهجيات بحث مختلفة ، مثل الدراسات القائمة على الملاحظة والتدخل ، للتعمق في هذه المسألة. نوصي بشدة بإشراك مرضى وحدة العناية المركزة في الدراسات المستقبلية لفحص فعالية طرق الألم غير الدوائية المختلفة على مستوى الألم لديهم.

الكلمات الأساسية: كانت الكلمات الرئيسية المستخدمة للبحث هي "طرق الألم غير الدوائية" ، و "وحدة العناية المركزة" ، و "الممرضين" ، و "الحواجز التي تحول دون تنفيذ طرق الألم غير الدوائية" ، و "معرفة الممرضة وممارستها" ، و "استخدام الممرضة".