An-Najah National University

Faculty of Graduate Studies

Nurses' knowledge, Attitudes and Barriers to Effective Pain Management in Intensive Care Units Governmental Hospitals in West Bank, Palestine

By

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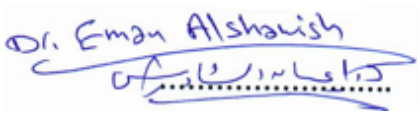
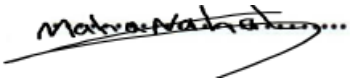
• **Dr. Eman Al-Shawish / Supervisor**	
• **Dr. Maha Nahal / External Examiner**	
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Dedication

To my beloved parents; the reason of what I became today; they gave me lessons in otherworldly things,

To my cherished sisters and brothers,

To my much-loved wife;

To the nursing faculty members specifically who are in the community in pursuit of a healthy living,

To my supervisors and all who bolstered me in finalizing this work,

To those who made my thesis happen.

And most especially to our Almighty Lord our God.

This research is dedicated to you.

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الاقرار

أنا الموقع أدناه، مقدّم الرسالة التي تحمل العنوان:

Nurses' knowledge, Attitudes and Barriers to Effective Pain Management in Intensive Care Units Governmental Hospitals in West Bank, Palestine

أقر بأن ما اشتملت عليه هذه الأطروحة إنما هو نتاج جهدي الخاص، باستثناء ما تمت الاشارة إليه حيثما ورد. وأن هذه الرسالة كاملة، أو اي جزء منها لم يقدم من قبل لنيل اي درجة او لقب علمي او بحثي لدى أي مؤسسة تعليمية أو بحثية أخرى.

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

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List of Abbreviations and Acronyms

Symbol	Abbreviation
ANOVA	Analysis of variance
CIAP	Critically ill adult patients
Df	Degrees of freedom
et al.	et alia (and others)
GPs	General practitioners
HCPs	Healthcare professionals
ICU	Intensive care unit
MVPs	Mechanically ventilated patients
NKASRP	Nurses' Knowledge and Attitudes Survey Regarding Pain
PPE	Personal protective equipment
QoL	Quality of life
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

Nurses' knowledge, Attitudes and Barriers to Effective Pain Management in Intensive Care Units Governmental Hospitals in West Bank, Palestine

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Abstract

Background: Pain is a momentous affliction suffered by patients admitted to the Intensive Care Units (ICUs) that may lead to chronic pain disorders, and can negatively affect the physiological and psychological outcomes for patients and their families.

Aim and objectives: This study aims at assessing nurses' knowledge and attitudes toward pain management of ICU patients, and to identify barriers that affect the optimal pain management among ICU nurses of the Governmental hospitals in the West Bank, Palestine. Furthermore, to detect the relationship between the levels of knowledge/attitude and any other factors affecting nurses.

Method: A cross-sectional survey was conducted about the ICU nurses. The study was carried out in twelve (12) governmental hospitals in Palestine, between August and November 2020. Nurses who work in the (ICUs) were invited to participate in this study. One hundred twenty-three (123) nurses who responded to participate out of (164) nurses with a (75%) response rate. Nurses who have been working in hospitals for at least six months were included in this study. The tool was a questionnaire derived from the nurses' knowledge and attitudes survey regarding pain (NKASRP)

section, and was used to gather data about pain management with a minimal test value = 0.80. Furthermore, analyses were executed employing (SPSS).

Results: Despite the fact that only 37 (30.1%) of the nurses caring for ICU patients had prior education regarding pain management in the last (2) two years, more than half of nurses 71 (57.7%) testified they had an effective role in pain management. However, precise response rate of NKASRP grade was 47.8%, while the mean number of correct answers to all questions was (19.61±13.51) with a range of 24% to 80%. A statistically significant difference was found regarding years of practice in intensive care units, as well as previous pain education in the last 2 years in favor of those who had pain education (0.5048) vs. (0.4166), with the total mean scores of knowledge and attitudes ($p<0.05$). There was a highly associated positive correlation between knowledge and attitudes. The study revealed that the (5) least correctly answered questions were related to the case study items about the route of administration of opioid analgesics, and physical dependence. The total barrier score was 2.399 out of 3. No statistically significant differences were found between the demographic features of the nurses and the perceived barriers. However, the highest perceived nurse-related barriers to effectual pain management were insufficient staff knowledge of pain management evenly with nurses' indifference 90 (73.2%).

Conclusions: Findings of this study verified that the surveyed nurses had poor knowledge of pain management and less than optimum, and was associated with poor attitudes, as well as a high barrier score signifying a gap toward effective pain management. A significant positive correlation was found between knowledge and attitudes.

Recommendations: Nurses have to be well-prepared and knowledgeable on pain management modus operandi. It is recommended that ICU nurses should be provided with in-service training and ongoing pain management courses. Fitting and convenient strategies to minimize potential barriers can be renovated to better empower nurses to employ practice guidelines to yield effective pain management to ICU patients. Expectantly, this study is to be espoused and aptly integrated by MoH and vigorously to be considered legally mandatory upon all health bodies and educational organizations in Palestine.

Keywords: Pain, Pain management, Attitudes, Education, Knowledge, Nurses, Barriers.

Chapter One
Introduction

1.1 Overview

Pain is a momentous affliction suffered by patients admitted to the Intensive Care Units (ICUs). It is a usual manifestation that is considered as one of the most public and opposing stimulant to individuals at any stage of life. Acute illnesses concomitant with severe pain, most of the times, consist of surgical incision, nociceptive feelings, traumatic wounds, effect of prolonged immobility, and occasionally hidden infections in the body's cavities and treatment by invasive procedures (Lui, 2006). It is currently estimated that the lack of adequate pain management affects 80% of the global population and the phenomenon poses a serious problem in more than 150 countries (Medrzycka-Dabrowka et al., 2017). Some factors were also established in literature such as common limitations in pain management and assessment, including insufficient knowledge in the pharmaceutical aspects (such as opioids) and in the non-pharmaceutical areas for patients suffering from pain, cultural differences, afraid of opioid addiction, and resemblances in the experience of pain, multiplied workload, and staff paucity. Pain in ICU is difficult to assess because of the nature of patients admitted to that unit, whilom it is a subjective data that are individually underwent and reported by the patients, which makes it difficult for others to assess, evaluate, and manage. However, pain assessment requires health care providers to have a suitable knowledge of

it, and comprises a number of care providers including the nurses among others. However, modicum is known about the nurses' knowledge and attitudes related to pain management in ICU (Al-Shaer et al., 2011).

Untreated pain has extra risks such as lengthy hospital stay, deferred recovery, and the development of chronic and insistent pain. Furthermore, poor analgesia steers to immobility and escalate cardiovascular, respiratory, and gastrointestinal impediments (Macrae, 2008). It is widely accepted that pain is a significant part of the ICU nurses' workload [De Berardinis et al., 2013; Keating and Smith, 2011]. However, literature has displayed that acute pain is incompetently managed, both because of delayed administration of painkillers and under-treatment [De Berardinis et al., 2013; Keating and Smith, 2011]. The level of knowledge, along with the attitude of the ICU nurses induce the quality of care that patients receive (Yaqoob and Nasaif, 2015). Nurses' foundational knowledge regarding pain has been shown to be correlated with better overall patient outcomes and satisfaction (Ayasrah et al., 2014). On the other hand, paucities in the management of pain have been directly related to the passive contribution of nurses in assessing and managing patients in pain (Alm and Norbergh, 2013). Nurses tend to underrate patients' degree of suffering believing that patients self-reports about pain are embroidered [Duignan and Dunn, 2008; Latina et al., 2015]. Incidentally, to lessen the pain of patients, as primary caregiver, nurses must have an ample knowledge and appropriate attitude towards pain management (Omran et al., 2014). Nonetheless, studies organized in critical care, oncology, medical and postoperative care

demonstrated nurses' lack of adequate knowledge and unsuitable attitude as one of the noteworthy barriers towards operational pain management [Badr et al., 2015; Wang and Tsai, 2010; Yava et al., 2013].

Because they devote the bulk of their time to the patients, it is imperative for nurses and other health-care providers to retain a good competence, cleverness and a positive temperament concerning pain management (Al-Shaer et al., 2011). Thus, pain management is a criterion knowledge for nurses to acquire. Despite their knowledge in managing patients with pain, nurses converge primarily on how to confront the disease that resulted in pain rather than the reason of the pain itself (Polomano et al., 2008).

Worldwide, there has been a rising concern with regard to nurses' level of knowledge about pain management in the medical and surgical units [Basak et al., 2010; Bell and Duffy, 2009; Cogan et al., 2014]. Previous studies have measured the level of nurses' knowledge and attitudes (staff working in high keenness care units, encompassing medical and surgical units) concerning pain assessment. "The nurses' knowledge and attitudes survey[1]s regarding pain management" [Lui, 2006; Issa et al., 2017] were assessed, and it was detected that nurses' knowledge level and attitudes headed for pain management were insufficient for the surgical-medical units [Issa et al., 2017; Hamdan, 2011; Tortorella, 2014; Yava et al., 2013].

[1] (KAS): knowledge and attitudes survey is used interchangeably with the Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP) which gives the same content of the questionnaire.

Nurses perform a critical function in assessing and managing pain. They frequently function as mediators between the doctor and the patient, and fulfill as the main spectator of pain and discomfort in the latter. Thus, it is very imperative to verify the barriers perceived by nurses to the assessment and management of pain. Notwithstanding the fact that nurses are the front-line caregivers in the inpatient settings, there is no qualitative research on barriers regarding pain management in Palestinian critical care units, so this research addresses this research gap.

This study aims at assessing the level of nurses' knowledge, attitudes as well as barriers toward pain management to ICU patients in the Governmental hospitals in the West Bank, Palestine.

1.2 Problem Statement

Alleviating patients' suffering is a core ethical and legal obligation for all health care professionals (Brennan et al., 2007). However, discomfort due to moderate or severe levels of acute pain remains prevalent and affects between 40% and 77% of adult patients in critical care settings [Gelinas, 2007; Li and Puntillo, 2006]. Available evidence shows that critically ill adult patients (CIAP) in ICUs suffer from pain during rest and routine care (Barr et al., 2013). The psychological, physiological, social and economic effects that stem from unrelieved pain not only affect the CIAP, but also their families [Brennan et al., 2007; Dunwoody et al., 2008].

Pain may be undertreated because of poor rating or disadvantageous tranquilizer usage, particularly opioids [Al-Shaer et al., 2011; McCaffery and Robinson, 2002]. Healthcare providers and a lot of people suffering frequently challenge a diversity of barriers (knowledge, attitudes, and perceptions for both patients and healthcare providers (APS, 2009)) which inhibit operative management of pain. The absence of know-how of ICU nurses and general practitioners (GPs) is one reason that patients remain brooking erroneous pain management (Wells et al., 2008). Lasch and colleagues, (2002) have specified that ICU nurses possess deleterious attitudes and fallacies across application of related medications and pain, and furthermore, have a knowledge shortfall concerning pain. Countless nurses suffer from unsatisfactory knowledge on the subject of rudimentary ways of medicinal actions, potions and employment of specific pharmaceuticals, as well as further pain management involvements, while Kehlet et al. (2006) pointed that if futilely treated, squeaky pain may guide to adverse psychological and physiological consequences together with the expansion of chronic pain disorders. There is a growing awareness on the etiology of pain, together with the technology development and advancement of pharmacological management of pain. Despite this awareness and technological and pharmacological advancement, patients still experience intolerable pain, which hampers the physical, emotional, and spiritual dimension of the health [Eaton et al., 2015; Pereira et al., 2016].

While unfavorable effects of undertreated-uncontrolled, continued pain, are a noteworthy embodiment for additional investigation, surveys display that chronic non-cancer pain is correspondingly expensive. In 1998, total healthcare expenditures incurred by individuals with back pain, the most common cause of pain, were $90.7 billion in the U.S., with incremental costs attributed to back pain $26.3 billion (Luo et al., 2004). In 2010, the Institute of Medicine (US) Committee on Advancing Pain Research, Care, and Education, (2011), discovered that the overall incremental cost of health care owing to pain vacillated between $261 and $300 billion. Chronic pain results in substantial indirect costs due to days lost from work where the cost of missing days of work missed ranged from ($11.6 to $12.7 billion), lost hours of work ($95.2 to $96.5 billion), and lower wages ($190.6 to $226.3 billion). Therefore, the over-all fiscal cost of pain to general public, fluctuates from $560 - $635 billion per annum. Pain adversely influences cardiovascular system, the metabolic and endocrine system, immune system, and gastrointestinal system and is every so often in charge of stress, as well as affecting the patient's recovery and lengthening the stress rejoinder (Wells et al., 2008). Incessant pain influences about 100 million grownups. The National Heart, Lung, and Blood Institute, (2011), detailed the economic costs of the most overpriced chief diseases: cancer ($243 billion); heart diseases ($309 billion); injury and poisoning ($205 billion); digestive system diseases ($112 billion); metabolic and nutritional diseases ($127 billion); and respiratory system diseases ($112 billion).

It is believed that a considerable number of ICU nurses in Palestine do not have knowledge, education or training to manage pain meritoriously, instigating dropping the patients' quality of life, and causing extended stays in hospitals. Moreover, ICU nurses may come across ambiguity of their errands in the pain management giving, as well as some barriers, thus, may confuse nurses the way to amalgamate pain evaluation and involvement into day-to-day pursuance. Moreover, nursing research examining knowledge and attitudes regarding pain management is limited, thus, additional exploration is compulsory to assess if nurses are providing finest pain management if they possess the essential knowledge and attitudes to do so.

1.3 Justification and Significance of the Study

Nurses are often the first clinicians to detect the presence of pain and have an integral role in pain assessment and treatment. It is imperative, consequently, for the nurses to have the appropriate knowledge and abilities to advocate for patients who are experiencing pain. Pain undermines patients' quality of life (QoL), and negatively affects their physical, emotional and spiritual wellbeing [Broekmans et al., 2004; Middleton, 2004; Zhang et al., 2007]. In the United States, an estimation of 100 million persons (>40%) of the adult population are influenced by chronic or recurrent pain [Institute of Medicine, 2011; Tsang et al., 2008].

Experts in pain management recommend that pain should be assessed as the fifth vital sign after blood pressure, pulse, respirations and temperature [Ekim and Ocakcı, 2013; Alexandrina de Jesus and Jacinta, 2013]. It is frequently essentially physiologically unsafe to have pain, while physical harmful effects are overlooked to control pain effectively (Wells et al., 2008). Turk and Dworkin, (2004) argue that notwithstanding the fact that a pervasive phenomenon, pain is inveterately subjective. While the simple approach to identify someone's pain is through one says or shows, pain is presumptive extremely correlated with physical and emotional effective, however, lessening pain will inexorably drive to a refinement in action and patient satisfaction.

In Palestine, understanding pain as a public health priority helps to explain its tight linkage with social and economic determinants of health. Nurses treating patients in ICUs should identify the requirements for ample pain management, recognize the newest perceptions and facts in how to manage patients' pain effectively in ICUs.

Thus, the findings of this study, hopefully, will be beneficial for many categories in ICUs including patients and their families, hospitals, medical teams and policy makers. It will be a review to intensives, nurses in ICUs, and researchers in the future. This study might assist in developing a policy or protocol to ICU team and hospitals about pain management. It will provide recommendations may be the basis for future planning and policy making for nursing administration.

1.4 Aims and Objectives

1.4.1 Aim

This study aims at assessing the level of nurses' knowledge, attitudes and barriers toward pain management to ICU patients in the Governmental hospitals in the West Bank, Palestine.

1.4.2 Specific objectives

1. To detect the relationship between the levels of knowledge/attitude of nurses regarding pain management and any other socio-demographic factors affecting nurses in ICUs.

2. To identify barriers that affect management of pain among ICU nurses**.**

3. To find out the barrier that mostly affects pain management in ICUs.

1.5 Hypotheses

1. There are no correlations at ($\alpha \leq 0.05$) between knowledge and attitudes of pain management among nurses in ICUs.

2. There are no statistically significant differences at ($\alpha \leq 0.05$) in the nurses' knowledge and attitudes of ICUs nurses regarding pain management according to gender, age, and marital status, as well as other factors such as qualification and years of practice.

3. There are no correlations at ($\alpha \leq 0.05$) between knowledge and attitudes of ICUs nurses regarding of pain management among nurses, and barriers in ICUs.

4. There are no statistically significant differences at ($\alpha \leq 0.05$) between barriers to effective pain management in ICUs and demographic factors.

Chapter Two
Background

2.1 Overview

Pain management is considered a vital facet of quality care in the hospitals (Carr et al., 2014), since undermanaged pain has negative consequences for patients and institutions identical (Husted et al., 2011; Joshi and Ogunnaike, 2005). Handling pain entails operational efforts; nonetheless, nurses play an imperative and manifold part in managing pain in hospitals. Nurses gauge pain, evaluate the efficacy and side effects, give analgesics and non-pharmacological medications, they alert patients as well as families about pain and its remedy (Registered Nurses Association of Ontario, 2013; Vallerand et al., 2011).

2.2 Pain

2.2.1 Pain Concept

Pain is whatnot the undergoing one says it is, subsisting each and every time the suffering person says it does.' (Ashwill and Dorske, 2002). However, the International Association for the Study of Pain (IASP) has put forward a definition of pain as 'a disturbing voluptuous and sentimental involvement linked with practical or prospective tissue injury, or expressed in terms of such impairment.' Pain is a sensation in a part or parts of the body, but it is also always unpleasant and therefore also an emotional experience (IASP, 2012). It is a subjective involvement, while there is no

objective test to compute it (American Pain Society, 2009). Each time possible, the presence and power of pain are gauged by the patient's self-report, long-lasting by the clinical definition of pain which states. Unluckily, some patients cannot arrange for a self-report of pain in words, in inscription, or by other resources, such as finger span (Merkel, 2002) or blinking eyes to answer yes or no questions (Pasero and McCaffery, 2011). Werner (2010) classified pain as acute or chronic/prolonged pain (long-term pain) in Sweden. The knack to undergo pain is imperative. Pain is a subjective in nature and is considered one of the strongest forces for human subsistence, while the acute pain is a cautioning indication premeditated to safeguard people by stimulating spontaneous effects that shield human being from suffering (Norrbrink and Lundeberg, 2014). Pain is not only about physical responses to a risk of danger; it is a personal and subjective experience and can be described in several ways as well. Presently, there is no distinctive way to measure pain, and thus it is difficult to match the experience of pain from a person to another (Norrbrink and Lundeberg, 2014). Acute pain has frequently a period of hours, days or weeks, whereas chronic pain continues for months or even years (Turk and Melzack, 2011). Acute pain is impermanent and will diminish subsequently the injury has cured (Werner, 2010).

2.3 Factors Affecting Pain and Pain Perception

Pain is attributed to diverse factors, which could be socio demographic, psychological and clinical or physiological aspects (Hailemariam, 2015). Furthermore, Marsac and Funk (2008) see that perception of the patient or involvement of pain may be predisposed by several interrelated influences, counting the patient's provocation and psychological state, previous pain experience, degree of consideration of the practice. Moreover, Bradbury (2003) perceives that pain is affected by some feature factors; gender, age, anxiety and fear, past experience of pain, genetic make-up, and cultural factors. Stotts et al. (2004) stated that reviews have revealed that the individual pain reaction is affected by age, gender, and culture.

Patients are truthful to be acknowledged as connoisseurs of their pain involvement. Moreover, they are to be trusted in the description of pain laying to decide on an actual type of pain relief and be considered as sensible goal of cure by the nurses (Vadivelu et al., 2011). Pain is perceived individually different from one to another and could be shaped by other features such as preceding incidence, type of disease or involvements, situations, medications quality used, background, and psychological concerns [Khan et al., 2011; Manias et al., 2002]. Efficacious pain management necessitates remedy of the whole patient's pain: psychologically, physically, socio-cultural and emotionally (Hailemariam, 2015). However, the interrelationship among these features entails to be pondered with the aim to recognize a person's observation and reaction to

pain and illness. Psychosocial factors intermingle with both the cognition and emotion. Uncontrolled pain may result in damaging consequences to patients in immediate and long-term mode and these impediments can take place to any age, gender, or socioeconomic category (LaPar et al., 2011). These factors comprise a range of behavioral, emotional, physical, cognitive, and psychological appearances, counting anxiety, fear and anger, inability to focus, aggressive behavior, and fear of the following procedure. Rejection of treatment, and mistrust of nurses, and more economic, social, and spiritual well-being penalties which can command to frustration on quality of care are major consequences [Mertin et al., 2007; Brennan et al., 2007; Ferrell, 2005; Gordon et al., 2010]. The instantaneous physical impacts of pain are associated to the stress response that can influence body physiology and inflammatory reaction [Solowiej et al., 2009; Czarnecki et al., 2011; Mertin et al., 2007].

2.3.1 Gender

Jones and Zachariae (2002) argue that females are more sensitive to pain than males. Females report more pain than males, while they (females) have less tolerance and threshold than males [Bradbury, 2003; Ely, 1992]. Research results vary concerning the influence of gender on procedural pain sensitivity. A study revealed that they inform that women had higher pain scores before, during, and after procedures than men whereas measuring the prevalence of pain during invasive procedures (Rawe et al.,

2009), nevertheless, Stotts and colleagues (2004) testified that there is no difference in pain concentration between the two genders.

2.3.2 Age

It is a key aspect to transact with pain. The nursing staff has to take into account the development time of every single age group for they would indicate fitting pain evaluation. However, the prevalence of pain increases with each decade of life. Pain in the elderly is distinctly different from pain experienced by younger individuals (Davis and Srivastava, 2003). Younger patients experience more pain before and after the procedure than older ones. Moreover, older people are able to describe their pain aptly, but none severely ailing or incapacitated (Stotts et al., 2004).

2.3.3 Culture

When patients are in pain, educational and traditional credence and values influence individual's pain responses, whilst the pain itself may differ from culture to another. However, several cultures deem pain idiom to be shameful and cowardly, while others count it as a sanction for a mistake committed, whereas other groups consider it as a challenge to be overcome and a quiz of credence (Suza et al., 2007). Some people express pain verbally and physically, while others are stoical and abstain from stating corporeal pain viva voce, others use emotive pain terms are common in some and less in others (Lovering, 2004). Differences in cultures must be noted in nursing practice relate to pain management.

2.3.4 Fear and anxiety

Jones and Zachariae, (2002), argued that fear is inclined to upsurge the pain cognizance, and pain raises emotional state of anxiety. This linkage takes place inside the brain owing to the fact that distressing stimulants animate segments of the limbic system supposed to dominate passionate responses. On the other hand, worry associated with expectant pain or appalling occurrence can boost the pain power (Tsao et al., 2006). Hence, nurses have to address both anxiety and pain to relieve pain suffering. They are more sensitive when the occurrence of the painful experience is unpredictable (Mertin et al., 2007). However, Oka and coworkers (2010) argue that if a patient obtains pain management education, this will help to diminish the suffered level of anxiety and fear.

2.3.5 Past pain experience

People experiencing former numerous or extended pain are less nervous, but can endure more pain, and can manage pain than people who have little pain experience [Lovering, 2004; Ebrahimi-Nejad et al., 2007].

2.4 Barriers to Pain Management

Numerous barriers to pain management can be congregated into four topics: nurse-related barriers, patient-related barriers, physician-related barriers and system-related barriers [Buscemi et al., 2008; Gimbler-Berglund et al., 2008]. Unsatisfactory knowledge about pain management, trouble in making decisions about pain management, and nurses' dread or

misapprehensions about the use of opioid analgesics are the most vital barriers in executing effective pain management [Buscemi et al., 2008; Shrestha-Ranjit et al., 2010]. A further main barrier is poor prescriptions and medication orders [Czarnecki et al., 2011; Gimbler Berglund et al., 2008]. Capacity and lack of time subsidize [Kaasalainen et al., 2007; Rejeh et al., 2009; Twycross and Collins, 2013] and circumstantial aspects and the principles of organizations heavily influence nurses' pain management practice [Clabo, 2008; Rejeh et al., 2009].

In spite of the fact that a range of research and clinical studies on all facets of pain have been piloted in several countries and the substantiation to steer pain management practices is freely accessible, procedures remain to fail of the perfect and aspects upsetting pain management and its application have not been well identified [Czarnecki et al., 2011; Twycross and Collins, 2013]. Consequently, under-treatment in ICU demands to be discovered further; specifically, the interrelated matters affecting nurses' pain management practice.

2.5 Factors Affecting Nurses' Knowledge and Attitudes of Pain Management

Notwithstanding the increase of research of pain management in nursing in the erstwhile two (2) decades, patients are still undergoing miscellaneous pain needlessly (Glajchen, 2001). However, pain management practices of nurses' knowledge, attitudes are still less prime stages (Vincent, 2005), in

which could be related to factors such as system-related factors, nurses-related factors, and patient-related factors.

2.5.1 System-related factors

Abounding institutions have launched assessable standards of care and pain services with the purpose of attaining most advantageous pain management to be the influential goal as an indispensable module for institutional quality pain management to determine and eradicate the causal source of prevailing difficulties. By creating an institutional quality system, a radix is put prepared for the association in pain management, involving personnel from several specializations who are interested in pain management (Glajchen, 2001). Nursing students have to allocate adequate hours of education in order to formulate to manage pain during practice. Regarding the management of pain, a considerably higher level of knowledge and attitudes was reported amongst nurses with advanced level of education (Mnaworren, 2000).

System-related barriers contain a deficiency of plainly demarcated standards and pain management modus operandi, and restricted admission to pain professionals and analgesics [Mędrzycka-Dąbrowska et al., 2015; Glajchen, 2001; Zuccaro et al., 2012]. The most commanding barriers to transform may be the imperceptible organizational barriers that can be ingrained inside hospital policies and nursing services, but not like the ones created by poor knowledge, myth and misconception (Mann and Redwood,

2000). Enhancement in pain management has to be a significant quality improvement target for the health system (Al-Mahrezi, 2017).

2.5.2 Nurses-related factors

Nurses frequently have knowledge shortfalls and undesirable approaches concerning pain management and pain assessment. Nurses' pain management should be relied on scientific justification rather than own beliefs and discernments. Evidence-based knowledge and proper training would eliminate traditions and wrong dogmata of nurses (Doris et al., 2000). Nonetheless, the study of Glajchen. (2001) displayed that nurses may have had respectable levels of academic knowledge regarding pain management, but this did not imitate on their routine. The gap between actual practice and theoretical knowledge could be explained that nurses may not understand the reasoning for using detailed pain management involvements. Nevertheless, advantages embarked on in quantifiable teaching programs may be supportive to lessen this gap (Al-Mahrezi, 2017).

Doris and coworkers. (2000) pointed that educational courses for nurses in pain management and continuing education and service training could assist in changing nurses' knowledge and attitudes about management of pain, while revision training workshops have worthy effects in improving such modulations in the coming days. Courbani and colleagues. (2004) and Pud, (2004) reported that the previous private practice of analgesic and pain use was noticed to be a central factor in altering nurses' attitudes about

pain, which will abet them to attain optimal pain management result during practice. On the other hand, nursing a patient who has undergone an agonizing chapter seems to affect nurses' decisions concerning analgesics administration. Henceforth, nurses who have superior knowledge with regard to opioid analgesics seemed further relaxed regarding administration (Zuccaro et al., 2012). Moreover, nurse-related barriers consist of insufficient knowledge, burdensome workload, and shortage of time, and may cover poor knowledge and skills, and lack of teamwork [Mędrzycka-Dąbrowska et al., 2015; Glajchen, 2001; Zuccaro et al., 2012]. Educational programs about pain management should be maintained recurrently for all personnel staff. Training of health personnel should involve team skills and communication, as well as specific care to fortify the collaboration and communication amongst nurses and doctors to work as a harmonized team. Moreover, solutions for shortages of medical staff should be settled to have a rational and adequate workload (Al-Mahrezi, 2017).

2.5.3 Patient-related factors

Patient age, therapy or interactive manifestation may prompt nurses to inject an analgesic quickly. The patient diagnosis or the length of stay may affect nurses; which may become signs of pain intensity and require analgesic introduction. Hesitancy to take analgesics, afraid of side effects, and worry of addiction are examples of patient-related factors [Mędrzycka-Dąbrowska et al., 2015; Glajchen, 2001; Zuccaro et al., 2012].

2.5.4 Physician-related factors

Physicians' insubstantial requesting of pain medication was the utmost barrier for finest pain management to nurses' practice (Vincent, 2005). Deficiency of knowledge and incorrect worries about addiction and overdosing are examples of physician-related barriers [Mędrzycka-Dąbrowska et al., 2015; Glajchen, 2001; Zuccaro et al., 2012]. Pain management should be presented as a chief theme of the curriculum of any medical school, and in entirely residency-training agendas, with the purpose of future physicians never disremember to adopt pain management in any patient defiance (Al-Mahrezi, 2017).

2.6 Definition of Terms

Pain: "an unfriendly carnal and passionate practice allied with real or possible tissue damage", and "is whatnot the undergoing one says it is, subsisting each and every time the suffering person says it does." (Ashwill and Dorske, 2002).

Chronic pain: is "pain that persists beyond normal tissue healing time, which is assumed to be three months." (IASP, 2012).

Pain attitude: is defined as a persisting set of beliefs and values that affect how one responds or reacts when pain is involved (McMillian et al., 2000).

Pain Management: is defined by the American Pain Society Quality of Care Task Force, as all interventions used to understand and ease pain, and alleviate the origin of the pain (Gordon et al., 2005).

Knowledge: is defined as "the fact or condition of knowing something with familiarity gained through experience or association" (Merriam-Webster Online Dictionary, 2012).

Attitudes: are unconscious motivations for actions and reaction in life that either be reinforced or altered by experience (Francis and Fitzpatrick, 2013).

Knowledge and attitudes about pain: the level of knowing and understanding the physiological basis of pain and the individual beliefs held regarding its management. This is measured by the nurses' scores on the Nurses Knowledge and Attitudes Survey (Ferrell and McCaffery, 2008).

Opioid: is a more inclusive term and is generally preferred to "opiate"; it applies to all agonists and antagonists with morphine-like activity and also applies to naturally occurring and synthetic opioid peptides (Thomas, 2013).

Barrier: is anything that restricts the use of health services by making it more difficult for some individuals to access, use or benefit from care (Scheppers et al., 2006).

Chapter Three
Literature Review

3.1 Overview

Present review displays an upsurge in the number of research studies completed on pain and pain management. Nevertheless, an extensive literature review did not reveal so many studies, which focused on knowledge and attitudes and barriers of ICUs nurses regarding pain such as our study. Whereas many people play a part in ineffectual pain running, most of research has been intensive on nurses. Nurses devote most of their time to patients than any other healthcare professionals by performing many pain intercalations, and evaluating the efficacy of the pain management strategy.

3.2 Local Studies

Locally, there may have been a paucity about the preceding reviews in Palestine which had measured nurses' knowledge level in ICUs concerning pain management.

A descriptive cross-sectional study, with the data attained from Palestinian hospitals conducted by Salameh, (2018), aiming to evaluate the knowledge level and attitudes of nurses concerning pain management in intensive units. One hundred twenty-three (123) nurses were recruited from both the surgical and medical areas. The study used the "NKASRP" as a universal questionnaire. Results showed that the correct answer mean score was 17.4.

The findings displayed that nurses have poor knowledge concerning pain management. Besides, the study did not find any significant difference between the nurses' total score and personal features, apart from educational level. The study recommended continuous training and to arm with knowledge and constructive attitudes.

Toba and colleagues (2019) executed a cross-sectional study in eight (8) hospitals over Northern West Bank in Palestine to evaluate knowledge, perceived barriers, and practices. Toba and coworkers (2019) recruited a convenience sample of 220 working nurses in the governmental and private hospitals. Results showed that the total knowledge score was 5.1, while the association between the demographic aspects and the knowledge score displayed that males counted knowingly higher knowledge than females. The most commonly apparent barriers were insufficient pain evaluation (76.8%), unsatisfactory pain knowledge command (70.5%) and meticulous ruling on opioid usage (69.5%). Participants reported that the foremost lateness process by 56.4% was to contact the physician for the opioid prescription. Moreover, nurses stated that they would gauge pain every now and then. Though the study had concluded worthy pain registration practices among nurses, there were still knowledge shortfalls reveal the necessity for further training, and the amelioration of synchronization and communication between nurses and physicians.

Ghrayeb and Nimer, (2017) carried out a descriptive, cross-sectional design quantitative research, aimed at assessing knowledge and attitudes levels vis-à-vis pain management among nurses. The study recruited 380 nurses employed in diverse wards in six private and governmental hospitals in southern Palestine. The results displayed that a mean score of knowledge was (45.6% out of 100%), and concluded that nurses had a knowledge deficit and negative attitudes in relation to pain management and assessment. Moreover, the findings revealed no significant differences in the mean knowledge score regarding age (p=0.399), gender, academic level, and former training classes or practicums on pain management, except for the place of work ($p \leq 0.001$). However, the results indicated that there were considerable encounters to passable pain management. Furthermore, the study recommended scheduler appraisal and to endorse pain management, and to correct embedded misapprehensions.

3.3 Regional Studies

In a descriptive cross-sectional design, Alkhatib and colleagues (2019) piloted a study to explore the degree of knowledge and attitudes regarding pain management among physicians and nurses employed in seven medical centers belonging to the Royal Military Medical Services in Jordan. Using a questionnaire, subjects represented a sample of 81 nurses and 56 physicians. Results showed that total mean knowledge score for nurses 45.26%, and for physicians 50.6%, and the difference between them was significant (P=0.009). Moreover, the study concluded that Jordanian

healthcare personnel had a knowledge low level, and adverse attitudes headed for pain management, therefore, educational courses are strongly recommended. Moreover, the results discovered inconsistency between practice and knowledge. Thus, strategies and procedures correlated with pain management have to be planned and applied to go over the divergence between practice and knowledge.

Al Qadire and AL Khalaileh (2014) conducted a study to examine nurses' knowledge and attitudes about pain treatment in Jordan. The study recruited 211 nurses from four (4) hospitals in Jordan. Nevertheless, the results specified that 52% of nurses in the last five years testified not any preceding pain education. However, nurses who had earlier pain education attained higher mean scores. The correct answers mean was 19.3 (48%). Excluding exposure to prior pain education, there were no significant differences between nurses' gender, educational level, and the total knowledge and attitude score. The study concluded that Jordanian nurses registered a poorer reading of pain knowledge than informed internationally. The study recommended continuous education, and remodeling undergraduate courses to direct pain management.

Samarkandi, (2018) carried out a cross-sectional study with the aim to detect nurses' knowledge with reference to pain management, evaluate nurses' weaknesses and strengths in handling patients' pain, and aid nursing students to amend courses to develop nurses' pain management. It was piloted in three (3) designated referral hospitals in Riyadh city in Saudi

Arabia. Two-hundred forty-seven (247) convenient nurses who work in all wards and who have been working in hospitals as a minimum 6 months were requested to partake in this study. This Saudi study has revealed that Saudi nurses had low knowledge and attitude levels of pain management predominantly in the subjects related to superstition of pain medication. Neither a significant difference found in-between gender regarding the coverage to previous pain education ($P > 0.05$), nor a significant difference in the mean total knowledge score concerning educational levels. While there was no significant difference for the age, test of Spearman's correlation indicated a positive significant relationship with years of experience to the mean total knowledge and attitude score. Samarkandi, (2018) recommended contemplating pain management in continuous education and nursing undergraduate curricula. Furthermore, additional studies are necessary to detect and overwhelm barriers of pain management, as well as to appraise the efficiency of piloted pain management curriculums.

3.4 International Studies

Internationally, several researches have covered this subject. A study carried out to gauge pain management throughout the post-operative time. The study affirmed that nursing reported poor knowledge and coarse attitudes. Furthermore, nurses testified educational level influenced their knowledge [Basak et al., 2010; Omran et al., 2014].

Using a convenient sample of 246 nurses, Yava et al. (2013) carried out a study to evaluate nurses' level of knowledge and attitudes regarding pain management. The study revealed inadequate knowledge, and negative attitudes.

Kizza (2012), surveyed 170 nurses in ICUs at Mulago hospital in Uganda. Just about half of them reported they don't have sufficient knowledge on the strategic evaluation of principles of pain. Moreover, the study witnessed that an effective knowledge of pain management is essential for very ailing patients, having benefits; psychological and physiological on their health (early discharge from hospital, early mobilization, and less impediments, e.g., bedsores and infection). The researcher found that 96% of the nurses contributed in heeding for extremely sick patients do not manage pain assessment tools (Kizza, 2012).

Numerous reviews had stated that less experienced objects have a lower score than those with higher experience. Nurses' characteristics such as educational level, gender, and age were evaluated in rapprochement with pain management and practices. Further explanations for the nurses' inefficiency of knowledge and poor attitudes headed for pain could be caused by the low educational degree and insufficient teaching hours concerning pain management in the nursing syllabus [Clarke et al., 1996; Latimer et al., 2010; Wang and Tsai, 2010].

In a qualitative study, carried out by Batiha (2012), numerous subjects described barriers to managing pain recognized by ICU nurses. Barriers were grouped into patients-related barriers, nurse-related, and system-related barriers. However, the results identified some possible pain management obstacles impeding the development and dissemination of guidelines and measures to manage the pain in Jordanian ICUs.

Lewis and colleagues (2015) carried out a hospital-based with a quasi-experiment study in the United States in 383 beds to examine the effect of skillfully focused small group consultations on nurses' knowledge and possible biases associated to pain management. Thirty-two (32) nurses partook in small group sessions before and after. These sessions concentrated on actual pain management policies. The findings showed that mean knowledge scores varied meaningfully in a progressive path next intervention [pro-intervention mean=18.28; post-intervention mean=22.16; $p<0.001$]. The sturdiest partiality against nursing patients' pain was regarding comatose and mechanically ventilated patients (MVPs). Nevertheless, next carrying out the discussions of proficiently focused small group with nurses, the levels of knowledge associated with pain management had augmented and partialities regarding particular patient residents had declined.

Hennessee (2012) conducted a study to discover nurses' knowledge and attitudes regarding pain and pain management. The researcher applied a descriptive research method, and a correlational study to test association

amongst the demographic statistics and the definite knowledge of nurses working in the ICUs. Fifty (50) nurses participated in the survey that included nurses' evaluation and documentation manners, possible knowledge and attitude shortfalls. The research measured the efficiency of pain intervention, and delivered substantiation of subjective and methodical obstacles to operative pain management. The results showed that there were shortfalls in nurses' knowledge and attitudes regarding pain and pain management. Explicitly, while strengths were specified in physiology and planning, knowledge discrepancies were noticed in analgesic doses, analgesic maximum dose of opioids and distinctive addiction from bearing and physical reliance.

In a nationally questionnaire review directed towards physicians and nurses implicated in the cancer patients' care, Jho et al. (2014) aimed in their study to evaluate knowledge, practices, the major reason of postponement in opioid administration, as well as perceived barriers regarding cancer pain management amongst nurses and physicians in Korea. 333 questionnaires were recruited. Results had showed that nurses achieved documentation and pain assessment more frequently than physicians did.

With a cross-sectional study, (50 consenting nurses) used to select the registered nurses, Manwere and coworkers (2015) conducted a study with the aim to verify the nurses' knowledge and attitudes headed for pain management of patients at a hospital in Zimbabwe. Study results displayed that registered nurses had insufficient knowledge with a mean knowledge

score of 64.5%, and attitude concerning pain management of adult medical patients was average with a total mean attitude score of 56%. The knowledge of pain management was concomitant with years of experience (p=.003) and the age (p=0.001) with those of older (40 years and above) scoring high on the knowledge scores scale. The chief topics of worry were the absence of knowledge on pain assessment (84%), while 76% delivered improper time for pain assessment, and 76% failed to categorize types of pain measuring scales in addition to non-pharmacologic pain relieving therapies. Nonetheless, only 58% recognized the benefits of non-pharmacological pain management measures correctly, whilst gave no credence to patient's pain was noted amongst 70% informing the necessity to confirm the realness of pain, and 90% testifying that medical patients whimper of pain looking for staff courtesy which may lead to deprived pain management, and low knowledge levels with poor attitude concerning pain management of adult medical patients.

Chapter Four
Methodology

4.1 Overview

This study emphasizes on perceptions of the nurses' knowledge, attitudes and barriers to effective pain management in intensive care units governmental hospitals in the West Bank, Palestine. In this chapter, research methodology settings were exhibited. Furthermore, the study design, population and sample size, period, tool, response rate, and the sampling method were designated. Additionally, ethical matters and process of data analysis were incorporated in this study for quantitative methods.

4.2 Design

A cross-sectional convenient sampling was conducted about the ICU nurses.

4.3 Site and Setting

The study was carried out in twelve (12) governmental hospitals that represent the hospitals in the West Bank, Palestine (Tab.4.1). Nurses who work in the intensive care units (ICUs) in each hospital were encouraged to partake in this study.

4.4 Sample

The researcher had recruited about 164 nurses from all governmental ICU hospitals in the intensive care units (ICUs). One-hundred twenty three (123) nurses responded to this study. A lot of nurses were not able to participate due to night shift duty, or some of them were transferred to the newly updated COVID-19 sections, or other departments at the time of this study (Table 4.1).

Table 4.1: Governmental hospitals, ICU nurses and beds in the West Bank, Palestine, 2020.

No:	Hospital	Number of nurses
1.	Martyr Dr. Khalil Sulaiman/Jenin	18
2.	Turkish/Tubas	5
3.	Martyr Thabit Thabit/Tolkarm	15
4.	Martyr Darwish Nazzal/Qalqilya	7
5.	Alwatani/Nablus	16
6.	Rafidia Surgical/Nablus	18
7.	Martyr Yaser Arafat/Salfit	9
8.	Jericho	12
9.	Palestine Medical Complex/Ramallah	18
10.	Alhusain/Biet Lahm	13
11.	Princess Alia/Hebron	26
12.	Abu ALhasan Alqasem/ Yatta/ Hebron	7
Total		**164**

Source: Personal communication, 2020.

4.5 Study Period

Between August and December 2020.

4.6 Inclusion and Exclusion Criteria

4.6.1 Inclusion criteria

necessitates that the participating nurse is an energetic element of the treatment procedure for such patients in intensive care units of the hospital for at least six months continuously. Moreover, those who hold a degree of bachelor at least are included in this study.

4.6.2 Exclusion criteria

conversely, preclude those who are not permitted to make decisions or inscribe instructions in the management of patients for example those in training and students. Less than bachelor degree holders as well as less than six months ICU experience were excluded.

4.7 Ethical Consideration

The participants' mobilization has commenced with the researcher attaining the ethical approval from the Institutional Review Board (IRB) of An-Najah National University. Moreover, the researcher invited the nurses to participate in the research project being conducted in the ICUs. The researcher has made it clear to them that their partaking is totally voluntary, and it is up to them to decide whether to take part in this study, but, before they agree, it is imperative for them to understand what the research implicates. The consent form told them about the study, why the research is being done. If they wish to take part, they will be asked to sign the consent

form, and, they are still free to withdraw at any time without giving any reasons for their decision. Consequently, they won't miss out on the advantage of their careers to which they are enabled or are currently acquiring.

4.8 Instruments

A Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP) questionnaire was used to assess nurses' knowledge and attitudes the data regarding pain management. Betty Ferrell and McCaffery built this questionnaire in 1987, and the same authors revised it in 2014, to evaluate nurses' knowledge and attitudes toward pain management, and covered areas of pain management (Ferrell and McCaffery, 2008), while barriers were adapted from other studies [Coker et al., 2010; Elcigil et al., 2011]. Moreover, demographic data were set to this study. However, the NKASRP is the best existing tool to gauge the knowledge and attitudes in relation to pain management of nurses (Howell et al., 2000). A 41-item questionnaire was used to evaluate nurses' knowledge and attitudes headed for pain management. It entails 22 "True" or "False" questions and 19 multiple-choice questions. There were two multiple case study choice questions of which each had two questions under it, while adjusting and adopting the names (Ahmad and Mohammad) instead of the names (Andrew and Robert) respectively, for the local adaptation in our study. Besides, an open-ended question (question 42) about the perception of the nurse on how to improve pain management in ICUs. Moreover, there are four

categories about barriers (patients-related barriers, nurse-related barriers, physician-related barriers, and system-related barriers) with a three-scale (agree, disagree, don't know) 34 questions. It involves topics of pain management, and the handling of analgesics. A team of pain connoisseurs had established the content validity of the NKASRP, which is instituted by the Agency for Health Care Policy and Research Pain Management Guidelines, the American Pain Society, and the World Health Organization (Gordon et al., 2010). Nonetheless, this study required no authorization to use this NKASRP instrument given that the authors indorsed its application for research. The English language was used as the nurses can know, realize, and fulfill questions and answers in English.

The demographic data encompassed questions conceived to provoke conversance on subjects' demographic and professional features such as place of work, period of professional practice, sex, academic degree, age, and erstwhile registration pain education.

4.9 The Tool for the Perceived Barriers

This questionnaire was used by Coker and colleagues (2010): Nurses' Perceived Obstacles to Pain Assessment and Management Practices. It encompassed 34 queries to evaluate how often the impediments demarcated by nurses hindered optimum pain management in ICU patients. The researcher asked the authors' authorization (upon request), while some questions were adjusted to acclimatize to the concerns of ICU patients. The

questionnaire of Elcigil and coworkers (2011), was also adopted and adapted with the authors' permission (upon request).

In our study, nurses' perceived barriers of pain management were appraised in four diverse parts; physician-related barriers, nurse-related barriers, system-related barriers, and patient-related barriers. Replies from participants were categorized into a 3-point scale; in which scale of "don't know", a scale of "disagree", and a scale indicated "agree."

4.10 Data Collection

The participants' recruitment started with the researcher's obtaining the ethical approval of the study from the Institutional Review Board (IRB) at An-Najah National University, as well as that of MoH. The researcher visited most hospitals, and recruited some workmates from other hospitals to help in distributing questionnaires and collecting data, clarified the aims of the study, contributor's task, and modus operandi. Besides, nurses who displayed inquisitiveness and keenness to participate in the study were conscripted, and were requested to sign up the consent form. Nonetheless, a questionnaire was presented to each nurse who was asked to respond the questions. Finalized surveys were amassed within three weeks (3) by the researcher and workmates immediately after the participants have complemented them. Finally, questionnaires were inspected for missed data.

Subsequently ingathering the data, participants haven't completed all entries of the questionnaire were debarred. Not all the 164 nurses who are working in ICU units were designated to participate in the study; nonetheless, 25% (*n*=41) did not participate because of; diploma holders (*n*=12) annual leave (*n*=6), letdown to give back the questionnaire (*n*=6), devolved to other departments (*n*=9) and demurring to partake (*n*=8).

4.11 Data Analysis

A descriptive analysis was applied to designate the participants' characteristics; frequencies and percentages to describe demographic variables as well as means and standard deviations to describe nurses' knowledge, attitudes and barriers. Moreover, the relationships between knowledge score and characteristics of participants were attained using Pearson Correlation. One-way analysis of variance (ANOVA) test was used to examine differences in the mean total knowledge and attitude score, as well as the barriers to effective pain management in intensive care units according to demographic factors (gender, age, qualification, years of practice, hospital work, and marital status). Moreover, independent samples T-test and F-test were also used. The researcher deemed $P \leq 0.05$ as significant. Furthermore, Pearson correlation to test correlations between knowledge, attitudes, and barriers as independent variables and pain management in ICUs as dependent variable was carried out.

Data were put in and tested using the Statistical Package for Social Sciences (SPSS) version 23 (SPSS Inc., Chicago, Illinois, USA). Spearman correlation was used to determine the correlation between variables. $P \leq 0.05$ was considered statistically significant. The questionnaire has been broadly exploited in numerous languages worldwide in other clinical backgrounds [Ekim and Ocakcı, 2013; Thomas et al., 2012; Wilson, 2011]. To compute the mean score concerning knowledge and attitude, properly replied objects were given a score of one, whereas erroneously answered questions were scored as zero, while the two multiple case study choice questions of which each had two questions were each was considered as a complete question. The total score has been considered the sum of all appropriately answered questions. Eventually, to relate the result of the satisfactory passing mark of 80%, the summation score for each participant was computed to 100 as "sum score × 100 divided by 41″. Albeit the NKASRP tool validity and reliability has been ascertained in preceding reviews (De Silva and Rolls, 2011). Unfortunately, none of the subjects answered the open-ended question: from the nurses' perception, how can the nurse improve pain management in ICUs

When the KAS tool was set for the first time in 1987, there was not a prescheduled crossing score. Nevertheless, in subsequent studies, a base objective of 80% has been appointed as a minimal requisite wherein a mark beyond this has been assented as satisfactory knowledge and attitude about pain management. Thus, pointing out to the endorsement of former studies

(Howell et al., 2000), nurses who scored 33 (80%) or above from the 41 knowledge and attitude questions were counted to good knowledge and attitude concerning pain management.

Chapter Five
Results

5.1 Overview

This chapter displays the study results encompassing the features of the subjects. Descriptive analyses, counting means and standard deviations of continuous variables and frequencies and percentages of categorical variables, were premeditated to describe the sample. Pearson's correlation, and one-sample t-tests were piloted to explore the relationships between demographic variables for the responses of each of the survey's items

5.2 Socio-demographic Characteristics of the Study Population

The current study included a total of 164 subjects, from whom a total of 123 correctly completed the questionnaires with a direct contact with the patient (response rate 75%). As shown in Table 5.1, the majority of nurses 50 (40.7%) participating in the study were in the (28 - < 33 year old) bracket, while the males were more representative than females 72 (58.5%) vs. 51 (41.5%). According to the data have been extracted, 76 (61.8%) of them specified they were married. In addition, analysis of the respondents' level of education showed the vast majority of the nurses declared bachelors' degrees 103 (83.7%) vs. 20 (16.3%) higher than bachelors' degree level. Furthermore, fifty-two (42.3%) of the nurses had up to 1- < 5 years of work experience. Nurses from Princess Alia/Hebron were the most responding to this study 18 (14.6%), while the less were from Martyr Darwish Nazzal/Qalqilya 3 (2.4%), however, the respondents were fairly

distributed among the working areas of the hospitals' ICUs. Finally, despite the fact that only 37 (30.1%) of the nurses taking care of ICU patients had earlier education concerning pain management in the last (2) two years, however, more than half of nurses 71 (57.7%) testified they had an effective role in pain management.

Table 5.1: Distribution of the studied subjects in relation to their socio-demographic data (n=123).

Nö:	Group	Subgroup	(n)	(%)
1	**Gender**	Male	72	(58.5)
		Female	51	(41.5)
	Total		**123**	**100**
2	**Age**	23 - < 28 years	46	(37.4)
		28 - < 33 Years	50	(40.7)
		33 - < 38 Years	19	(15.4)
		≥ 38 Years	8	(6.5)
	Total		**123**	**100**
3	**Marital status**	Single	44	(35.8)
		Married	76	(61.8)
		Divorced	3	(2.4)
	Total		**123**	**100**
4	**Years of practice in Intensive Care Units**	6 months – < 1 year	26	(21.1)
		1- < 5 Years	52	(42.3)
		5- < 10 Years	31	(25.2)
		≥ 10 Years	14	(11.4)
	Total		**123**	**100**
5	**Level of academic education**	Bachelor degree	103	(83.7)
		Higher than bachelor's degree	20	(16.3)
	Total		**123**	**100**
6	**Did you have previous pain management education in the last 2 years?**	Yes	37	(30.1)
		No	86	(69.9)

	Total		**123**	**100**
7	**Where do you work?**			
	Hospital	**N (%)**	**Hospital**	**N (%)**
	Martyr Dr. Khalil Suleiman/Jenin	16 (13)	Turkish/Tubas	6 (4.9)
	Martyr Thabit Thabit/Tolkarm	5 (4.1)	Martyr Darwish Nazzal/Qalqilya	3 (2.4)
	Alwatani/Nablus	16 (13)	Rafidia Surgical/Nablus	15 (12.2)
	Martyr Yaser Arafat/Salfit	6 (4.9)	Jericho	7 (5.7)
	Palestine Medical Complex/Ramallah	16 (13)	Alhusain/Biet Jala	11 (8.9)
	Abu ALhasan Alqasem/Hebron	4 (3.3)	Princess Alia/Hebron	18 (14.6)
	Total		**123**	**100**

*Continuous data are presented as the means, and SD and categorical data as n and %. Some percentages were rounded.

5.3 Nurses' Knowledge and Attitudes Regarding Pain and Pain Management

5.3.1 Knowledge and attitudes' scores

Table 5.2 displays the mean overall scores with percentages. Using the proposed test value = 0.80, the mean score from 41 was 19.6%, while the mean entire score study was 47.8% from 100 wherein the minimum and maximum outcome fluctuated from 10 (24%) to 33 (80%), using a standard deviation 0.135. (Table 5.2).

Table 5.2: Means and standard deviations of the computed variables for the nurses' knowledge and attitudes' scores.

Knowledge and attitudes' scores.	**N**	**Minimum**	**Maximum**	**Mean**	**SD***
Score from 41	123	10.00	33.00	19.6098	5.53918
Score from 100	123	.24	.80	.4783	.13510

*SD: standard deviation

A one sample t-test was piloted on the KASRP scores to appraise whether their mean was significantly different from the minimal suggested 80%, the lowest acceptable score. The sample mean of 47.83 (SD=13.510) was significantly different from 80% (t (121) = -26.409, *P*<0.05). The 95% confidence interval for the KASRP mean ranged from -0.3458 to -0.2976. These results endorse the conclusion that nurses are not knowledgeable concerning pain and pain management.

Table 5.3: Means and standard deviations for test scores on the KASRP.

Variable	**N**	**Mean**	**SD***	
KASRP test score	123	.4783	.13510	
Test Value = 0.80				
t	df	Sig. (2-tailed)	95% Confidence Interval of the Difference	
-26.409	122	0.000	Lower	Upper
			-.3458	-.2976

Of the 123 participants, two (*n*=2; 1.64%) participants counted a “good” score (≥80), while (*n*=41; 33.3%) recorded a “fair” score (50-79), during the time that (*n*=74; 60.2%) participants verified a “weak” knowledge percentage (utmost), whilst (*n*=6; 4.9%) proved a “poor” knowledge percentage. (Table 5.4).

Table 5.4: Frequencies and percentages of participants correctly answered questions in relation to knowledge percentage.

Knowledge percentage		**Frequency**	**Percent**
Valid	Good (≥80)	2	1.64
	Fair (50-79)	41	33.3
	Weak (30-50)	74	60.2
	Poor (<30)	6	4.9
	Total	**123**	**100.0**

5.3.2 Knowledge and attitudes of pain management:

Table 5.5 displays the data concerning the level of knowledge and attitudes about pain management which were tested through true and false questions and multiple choice questions. The 41 items comprising the questionnaire were ranked in line with the number of nurses indicating that each interfered with most frequently correct answer. The score ranged from 0 to 41 and the total was calculated using the number of correct answers which were thenceforth converted to percentages. For the calculation of the mean score, a score of one was given to the correctly answered items, whereas erroneously answered items were counted as zeros. Eventually, to compare the result with the agreeable transient point of 80%, the calculation tally marks for every nurse was figured to 100 as summation score × 100 divided by 41″.

Table 5.5 indicates that a mean score of 80% or above was not exceeded by none of the nurses, while they scored between (50-79%) in 15 questions, 21 questions (items) had accurate response rates fluctuated from (30-50%), 5 questions had a correct response rate less than 30%. However, among the lowest (5) answered questions which were (<30%), two (2) were

concerning the case discussions interconnected to the pain intensity, other than a dissimilar mode of communication and facial embodiment (39A and, 39B). Moreover, the other (3) fewest correctly replied questions (items ′23′ and ′28′) were related to the route of administration of opioid analgesics, while item ′36′ was related to physical dependence.

Table 5.5: Knowledge and attitudes correctly true, false and multiple choice answered items (123).

Item No	Item Content	Correct Responses		
		Rank	N	(%)*
22	Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression. ***(T***)	1	90	0.732
20	Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving. ***(T)***	2	88	0.715
21	The term ‘equianalgesia’ means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief. ***(T)***	3	87	0.707
14	After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient’s response. ***(T)***	4	86	0.699
25	Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients? ***(Morphine***)	5	85	0.691
24	The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is (***Intravenous***)	6	76	0.618
13	Patients’ spiritual beliefs may lead them to think pain and suffering are necessary. ***(T)***	7	75	0.61
26	A 30 mg dose of oral morphine is approximately equivalent to: (***Morphine 10 mg IV***)	8	75	0.61
6	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months. ***(T)***	9	73	0.593
31	The most accurate judge of the intensity of the patient’s pain is (***The patient***)	10	73	0.593

7	Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent. ***(T)***	11	72	0.585
37	Which statement is true regarding opioid induced respiratory depression? (***Obstructive sleep apnea is an important risk factor.***)	12	71	0.577
30	Which of the following is useful for treatment of cancer pain? (***All of the above***)	13	67	0.545
10	Elderly patients cannot tolerate opioids for pain relief. ***(F)***	14	66	0.537
16	Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5-10 mg of morphine PO. ***(T)***	15	65	0.528
18	Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose. ***(F)***	16	61	0.496
19	Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment. ***(T)***	17	61	0.496
8	The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours. ***(F)***	18	60	0.488
34	The time to peak effect for morphine given IV is (***15 min.***)	19	60	0.488
15	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real. ***(F)***	20	59	0.479
32	Which of the following describes the best approach for cultural considerations in caring for patients in pain? (***Patients should be individually assessed to determine cultural influences.***)	21	59	0.479
33	How likely it is that patients who develop pain already have an alcohol and/or drug abuse problem? (***5 – 15%***)	22	59	0.479
2	Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences. ***(F)***	23	55	0.447
12	Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity. ***(F)***	24	55	0.447
1	Vital signs are always reliable indicators of the intensity of a patient's pain. ***(F)***	25	54	0.439
3	Patients who can be distracted from pain usually do not have severe pain. ***(F)***	26	54	0.439
4	Patients may sleep in spite of severe pain. ***(T)***	27	54	0.439
35	The time to peak effect for morphine given orally is (***1 – 2 hours***)	28	54	0.439
9	Opioids should not be used in patients with a history of substance abuse. ***(F)***	29	52	0.423

17	If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain. ***(F)***	30	49	0.398
11	Patients should be encouraged to endure as much pain as possible before using an opioid. ***(F)***	31	48	0.390
27	Analgesics for post-operative pain should initially be given (***Around the clock on a fixed schedule***)	32	48	0.390
38B	Your assessment, above, is made two hours after Ahmad received morphine 2 mg IV. Half-hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN[2] pain relief." Check the action you will take at this time. (***Administer morphine 3 mg IV now***)	33	44	0.358
5	Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases. ***(F)***	34	39	0.317
38A	On the patient's record, you must mark Ahmad's pain on the scale below. Circle the number that represents your assessment of Ahmad's pain. ***(8)***	35	38	0.309
29	The most likely reason a patient with pain would request increased doses of pain medication is (***The patient is experiencing increased pain***)	36	37	0.301
39B	Your assessment, above, is made two hours after Mohammad received morphine 2 mg IV. Half-hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time. (***Administer morphine 3 mg IV now***)	37	36	0.293
23	The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is (***Oral***)	38	33	0.268
28	A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The	39	33	0.268

[2] PRN: **Pro re nata** is a Latin phrase meaning in the circumstances or as the circumstance arises (literally "for the thing born"). It is commonly used in medicine to mean as needed or as the situation arises. Generally abbreviated to **P.R.N.** or **PRN**, it refers to the administration of prescribed medication whose timing is left to the patient (in the case of patient-controlled analgesia), nurse, or caregiver, as opposed to medication that is taken according to a "scheduled dosage"). (Oxford Latin Dictionary, https://en.wikipedia.org).

	likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is (***Less than 1%***)			
39A	On the patient's record, you must mark Mohammad's pain on the scale below. Circle the number that represents your assessment of Mohammad's pain: ***(8)***	40	32	0.26
36	Following abrupt discontinuation of an opioid, physical dependence is manifested by the following: *(Sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued).*	41	29	0.236

T= true, F= false, *= percentage (%), some percentages were rounded, correct answers are written in **bold** and italics.

5.3.3 Knowledge scores

Table 5.6 presents the mean scores of the overall knowledge score and percentages including the maximum and minimum scores. Using the test value = 0.80, the mean score was 11.87% from 41 with a standard deviation of 3.279, while the total mean score for the knowledge survey was 51.6 % from 100 where the minimum and maximum the scores oscillated from 5 (22%) to 20 (87%), and a standard deviation of 0.142. (Table 5.6).

Table 5.6: Means and standard deviations of the computed variables for the nurses' knowledge scores.

Knowledge score	N	Minimum	Maximum	Mean	SD*
Score from 41	123	5.00	20.00	11.8699	3.27924
Score from 100	123	0.22	0.87	0.5161	0.14258

5.3.4 Knowledge of pain and effective pain management:

Table 5.7 exhibits the data regarding the level of knowledge about pain management which were tested through true, false and multiple choice questions. Participants scored between (50-79%) in 11 items (questions), 9

items had accurate response rates fluctuated from (30-50%), whereas 2 items had a response rate less than 30%. The results divulged that the highest percentages of correct answers and areas in which the nurses were most knowledgeable were for items 22, 20, 21, 25, 24 and 26, which are about sedation assessment, opioid addiction, various analgesics doses, and drug of choice (73.2%, 71.5%, 70.7%, 69.1%, 61.8% and 61.0%, respectively).

However, the study revealed that nurses had poor knowledge about pain management. Many items denoted to low percentages of correct answers; 11 items did not reach a 50% correct answer rate. Most of these areas in which the nurses were less knowledgeable that had incorrect answers were linked to knowledge of pain medication uses and side effects, misapprehension of physical dependence and its manifestations, fear of addiction, and morphine dosing calculations. For instance, only 33 (26.8%), evenly with the oral indorsed path of opioid analgesics provision to patients through continual cancer-associated pain, correctly identified that the prospect that the patient advances realistically significant respiratory depression lacking fresh comorbidity is beneath 1% regarding a patient having a continuing cancer pain who has been taking day-to-day opioid analgesics for about 2 months, while only 39 (31.7%) out of 123 participants correctly identified that aspirin and other nonsteroidal anti-inflammatory agents are efficient analgesics for painful bone metastases. Furthermore, sixty-nine (56.1%) of the respondents failed to give correct pain assessment used for vital signs that are not permanently dependable

pointers of the patient's pain consistency, 63 (51.2%) gave incorrect ideal phase to culminate influence for morphine given IV. (Table 5.7).

In general, it was found that nurses were feeble in the knowledge of pharmacological interventions relating to dosing, proper selection, and transformation between diverse sorts of opioids.

Table 5.7: Knowledge correctly true, false and multiple choice answered items (123).

Item No	Item Content	Correct Responses		
		Rank	N	(%)*
22	Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression. ***(T***)	1	90	0.732
20	Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving. ***(T)***	2	88	0.715
21	The term 'equianalgesia' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief. ***(T)***	3	87	0.707
25	Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients? ***(Morphine***)	4	85	0.691
24	The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is (***Intravenous***)	5	76	0.618
26	A 30 mg dose of oral morphine is approximately equivalent to: (***Morphine 10 mg IV***)	6	75	0.61
6	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months. ***(T)***	7	73	0.593
7	Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent. ***(T)***	8	72	0.585
30	Which of the following is useful for treatment of cancer pain? (***All of the above***)	9	67	0.545
10	Elderly patients cannot tolerate opioids for pain relief. ***(F)***	10	66	0.537

16	Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5-10 mg of morphine PO. ***(T)***	11	65	0.528
18	Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose. ***(F)***	12	61	0.496
19	Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment. ***(T)***	13	61	0.496
34	The time to peak effect for morphine given IV is (***15 min.***)	14	60	0.488
8	The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours. ***(F)***	42	60	0.488
2	Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences. ***(F)***	15	55	0.447
1	Vital signs are always reliable indicators of the intensity of a patient's pain. ***(F)***	16	54	0.439
4	Patients may sleep in spite of severe pain. ***(T)***	17	54	0.439
35	The time to peak effect for morphine given orally is (***1 – 2 hours***)	18	54	0.439
9	Opioids should not be used in patients with a history of substance abuse. ***(F)***	19	52	0.423
5	Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases. ***(F)***	20	39	0.317
23	The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is (***Oral***)	21	33	0.268
28	A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is (***Less than 1%***)	22	33	0.268

T= true, F= false, *= percentage (%), some percentages were rounded, correct answers are written in **bold** and italics.

5.3.5 Attitudes scores

Although it is recommended that evading separating items as measuring either attitudes or knowledge, inasmuch the intersection in some items (Ferrell and McCaffery, 2008), McCaffery and Pasero (1999) indicated that a score of 80% is the minimal satisfactory score on the KASRP

questionnaire. A lot of items such as one measuring the incidence of addiction actually measures both knowledge and attitude about addiction. Therefore, they have found the most advantage to be earned from analyzing the data in terms of the percentage of complete scores, and in analyzing individual items. For instance, they have found it very useful to segregate those items with the slightest number of correct responses and those items with the best scores. Therefore, survey scores were reported as the percentage of correct responses. We wanted in this study to observe the demeanors and behaviors' nurses in specific and to show the knowledge of pain management if it is associated with nurses' attitudes towards pain management.

The mean scale of the overall attitudes' scores is shown in Table 5.8. Using the test value = 0.80, the mean score was 7.44% from 41 with a standard deviation of 3.049, while the total mean score for the attitudes survey was 43% from 100, wherein the minimum and the maximum scores vacillated from 0 (0.00%) to 15 (83%), with a standard deviation of 0.142. (Table 5.8).

On the whole, the result revealed poor attitudes among ICU nurses concerning pain management when dealing with ICU patients.

Table 5.8: Means and standard deviations of the computed variables for the nurses' attitudes' scores.

Attitudes' scores	N	Minimum	Maximum	Mean	SD*
Score from 41	123	0.00	15.00	7.4390	3.04918
Score from 100	123	0.00	0.83	0.4300	.17681

5.3.6 Attitudes towards pain and effective pain management

This study assays the nurses' judgments about evaluation and treatment of pain in patients' conditions. Nurses may be more affected by the patient's comportment than the patient's self-report of pain, particularly with respect to decisions about opioid titration. Nurses may decrease a secure but ineffectual dose of opioid for a patient smiling than a patient who is grimacing. Study results unveil a propensity for nurses' personal sentiments about the patients' pain, rather than their noted evaluations, to impact choice of opioid dose and to subsidize to undertreatment of pain.

Regarding nurses' attitudes about patient pain management in our study, the highest correct score 86 (69.9%) was for the item "following giving a primary dosage of opioid analgesic, ensuing amounts have to be attuned in line with the patient's reaction", followed by the item "patients' spiritualistic faiths could guide them to anguish contemplate pain and anguish are necessitous" 75 (61%). Surprisingly, one of the attitudes' questions was answered correctly only by 29 (23%) nurses from all participants, this question tested the nurses' attitudes about the manifestation of physical dependence (lowest score). It was found that more than half of the sample 64 (52.0%) concurred that giving sterile water

to the patients by inoculation (placebo) is being considered beneficial to reveal if the pain is genuine. (Table 5.9).

The poor nursing attitudes towards pain management were proved by answering questions evaluating attitudes with wrong answers by most of the respondents. Hence, the study disclosed poor attitudes among ICU nurses concerning pain management when handling with ICU patients.

Table 5.9: Correctly attitudes true, false and multiple choice answered items, frequencies and percentages.

Item No	**Item Content**	**Correct Responses**		
		Rank	**N**	**(%)***
14	After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response. ***(T).***	1	86	0.699
13	Patients' spiritual beliefs may lead them to think pain and suffering are necessary. ***(T).***	2	75	0.61
31	The most accurate judge of the intensity of the patient's pain is ***(The patient).***	3	73	0.593
37	Which statement is true regarding opioid induced respiratory depression? ***(Obstructive sleep apnea is an important risk factor).***	4	71	0.577
34	The time to peak effect for morphine given IV is (***15 min.***)	5	60	0.488
15	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real. ***(F).***	6	59	0.488
32	Which of the following describes the best approach for cultural considerations in caring for patients in pain: ***(Patients should be individually assessed to determine cultural influences).***	7	59	0.48
33	How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem? ***(5 - 15%).***	8	59	0.48
12	Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity. ***(F).***	9	55	0.447
3	Patients who can be distracted from pain usually do not have severe pain. ***(F).***	10	54	0.439
17	If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain. ***(F).***	11	49	0.398

11	Patients should be encouraged to endure as much pain as possible before using an opioid. ***(F).***	12	48	0.39
27	Analgesics for post-operative pain should initially be given ***(Around the clock on a fixed schedule).***	13	48	0.39
38B	Your assessment, is made two hours after Ahmad received morphine 2 mg IV. Half-hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time. ***(Administer morphine 3 mg IV now).***	14	44	0.358
38A	Ahmad is 25 years old, and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: BP=120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8. ***(8).***	15	38	0.309
29	The most likely reason a patient with pain would request increased doses of pain medication is ***(The patient is experiencing increased pain).***	16	37	0.301
39B	Your assessment, above, is made two hours after Mohammad received morphine 2 mg IV. Half-hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time: ***(Administer morphine 3 mg IV now).***	17	36	0.293
39A	Mohammad is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information: BP=120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8. ***(8).***	18	32	0.26
36	Following abrupt discontinuation of an opioid, physical dependence is manifested by the following: ***(Sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued).***	19	29	0.236

T= true, F= false, *= percentage (%), correct answers are written in **bold** and italics.

Table 5.10: Frequencies and percentages of case study questions answered correctly on the KASRP.

Test Questions	Frequency	% Correct
38: Case study Patient A- Part A:	38	30.9
39: Case study Patient A- Part B:	44	35.8
40: Case study Patient B- Part A:	32	26.0
41: Case study Patient B- Part B:	36	29.3

5.4 Nurses' Barriers to Effective Pain Management

In our study, nurses' perceived barriers to management of pain were gauged in four different portions; patient-related barriers, nurse-related barriers, physician-related barriers, and system-related barriers. Table 5.11 shows the total mean score of barriers that nurses professed to management of ICU pain (M=2.399; SD=0.526). To recapitulate, totaling the overall average results, the most frequently perceived barriers to management of pain were nurse-related barriers (M=2.459; SD=0.537). Secondly, there were healthcare system-related barriers, where the average result was M=2.452, followed by physician-related barriers M=2.372. Nonetheless, patient-related barriers were less perceived by nurses as obstacles (M=2.312, SD=0.488). However, the total barriers mean score was 2.399 out of 3.00. (Table 5.11).

Table 5.11: Means and standard deviations of nurses' perceived barriers to pain management.

No:	Barriers	N	Minimum	Maximum	Mean	SD
1	Patient related	123	1.22	3.00	2.3126	0.48835
2	Nurse related	123	1.00	3.00	2.4599	0.53781
3	Physician related	123	1.00	3.00	2.3728	0.59061
4	System related	123	1.00	3.00	2.4523	0.48866
5	**Total barriers**	**123**	**1.055**	**3**	**2.3994**	**0.526358**

5.4.1 Nurses-related barriers:

Seven (7) questions in relation to nurse-perceived barriers to best pain management in ICU patients and related to the nursing staff were displayed in Table 5.12. In the nurses-related barriers, inadequate staff knowledge of pain management evenly with nurses' indifference (73.2%) were the most commonly reported obstacles, while, definitely, the respondents less frequently bespoke their own inadequate assessment of pain (*n*=84) (68.3%). (Table 5.12).

Table 5.12: Nurses-related barriers.

No:	Statement		Agree N (%)	Disagree N (%)	Do not know N (%)
1.	**Nurses-Related Barriers**	Inadequate time for health teaching with patients (eg, as needed drug order, alternatives, addiction, etc.)	89 (72.4)	28 (22.8)	6 (4.9)
2.		Inadequate time to deliver non-pharmacologic pain relief measures	85 (69.1)	31 (25.2)	7 (5.7)
3.		Inadequate staff knowledge of pain management	90 (73.2)	30 (24.4)	3 (2.4)
4.		Nursing staff reluctance to administer opiates	89 (72.4)	32 (26.0)	2 (1.6)
5.		Fear of pain medications because of side effects	85 (69.1)	34 (27.6)	4 (3.3)
6.		Inadequate assessment of pain	84 (68.3)	34 (27.6)	5 (4.1)
7.		Nurses' indifference	90 (73.2)	27 (22.0)	6 (4.9)

5.4.2 Healthcare system-related barriers

Eleven (11) items pertaining to the healthcare system were represented in Table 5.13. Respondents reported the most rating obstacle which was not having a documented pain treatment plan for each patient, lack of guidelines for pain management, as well as difficulty contacting or communicating with physicians to discuss treatment of pain in patients as barriers to pain management (*n*=90) (73.2%). (*n*=89) (72.4%). (*n*=89) (72.4%) respectively. The least frequently reported problem was lack of medicine in markets (*n*=81) (65.9%).

Table 5.13: Healthcare system-related barriers.

No:	Statement		Agree N (%)	Disagree N (%)	Do not know N (%)
1.	**System-Related Barriers**	Lack of psychosocial support services	85 (69.1)	31 (25.2)	7 (5.7)
2.		Patient-to-nurse ratio	86 (69.9)	32 (26.0)	5 (4.1)
3.		Lack of social workers who are experienced in hospital settings	85 (69.1)	31 (25.2)	7 (5.7)
4.		Lack of guidelines for pain management	89 (72.4)	25 (20.3)	9 (7.3)
5.		Lack of access to professionals who practice specialized pain treatment methods	87 (70.7)	30 (24.4)	6 (4.9)
6.		Difficulty contacting or communicating with physicians to discuss treatment of pain in patients.	89 (72.4)	28 (22.8)	6 (4.9)
7.		Not having a documented pain treatment plan for each patient	90 (73.2)	27 (22.0)	6 (4.9)
8.		Lack of alternatives non-pharmacologic therapy for pain Management (cold, hot, acupuncture) Narcotic prescription regulation	84 (68.3)	32 (26.0)	7 (5.7)
9.		Inconsistent practices around giving as needed medications for patient	86 (69.9)	30 (24.4)	7 (5.7)
10.		Lack of medicine in markets	81 (65.9)	38 (30.9)	4 (3.3)
11.		Lack of equipment or skill in using equipment	85 (69.1)	31 (25.2)	7 (5.7)

5.4.3 Physician-related barriers:

Seven (7) items about physician-related barriers were included in the survey. The results are described in Table 5.14. The most commonly rated physician-related barriers by nurses were the physicians' indifference and physicians' lack of trust in the nursing assessment of pain (*n*=85) (69.1%) (*n*=83) (67.5%) respectively. The subjects undeniably less repeatedly denoted to such problems as their reluctance to prescribe opiates because of the side effects as a barrier to pain management (*n*=76) (61.8%).

Table 5.14: Physician-related barriers.

No:	Statement		Agree N (%)	Disagree N (%)	Do not know N (%)
1.	**Physician-related barriers**	Inadequate assessment of pain and pain relief	81 (65.9)	34 (27.6)	8 (6.5)
2.		Doctor's indifference	85 (69.1)	28 (22.8)	10 (8.1)
3.		Physicians' reluctance to prescribe opiates because of the side effects	76 (61.8)	40 (32.5)	7 (5.7)
4.		Inadequate knowledge of pain management	79 (64.2)	36 (29.3)	8 (6.5)
5.		Physicians' fear of addiction of medicine	78 (63.4)	37 (30.1)	8 (6.5)
6.		Physicians' reluctance to prescribe adequate pain relief for fear of overmedicating	81 (65.9)	34 (27.6)	8 (6.5)
7.		Physicians' lack of trust in the nursing assessment of pain	83 (67.5)	33 (26.8)	7 (5.7)

5.4.4 Patient-related barriers

The nine (9) questions with reference to patient-related barriers to optimal pain management observed by nurses were organized in Table 5.15. It was demonstrated that ICU patients' reluctance to take opioids was the most commonly perceived patient-related problem (35.8%). The respondents reported the least frequently obstacle patients' difficulty with completing pain scales (e.g, 0-10) (*n*=26) (21.1%). The patient-related barriers can be seen in Table 5.15.

Table 5.15: Patients-related barriers.

No:	Statement		Agree N (%)	Disagree N (%)	Do not know N (%)
1.	**Patients-Related barriers**	Patients' difficulty with completing pain scales (eg, 0-10)	26 (21.1)	5 (4.1)	92 (74.8)
2.		Consumers not demanding results	40 (32.5)	11 (8.9)	72 (58.5)
3.		Patients' reluctance to take pain medication for fear of addiction	42 (34.1)	10 (8.1)	71 (57.7)
4.		Caregiver's indifference	38 (30.9)	8 (6.5)	77 (62.6)
5.		Patients' reluctance to take pain medications because of side effects (e.g. constipation, how it makes them feel, etc.)	33 (26.8)	8 (6.5)	82 (66.7)
6.		Patients reporting their pain to the doctor, but not to the nurse	43 (35.0)	7 (5.7)	73 (59.3)
7.		Patient's reluctance to take opioids	44 (35.8)	7 (5.7)	72 (58.5)
8.		Patient's reluctance to report pain	38 (30.9)	6 (4.9)	79 (64.2)
9.		Patients not wanting to bother the nurses	43 (35.0)	5 (4.1)	75 (61.0)

5.5 Results of Hypotheses of the Study

Hypothesis (H01): There are no correlations at ($\alpha \leq 0.05$) between knowledge and attitudes of pain management among nurses in ICUs.

In order to investigate (H01) the association of knowledge with attitude of nurses, Pearson correlation was calculated (470^{**}) which was found to be significant with a (p=0.000) at the 0.01 level (2-tailed). Thus, this hypothesis was rejected since the p-value is less than (0.05). Knowledge of pain management was highly associated with nurses' attitudes towards pain management. This result proved a positive correlation between knowledge and attitudes in the direction of pain management, that is, as the knowledge score rises, the attitude towards pain management enhances. In this current

study, the lower the score of the knowledge designates, the occurrence of a more negative attitude toward pain management. (Table 5.16).

Table 5.16: Association between knowledge and attitudes of nurses (H01).

Correlations			
		Knowledge Percentage	Attitudes Percentage
Knowledge Percentage	Pearson Correlation	1	.470**
	Sig. (2-tailed)		.000
	N	123	123
Attitudes Percentage	Pearson Correlation	.470**	1
	Sig. (2-tailed)	.000	
	N	123	123

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis (H02): There are no statistically significant differences at ($\alpha \leq 0.05$) in the nurses' knowledge and attitudes in ICUs according to gender, age, and marital status, as well as other factors such as qualification and years of practice.

Using a sample T-test to examine variances in total knowledge and attitudes mean scores of nurses regarding gender, academic education, and pain education in the last 2 years. Though the mean scores of male nurses were higher than the mean scores of female ones, these differences were not statistically significant ($p>0.05$). Likewise, no significant differences were found in total mean scores between higher than bachelor degree holders and bachelor degree ones. Nonetheless, t-test showed significant differences in the total knowledge and attitudes mean scores with regard to previous pain education in the last 2 years. Nevertheless, those (M=0.5048)

who had previous education the last 2 years (*n*=37) (30.0%) proved higher knowledge and attitudes mean scores than who did not (M=0.4166). (Table 5.17).

Table 5.17: T-test outcomes investigating the difference in mean whole nurse knowledge and attitudes' score based on gender, level of academic education, and previous pain management education (H02).

Variable[£]	**Mean (SD)**	**T statistic (df)**	**95% CI of Difference**	***P*-value***
Gender				
Male (n=72)	0.4854 (0.1368)	0.696 (121)	(-0.0318- 0.0663)	0.488
Female (n=51)	0.4682 (0.1333)			
Level of academic education				
Bachelor degree (n=103)	0.4745 (0.14043)	-0.696 (121)	(-0.08851-0.04248)	0.488
Higher than bachelor's degree (n=20)	0.4976 (0.10420)			
No (65)	0.4706 (0.12987)			
Did you have previous pain education in the last 2 years?				
Yes (37)	0.5048 (0.14064)	-3.468 (121)	(-0. 13857-0. 03785**)**	0.001*
No (86)	0.4166 (0.09779)			

[£]: At the time of recruitment. *: Statistically significant at 0.05.

Knowledge and attitudes of pain management was not associated with the age of the respondents (p=0.069; p>0.05), similarly, there was no association between knowledge and attitudes' score of pain management and one's marital status in the nursing profession (p=0.344; p>0.05). Nonetheless, total knowledge and attitudes' score of pain management was associated with one's years of practice in intensive care units as well as place of work (hospital) (p=0.000; $p\leq$0.05). (Table 5.18).

Table 5.18: F-test outcomes investigating the difference in mean overall nurse knowledge and attitudes' score based on age, marital status, years of practice and place of work (hospital). (n=123). (H02).

Variable [£] (n)	Mean (SD)	*F* statistic (df)	*P*-value
Age			
23 - < 28 years (46)	0.4846 (0.14810)	2.426 (119)	0.069
28 - < 33 Years (50)	0.5020 (0.14214)		
33 - < 38 Years (19)	0.4069 (0.07498)		
≥ 38 Years (8)	0.4634 (0.05375)		
Marital status			
Single (44)	0.4590 (0.12780)	1.076 (120)	0.344
Married (76)	0.4917 (0.13980)		
Divorced (3)	0.4228 (0.09857)		
Years of practice in Intensive Care Units			
6 months – < 1 year (26)	0.4184 (0.08853)	6.511 (119)	0.000*****
1- < 5 Years (52)	0.5361 (0.15147)		
5- < 10 Years (31)	0.4469 (0.12427)		
≥ 10 Years (14)	0.4443 (0.08014)		
Place of work (hospital)			
Martyr Dr. Khalil Suleiman/Jenin (16)	0.4253 (0.09632)	.	
Turkish/Tubas (6)	0.4268 (0.4268)		
Martyr Thabit Thabit/Tolkarm (5)	0.4878 (0.09907)		
Martyr Darwish Nazzal/Qalqilya (3)	0.5447 (0.14082)	5.560 (111)	0.000*****
Alwatani/Nablus (16)	0.4512 (0.08496)		
Rafidia Surgical/Nablus (15)	0.4276 (0.12534)		
Martyr Yaser Arafat/Salfit (6)	0.6382 (0.6382)		
Jericho (7)	0.4983 (0.12584)		
Palestine Medical Complex/Ramallah (16)	0.4055 (0.06834)		
Alhusain/Biet Jala (11)	0.4324 (0.09067)		
Princess Alia/Hebron (18)	0.5718 (0.15064)		
Abu ALhasan Alqasem/Hebron (4)	0.15064 (0.08766)		

[£]: At the time of recruitment. *: Statistically significant at 0.05.

Moreover, to know the differences between years of experience categories, a Scheffe post hoc tests was done as well.

There are differences between (6 months – < 1 year) and (1- < 5 years) in favor of nurses who have their experience between (1- < 5 years) with a mean 0.5361, as well as there are differences between (1- < 5 years) and

(5- < 10 years) in favor of nurses who have their experience between (1- < 5 years) with a mean 0.5361. (Table 5.19). Those who have (1- < 5 years) experience are higher than those who have (6 months – < 1 year) and (5- < 10 years).

Table 5.19: Scheffe post hoc test to categorize years of experience favors in relation to knowledge and attitudes'.

Variable	Mean	Difference	6 months < 1 year	1- < 5 Years	5- < 10 Years	≥ 10 Years
Knowledge and attitudes'	.4184	**6 months < 1 year**	---	-.11773*	-.02851	-.02586
	.5361	**1- < 5 Years**	---	---	.08922*	.09187
	.4469	**5- < 10 Years**	---	---	---	.00264
	.4443	**≥ 10 Years**	---	---	---	---

Hypothesis (H03): There are no correlations at ($\alpha \leq 0.05$) between knowledge and attitudes of pain management among nurses, and barriers in ICUs.

The outcomes of this study disclosed a noteworthy negative correlation concerning the average score of knowledge and attitudes regarding pain management and the discerned barriers. Therefore, this hypothesis was rejected since the *p*-value was less than (0.05). (Table 5.20).

Table 5.20: Correlation between knowledge and attitude score, and perceived barriers as regards to pain management (H03).

Correlations			
		Knowledge and Attitudes Survey Regarding Pain	Barriers
Knowledge and Attitudes Survey Regarding Pain	Pearson Correlation	1	-.460**
	Sig. (2-tailed)		.000
	N	123	123
Barriers	Pearson Correlation	-.460**	1
	Sig. (2-tailed)	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis (H04): There are no statistically significant differences at ($\alpha \leq 0.05$) between barriers to effective pain management in ICUs and demographic factors.

Barriers were correlated with nurses' socio-demographic features; gender, age, marital status, previous pain education in the last 2 years, years of practice in intensive care units, and educational level. No significant differences were identified among those characteristics and barriers, as shown in the results of the one way ANOVA, and t-tests where the *p*-value was >0.05. (Table 5.21). As a result, this hypothesis was accepted since the *p*-value is more than (0.05).

Table 5.21: Selected nurses' demographic and other specialized features in relation to perceived barriers to pain management (*n*=123) (H04).

Variable	Sub-Variable	N (%) ∞	Mean (SD)	F or t	*p*-value*
Gender				t = 1.514	0.133
	Male	72 (58.5)	2.4432 (0.34837)		
	Female	51 (41.5)	2.3403 (0.40217)		
Age				F = 3.503	0.118
	23 - < 28 years	46 (37.4)	2.3593 (0.41742)		
	28 - < 33 Years	50 (40.6)	2.5106 (0.29898)		
	33 - < 38 Years	19 (15.5)	2.2090 (0.37753)		
	≥ 38 Years	8 (6.5)	2.4044 (0.34898)		
Marital status				F = 3.051	0.051
	Single	44 (35.7)	2.3389 (0.40200)		
	Married	76 (61.8)	2.4516 (0.34316)		
	Divorced	3 (2.5)	2.0098 (0.45596)		
Years of practice in Intensive Care Units				F = 4.184	0.067
	6 months – < 1 year	26 (21.1)	2.2262 (0.37488)		
	1- < 5 Years	52 (42.3)	2.5198 (0.33654)		
	5- < 10 Years	31 (25.2)	2.3814 (0.37253)		
	≥ 10 Years	14 (11.3)	2.3235 (0.37351)		
Level of academic education				t = 0.829	0.364
	Bachelor degree	103 (83.7)	2.4140 (0.3663)		
	Higher than bachelor's degree	20 (16.3)	2.3309 (0.4113)		
Previous pain education in the last 2 years				t = -3.297	0.061
	yes	37 (30)	2.4706 (0.3453)		
	No	86 (70)	2.2377 (0.3900)		

∞: Some percentages may be less or more than 100% due to rounding. *: Statistically significant at 0.05

Chapter Six
Discussion

6.1 Overview

This chapter initiates outcome variables and patient data, more conspicuously, to interpolate the recommendations that are extracted from the generated conclusions. This, consecutively, will sanguinely head the course for the planners and decision makers to devote the recommendations for all nurses and general practitioners in the West Bank, bear fruiting improved health results and be more well-organized and valuable to their patients and organizations.

6.2 Nurses' Knowledge and Attitudes toward Pain and Effective Pain Management

Pain is a main tremendous burden or tension facing hospitalized patients (Ramira et al., 2016). Jointly with the progression of pharmacological management of pain, there is a rising awareness on the etiology of pain. And despite this awareness and pharmacological advancement, patients still face unbearable pain which impedes the emotional, physical, and spiritual magnitude of the health [Eaton et al., 2015; Pereira et al., 2016]. Controlling pain is essential in patients' management because continuing pain may lead to substantial adverse effects on health and quality of life (Bartoszczyk and Gilbertson, 2015). Nurses spend a significant portion of their time with patients. Thus, they have a vital role in the decision-making process in relation to pain management. They have to be well primed and

knowledgeable on pain management skills and should not embrace incorrect dogmas about pain management, which may escort to incongruous and insufficient pain management praxes [Kwon, 2014; Alqahtani and Jones, 2015]. Frequently, they function as go-between patient and doctor, and fulfill as the chief spectator of pain and uneasiness of the status of patient. Hence, to verify the nurses' knowledge of pain management is extremely imperative.

This is the first study which was carried out in Palestine investigating the knowledge, attitudes, as well as barriers of ICU nurses headed for pain management. The study disclosed that the Palestinian nurses were deficient to the needed knowledge and experience fallacies pain alleviation interventions. A questionnaire was allocated with a respectable response rate (75%), and that can be due to some reasons counting the fairly short duration required to finish the questionnaire and the cooperation of workmates to complete the survey.

The minimum using test value (80%) score posted by Ferrell and McCaffery of the KASRP was not fulfilled. The average KAS score in our present study was (0.478±13.5) which was considered weak related to other studies. The result of this current study verified that the piloted out nurses had poor knowledge of pain management, and was attendant with poor attitude toward pain management, verifying findings from preceding studies and reiterating the worldwide apprehension about this topic among nurses who care for patients suffering pain. Individually, the total mean

score for the knowledge survey was (51.6%), while the total mean score for the attitudes survey was (43.0%). A correlation was conducted between knowledge and attitudes and was found to be significant (p=0.000), which means when the knowledge score is high, the nurses' attitudes increase and they behave in good manner. Moreover, another correlation was made between knowledge and attitudes of pain management and barriers, and was found to be negatively significant. In this current study, the results specified that the nurses alleged negative attitudes concerning pain in the ICUs. This indicates that as the knowledge decreases, the more barriers the nurses have. However, the high scores effects subscales designate that the participants needed adequate knowledge to empower them to manage pain satisfactorily.

The widespread nature of the problem is imitated explicitly in the current study by the mean score accomplished by Palestinian nurses, which is near to that conveyed for nurses (45.6%) in Palestine by Ghrayeb and Nimer, (2017). Other studies were consistent with the findings of ours. They reported generally poor nurses' knowledge of pain management, where the mean scores ranged differently and closely. The findings of the overall score of those obtained by Lui et al. and Tsai et al. were 47.72%, and 49.2% respectively [Lui et al., 2008; Tsai et al., 2007]. Additionally, the results of this study were lower related to results of Al Qadire and Al Khalaileh, (2014) and Burns et al., (2010), e.g., Al Qadire and Al Khalaileh (2014) also reported a low knowledge score in Jordanian hospitals (Mean=19.3), Samarkandi, (2018), reported a mean of = 18.5 in Saudi

Arabia, Al-Khawaldeh et al., M=34.1%. A Turkish study showed a correct rate of 35.4%, which was lesser than our current study score (Yildirim et al., 2008). These low mean scores indicate that when nurses record a score less than 80% threshold, the aptitude to take care of patients facing pain might be noticeably conceded [Vickers et al., 2014; McCaffery and Robinson, 2002] which is liable to cause hostile or negative patient practices of pain management, instigating care low gratification [Shoqirat, 2014; Glowacki, 2015; Karabulut et al., 2015].

Quite the reverse, current research informed a poorer percentage of correct answers in contrast to Eaton et al. (2015) who registered a greater percentage of correct answer (73.8%). Consequently, an ostensible reported shortfall in nursing knowledge of pain management is being incessantly noted among nurses from diverse countries around the world, which is disquieting.

In general, it was realized that nurses were feeble in the pharmacological involvements relating to dosing, proper selection, physical dependence, and transformation between diverse sorts of opioids. Our study affirmed former hypotheses that nurses have poor knowledge of pain management in the other literature. The majority of the NKASRP items is pharmacology-setup questions that are vital in pain management. Regrettably, the results of the questionnaire designated that the nurses' knowledge of pain management was badly off, particularly in the pharmacology topic.

6.2.1 Knowledge of pain and effective pain management

Nurses scored correctly between (50-79%) in 11 items, 9 items had accurate response rates vacillated from (30-50%), whereas 2 items had a response rate less than 30%.

However, the results divulged that the highest percentages of correct answers and fields wherein the nurses were highly knowledgeable and conversant were for items 22, 20, 21, 25, 24 and 26, which are about sedation assessment, opioid addiction, various analgesics doses, and drug of choice (73.2%, 71.5%, 70.7%, 69.1%, 61.8% and 61.0%, respectively). Nevertheless, the study exposed that nurses had humble knowledge about pain management. Many items denoted to low percentages of correct answers; 11 items did not reach a 50% correct answer rate. Most of these areas where the nurses were less erudite that had incorrect answers were linked to knowledge of pain medication uses and side effects, misapprehension of physical dependence and its manifestations. For instance, only (*n*=33) (26.8%), evenly with the oral suggested method of administration of opioid analgesics for patients with tenacious cancer-related pain, correctly identified that the probability of the patient emerging apparent significant respiratory depression lacking new comorbidity is <1% regarding a patient with continuing cancer pain has been having per diem opioid analgesics for a couple of months, while only (*n*=39) (31.7%) out of 123 participants correctly identified that aspirin and other nonsteroidal anti-

inflammatory agents are effectual analgesics for agonizing bone metastases.

Furthermore, sixty-nine (56.1%) of the respondents did not succeed to give correct pain assessment used for vital signs that are not always trustworthy indicators of the strength of a patient's pain, because the vital signs were normal and that patients display relaxed facial expressions. Misunderstandings contain the idea that patients incline to pursue interest rather inform actual soreness, that the dispensation of opioids causes rapid intemperance, and that vital signs are the single technique to imitate the pain existence. Hence, it is considered a serious mistake to depend on the vital signs of the patients to judge the severity of pain level, such a decisive error does not seem to be far away from befalling as 43.9% of the ICU staff nurses thought that steady vitals are an encouraging and positive indicator of absence of pain.

Some cancer patients are having a daily fixed dose of morphine to relief pain, however, every now and then, they could be worse with severe pain, and would not be released from pain with the same consistent dose, the nurses did not discern that augmenting Morphine dose from 200 mg to 250 mg will increase the option of respiratory depression by <1% merely. The absence of knowledge could avert some cancer patients from sacking their pain because of impractical fear of instigating respiratory depression.

This current study has discovered that 73% of ICU nurses considered that the possibility of the patient evolving clinically significant respiratory depression failing new comorbidity is >1%, which is an earnest conclusion for the clinical and pharmacological standpoints because respiratory depression infrequently arises in patients who have been receiving steady doses of opioids for a couple of months. Patients may need sizably greater doses for adequate respite of pain, while, generally, the least effectual dose should be conducted.

Again, (*n*=90) (73%) did not answer correctly that the recommended method of administration is oral for opioid analgesics to patients with insistent cancer-related pain. The researcher attributes this finding to violation of the general duties of caution and vigilance that the nurse must adhere to within the scope of his profession, as he is committed to these general duties before he sticks to the scientific or technical medical rules. Another reason could be the lack of interest and indifference to matters, lack of appropriate interaction with the existing situation, ease of matters, and non-compliance with the rules, regulations and provisions of the profession. Another cause could be an inadequate of education or training.

Patients should be educated about probable onset of pain at any time of the disease, both during/after diagnostic interventions and as a result of treatments of cancer. They (patients) should be enabled and refreshed to communicate with the physician and/or the nurse about their efficiency of therapy, side effects, and pain. Patient instruction has to comprise

information on the fitting use of opioids; this should be set in accordance with other analgesic and non-pharmacological methods (Reid et al., 2008).

Bennett and colleagues (2009) and Sheinfeld and colleagues (2012) argued that patient engrossment in pain management betters pain relief and communication, through improving both patient understanding and physician evaluation and counselling. Moreover, it is imperative to recommend a therapy that can be achieved plainly by patients and families themselves. The oral route, if well tolerated, should be considered as the preferred route of administration [WHO, 1996; Hanks et al., 1996].

Nonetheless, patients have to be cognizant about pain and pain management, as well as to be heartened to play an energetic part in their pain management. Hence, the oral route of administration of analgesic drugs should be recommended and promoted as the penchant. However, the oral path is favored aside from when oral entrants is unfeasible as a result of rigorous vomiting, bowel obstruction, severe dysphagia or confusion, and in the case of poor pain domination which entails quick dose escalation and/or with oral opioid-associated adverse effects.

Interestingly, only (n=39) (31.7%) out of 123 participants concurred correctly, that aspirin and other nonsteroidal anti-inflammatory agents are operational analgesics for anguished bone metastases. This finding is shocking and needs to the urgent necessity to hold education and training courses. The nurse may perform the medical procedures without proper training, or the rush to judge things.

About 53.7% concurred correctly to the item of elderly patients can tolerate opioids for pain relief. This finding could be due to that staff thinks that cognitive impairment diminishes the perception of pain in the elderly. There was a strong shortage of agreement among the nurses about levels of pain practiced and the volume of needs for pain relief by the elderly related to young adults, so, nurses had deficiency in knowledge and understanding regarding the usage, assets, and effects of opioid medications for pain relief. Another attributable reason for this finding is that nurses tend to believe that geriatric patient's pain level is truly lower than the patient tells, except when the patient informs low pain (Herr and Garand, 2001).

At present, the majority of patients being admitted to hospitals are aged 65 years and above. The elderly are hospitalized more frequently and for elongated periods of time than younger people, and pain is one of the most common symptoms experienced by these patients. (Closs, 1994). Henceforward, nurses especially those working in aged care facilities, need a comprehensive knowledge of pain management of the elderly to enable sympathetic and effective nursing care.

Pain in the elderly is definitely different from pain experienced by younger individuals (Davis and Srivastava, 2003). Younger patients feel more pain before and after the procedure than older ones. Moreover, older people are capable to describe their pain properly barring those who are disabled or very sick (Stott et al., 2006).

Moreover, geriatric patients are repeatedly receive inadequate pain management. There is a misapprehension among some nurses that perceptive deficiency makes notches in the perception of pain that if the nurse give pain management to elderly patients they will undergo delirium or muddle. Even though the elderly may be more sensitive to the effects of opioids, there is no need to ban analgesia or to under-treat pain. As an alternative, one should evaluate the individual, and institute low doses of analgesia. Phobia of instigating delirium or slipup is a barrier to pain management for the elderly. This is inconsistent with the findings of Allen et al. (2003), that fewer than 25% of elderly patients obtained their mean level of prearranged opioid analgesia.

“Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm” was answered correctly by less than half of the respondents. Benzodiazepines are usually used for sedation especially in ICUs, so this result may be a warning of nurse observations regarding benzodiazepines. This item was displayed only in Duke et al.’s study (2013), as the item which was ranked one of the minimal correct answers (Duke et al. 2013). In that study, their sample entailed student nurses. Consequently, student nurses probably did not have the chance to detect the impacts of benzodiazepines in inpatient settings. Aggregate results propose that long-term use of nonsteroidal anti-inflammatory drugs, chiefly aspirin, may lessen cancer occurrence [Lee et al., 2014; Walker et al., 2012; Rothwell et al., 2011; Thun et al., 2002].

Fifty-two (42.3%) agreed that opioids should be used in patients with a history of substance abuse. It is common to take substance abuse patients in the ICU; this study has found that 58% of ICU nurses supposed that these patients should not take opioid treatment even if they have pain, which is a critical finding from both clinical and ethical viewpoints. ICU patients should receive appropriate treatment to relief pain irrespective of their history of substance abuse, this inaccurate insight among ICU nurses could avert some patients from their right of being pain-free.

Furthermore, it is imperative for ICU nurses to distinguish the equivalent doses between IV and oral Morphine, as shifting the administration route from IV to oral is a step of Morphine dissuading process, also oral Morphine is well thought-out to be less harmful when compared to IV doses. Most of ICU nurses did not know the recommended administration route between the two itineraries (IV and oral). Hence, the results exhibited shortage of knowledge for ICU nurses associated with effectiveness, consistency, and mechanism of action to the commonly used medications for pain relief and management. A chief piece of knowledge to be agreed upon by nurses when transacting with painkillers is to understand the time needed for the medication to reach its peak. For instance, 69 (56.1%) gave incorrect ideal time to peak effect for morphine given orally that needs 1 to 2 hours to reach the peak effect after administration. This is imperative because if a nurse considers that oral Morphine reaches the peak effect after 5 min or 40 min theoretically, this can steer to medication abuse by supplying further doses. Accordingly, 63 (51.2%) of the nurses gave

incorrect ideal time to peak effect for morphine given IV (15 min), which is frequently used for ICU patients.

6.2.2 Attitudes towards pain and effective pain management:

This study assays the nurses' judgments about evaluation and treatment of pain in patients' conditions. Nurses may be more affected by the patient's comportment than the patient's self-report of pain, particularly with respect to decisions about opioid titration. Nurses may decrease a secure but ineffectual dose of opioid for a patient smiling than a patient who is grimacing. Study results unveil a propensity for nurses' personal sentiments about the patients' pain, rather than their noted evaluations, to impact choice of opioid dose and to subsidize to undertreatment of pain.

The mean scores for the total positive attitudes' scores and percentages (*n*=53) (43.1%) with a standard deviation of 0.142, while the majority of the respondents (n=70) (57.0%) had negative attitudes, signifying that it is poor and below what was found in other literature (Issa et al., 2017; attitude score = 35.0) (Liyew et al., 2020, attitude score = 51.68) (Adams et al., 2020; attitude score = 10.4).

Regarding nurses' attitudes about patient pain management in our study, the highest correct score (*n*=86) (69.9%) was for the item "after an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response", followed by the item

“patients’ spiritual beliefs may lead them to think pain and suffering are necessary” (*n*=75) (61.0%).

Surprisingly, one of the attitudes’ questions was answered correctly barely by (*n*=29) (23.6%) nurses from all participants, this question tested the nurses’ attitudes about the manifestation of physical dependence (lowest score).

It was found that more than half of the sample (n=64) (52.0%) concurred falsely that giving the patients sterile water by injection (placebo) is a useful test to determine if the pain is real, which is unprincipled practice to the patients who are suffering from pain.

65.3% answered falsely that children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent’s assessment of the child’s pain intensity. Lack of knowledge affects pain management in infants and children. There is a misconception among some health care professionals that infants do not feel pain and consequently cannot report assessment. Indeed, the nervous system in children and infants is more sensitive than in adults [Howard, 2003; Heather, 2005; Batiha and Bashtawy, 2013]. This is clinically momentous, as lower thresholds of mechanical and thermal stimuli could bring about a greater perception of painful stimulus in children than would ensue in adults (Howard, 2003). There persists a deficiency of confidence in counselling and managing pain medication to pediatric patients (Norton et al., 2002).

Intriguingly, only 37 nurses (30.1%) assented that when patients entreat increasing amounts of analgesics to control pain, this designates that the patient is psychologically dependent. An extra endorsement was found on the item asserting that enlarging analgesic necessities is an insignia displaying that the patient is becoming addicted to the narcotic. Other participants believed that it is better for patients to bear the pain than to treat it with morphine.

Both case studies were handled and employed to investigate indirect knowledge for making decisions considering assessment data and interventions. The case detailed descriptives present two patients, both on their first hospitalized day following abdominal surgery and both 25 years old. Patient (A)-Ahmad and Patient (B)-Mohammad both have vital signs that are within standard considerations and they both verbally inform their pain intensity as 8 out of 10 when were evaluated by the nurse. Both interrogations verified for the nurses' attitudes when the objective evaluation of pain controverts the subjective pain evaluation. Furthermore, both patients are equivalent and the only prominent variance between them is their expressed behavior. Ahmad (A), appeared, grinning cheerfully and jokes with his visitors when the nurse arrives his room to evaluate his pain, whereas, (B) Mohammad, is resting unobtrusively and with a twisted expression on his face, typically expressing disgust, pain, or wry amusement as turns in his bed when the nurse goes into his room. In the first case study, (n=38) (30.9%) of the participants recorded the patient's stated rating correctly as 8 on a scale from 0 to 10. In the second case,

(*n*=32) (26.0%) of nurses evaluated the patient's stated rating correctly as 8 on the scale. The poor attitudes were marked evidently by the propensity to disregard the patient's complain on the side of the clinical assessment. Only 44 (35.8%) and 36 (29.3%) indicated that they would 'administer morphine 3 mg IV now' on the basis of evaluation data in the first and second case respectively (Table 5.12). Anxiety to cause respiratory depression is a chief source of under treatment of pain (McCaffery and Robinson, 2002). Precisely, pain is subjective, so the correct attitude for the ICU nurses is not to ignore the patient's complaining even if the patient is grimacing, smiling, or joking. This finding specified apathy between evaluation and involvement. In most cases, the patient took less than the recommended analgesic dose. However, when used appropriately, opioids are safe, and in most instances, greatly efficient. A misconception regarding their use, lamentably, helms to substantial stigmatization and subsequent under-treatment (Hanks-Bell et al., 2004). Post a quarter of a century of WHO promulgation of its guidelines on cancer pain, about one of two cancer pain patients stays undertreated. Under-treatment is frequently recognized by an insufficient use of opioids for causes abstracted as hurdles in the delivery of health services, among health care providers to the patients (Colleau, 2009).

Only (*n*=48) (39.0%) of the nurses testified that opioids should be given around the clock on fixed schedules as prescribed. The other 61% of nurses whoever did not know how opioids often should be given, or they itemized wrong answers which comprised the administration of opioids when patient

is in pain. A study done in Central Africa supported this issue in which 66% of the nurses confessed they had some fears about giving morphine to patients. They would not give the opioids as prescribed, because of being afraid of promoting patients' addiction to opioids, respiratory distress and camouflaging the patient's symptoms [Omran et al., 2014; Alexandrina de Jesus and Jacinta, 2013; Bernhofer, 2011; Jho et al., 2014; Kassa and Kassa, 2014]. Moreover, in the study of Cocker et al. (2010), discovered that the Perceived Stage of Adoption Tool exposed that 79% of the nurses supposed that around-the-clock rather than prn administration of pain relief is the favorite method, notwithstanding the fact that only 15% of the nurses specified that they continually afford analgesia around the clock. This is congruent with the findings by Titler et al. (2003) in their study about patients with acute pain.

A frightening finding is that (*n*=74) (60.0%) of the nurses testified accepting to keep the patient in pain if the source of pain is not obvious. It is an immoral practice; it is vital for the ICU nurses to know it is not beneficial retaining patient suffer, taking this by an argument in respect of checking the source of patient's pain as this could disguise the ability to correctly diagnose the cause of pain.

Of the respondents, (*n*=48) (39.0%) misleadingly answered the item "Patients' spiritual beliefs may lead them to think pain and suffering are necessary". The percentage of nurses answering this question correctly in a rate of 61%, which was consistent with that study conducted on Italian

nurses (Bernardi et al. 2007), and the study on oncology nurses carried by Yildirim et al. (2008) which was around 60.3%.

The question about the cultural approaches had the sixth highest correct answer rate (*n*=59) (48.0%). Culture, values and spiritual beliefs are known to influence people's responses to pain and disease, the patient-nurse relationship and the attitudes and behavior of the nurses regarding pain and the patient in pain (Wang and Tsai, 2010). People from different cultures may perceive pain differently (Al-Atiyyat and Mohammed, 2009). Therefore, the views of Palestinian nurses may possibly differ from those of Western nurses. Considering that the barriers questionnaire was developed and tested in Western countries, there is a need for qualitative studies that would allow Palestinian nurses to convey any barriers that are not included in the barriers questionnaire. Nurses are individuals of the communities they live in, while the cultural attitude affects handling with pain and the tactic (Eti Aslan, 2010). It is essential for the nurses to know the cultural and spiritual merits of the community to strengthen the quality of nursing care. Cultural beliefs and values affect individual's pain responses when they are in pain, whilst the pain itself may differ from culture to another. However, in some cultures, pain expression is considered shameful and cowardly. Some groups see pain as punishment for doing wrong, while others see it as a test of faith and challenge to be overcome (Suza et al., 2007). Some people express pain verbally and physically, while others are stoic and refrain from expressing physical pain verbally, others use emotional pain expressions are common in some and

less in others (Lovering, 2004). Differences in cultures must be noted in nursing practice relate to pain management.

The item “The most accurate judge of the intensity of the patient’s pain is the patient” was countered appropriately by an enormous percentage of the nurses in our study (*n*=73) (59.3%), as denoted well by other studies [Bernardi et al., 2007; Lui et al., 2008; Tsai et al., 2007; Wang and Tsai, 2010]. Though the nurses supposed that the best pundit in appraising pain was the patient, their attitude contradicts with their answers to the case studies in the scale in this current study (Table 5.12). The pain rigor conveyed by the patients was the same, but the patients’ pain attitudes were dissimilar in these two cases. This indicates that the nurses were more influenced by the patient's behavior and the way of expressing the pain then the expressed amount of pain. Correspondingly, other studies informed that the majority of nurses focused on the patient’s behavior when assessing pain and not his/her statements [Bernardi et al., 2007; Yildirim et al., 2008]. This may head to the patient getting less medication than needed and capricious methods being used to patients feeling the same quantity of pain (e.g, estimating the patient’s pain less often, not seeing any necessity for nonpharmacological techniques), causing inadequate treatment of pain (Aslan and Badir, 2005). The patients’ own avowals are consented as the solitary most dependable gauge of the incidence and consistency of pain (McCafery and Beebe, 1990). Consequently, it must be accentuated that the patient’s proclamations (but not the behavior) have to be considered at the time of pain evaluation.

On the whole, the result revealed poor attitudes among ICU nurses concerning pain management when dealing with ICU patients.

6.3 Nurses' Barriers to Effective Pain Management

Notwithstanding the verity that nurses are the cornerstone healthcare providers to patients, except that there are paucity of data about the nurses' apprehended impediments to effective and ideal pain management in the Palestinian hospitals. However, this study targeted defining the nurses' alleged barriers to pain management in the ICU governmental hospitals, while the results signalize that nurses identify a diversity of barriers when endeavoring to offer best pain management in the ICU governmental hospitals. Hurdles may be overwhelmed through cautious planning, using a methodical change method such as a research utilization approach (Idell et al., 2007). A number of studies have illustrated the barriers to provision of an effective pain management [Bartoszczyk and Gilbertson-White, 2015; Kwon, 2014]. Poor pain management can be accredited to barriers correlated to health care professionals (nurses and physicians), patients, and the health care system.

6.3.1 Nurses-related barriers

Nurses may hold a negative discernments, viewpoints, and misapprehensions concerning pain management. More than a few interferences have been endeavored to deal with these provider-related barriers. Taking up these hindrances directed to a noteworthy enhancement

in the healthcare team assertiveness and practice regarding pain management (Kwon, 2014). However, inadequate staff knowledge of pain management evenly with nurses' indifference (73.2%) were the most commonly reported obstacles in the application of an effectual pain management, while, definitely, the respondents less frequently bespoke their own inadequate assessment of pain (*n*=84) (68.3%).

Inadequate nursing personnel knowledge of pain management, shortage of knowledge and inadequacy of time for educating and teaching, as well as indifference are the barriers to operational pain management most repeatedly declared by nurses. Insufficient evaluation of suffering is the obstacle that has been most frequently mentioned by physicians (Breuer et al., 2011). Nurses do not have the time to teach patients about their pain, nor do they use non-pharmacological approaches of pain management. Non-pharmacological means of pain management continue to be a mistreated therapeutic decision (Elcigil et al., 2011). A study done by Duignan and Dunn, (2008) discovered that pain management and their use of analgesia are affected by nurses' opinions influence. Coker coworkers (2010) discovered that nurses pointedly underrate the assessment of pain strength and its penalties, the degree of pain at relaxation and in mobility along with complete pain intensity. In the same study, Coker and coworkers (2010), denoted that only 15% of nurses stated that they administered pain management for 24 h a day, albeit 79% of nurses supposed that round-the-clock medications administration was the acclaimed method opposite to on-demand analgesic administration. About

only 19% of the nurses conveyed that focusing on administering habitually scheduled medications and not testing for and offering prn relief if not the patient demands it was a frequent barrier. Actually, half of the patients informing pain did not receive their prn medication (Coker et al., 2008). However, some nurses specified that they give out the medications as requested and that around-the-clock may not essentially be the way they are instructed. Even though prn advising should permit for suppleness, it may direct to undertreatment (Titler et al., 2003).

Workload is the crucial drawback in pain management overseen by nurses. Coulling, (2005), concluded that there is a confirmation that as a result of staff shortage and escalating workload, nurses put nursing procedures first in patient care, whereas assigning less value to such aspects of care as pain management. As stated by the recommendations of pain management societies, the most fitting ways of analgesic administration are intravenous and oral, though studies and the other experiences show that analgesics are more frequently administered by the intramuscular route, which very often applies to opioids (Medrzycka-Dabrowka et al., 2017).

6.3.2 Healthcare system-related barriers

Coulling, (2005) and Duignan and Dunn, (2008) concluded that the most frequently perceived barriers to pain management were healthcare system-related barriers. System-related barriers contain a deficiency of plainly demarcated standards and pain management modus operandi, and restricted admission to pain professionals and analgesics [Mędrzycka-Dąbrowska et

al., 2015; Glajchen, 2001; Zuccaro et al., 2012]. The most imposing barriers to transform may be the imperceptible administrative barriers that can be deep-seated inside hospital policies and nursing services, but not like the ones created by poor knowledge, myth and misconception (Mann and Redwood, 2000). Enhancement in pain management has to be a significant quality improvement target for the health system (Al-Mahrezi, 2017). There are no evident policies, rules and guidelines to treat with patients' pain in our hospitals. In our study, the absence of consistent guiding principles for pain handling was specified as a hindrance by more than 72% of the respondents. Numerous researchers denoted that strategies of pain management promote their pain knowledge and behaviors [Oldenmengeret al., 2009; Pargeon and Hailey, 1999]. High operative pain management run-through may be attained if objective practice courses of actions are made-to-order to the detailed form of the ICUs, and the existing properties within hospitals, thus, aching supervision guiding principles have to be tailored for the irrefutable practice of health care professionals, as well as abiding by current updated guidelines (e.g., WHO guidelines). Besides, absence of psychosocial backing facilities was among the frequently perceived obstacles. The findings of this study are comparable to other findings of literatures which outlined the absence of backing organizations as a barrier meddling through ideal pain management [Furstenberg et al., 1998; Sun et al., 2007]. Tawalbeh et al. (2013), also described the absence of psychosocial upkeep services that was the most ordinarily perceived barrier related to hospital guidelines. In our

governmental hospitals, psychosocial facilities are not part of monotonous patient care. Psychological distress has been publicized to be considerably related with the observation of pain. Greater pain strength was linked with a greater level of psychological distress, containing downheartedness, nervousness, aggression, temper turbulences, and annoyance (Zaza and Baine, 2002).

Absence of substitutes for nonpharmacologic pain management (cold, hot, acupuncture) was unanimous by more than 68% of the nursing. Nonetheless, patterns of nonpharmacologic pain management continue to be an ignored action route in our governmental hospitals as a result of time restrictions as well as shortage of qualified personnel.

Even though psychological backing could be delivered to some patients having cancer upon request of the medical doctor, except that there is no societal work for patients. Organizational efforts are required to launch psychosocial upholding services to every patient. The result of patient-to-nurse ratio was also reliable with some previous studies [Van Niekerk and Martin, 2003; Ware et al., 2010]. The suitable evaluation and management of pain is extremely reliant on communication amongst nurses and physicians. Passable privation and precise communication concerning nurses and physicians were described as an imperative impediment to ideal pain management. Johnson et al. (2005), and Van Niekerk and Martin (2003) displayed that nurses who did not sense sufficiently referred by physicians were meaningfully more prospective to combat hurdles such as

inadequate collaboration by patient's physicians and insufficient prescription of analgesic medications. Nurses specified that they had awkwardness in getting in touch or interconnecting with physicians to deliberate treatment of pain. Van Niekerk and Martin (2003), and Van Niekerk and Martin (2002) reported that the relationship with physicians prompted barriers to effective pain management. Cooperation in hospitals is crucial for offering worthy superiority pain management. Additionally, to launch a sympathetic group essence among nurses and doctors is essential. As a consequence, gatherings have to be convened amongst the two health parts to ease dialogue of pain management difficulties in addition to reconsider endorsements for settlements. A lot of reviews had been conducted screening that education is efficient in eradicating the barriers hindering the appraisal of pain management. So, there have to be unvarying and unremitting teaching and training agendas for the entire healthcare staff who are concerned in management of pain. We have to savvy the nurses' knowledge and attitudes and physicians in hospitals with the purpose to inaugurate continuous education programs on pain management. Furthermore, proofed pain management guiding principles must be tailored.

Once the patient-to-nurse ratio is above level, nurses suffer time constraint which inhibits the excellence of care. Johnson et al. (2005) stated that 13% of nurses classified time as a pain management hurdle. Nevertheless, the employment of too few members of staff continues to be an obstacle to ideal patient patronage in the governmental hospitals. Every nurse should

look out a few of patients (more than 3) in the hospital. Nurses are in charge for the entire nursing settings, thus, nurses are challenging restriction of time for assessment of symptoms and management. The results indicated that more than two-thirds of the participants specified that the absence of contact to experts who engage specified pain treatment approaches, in addition to the complicatedness in getting in touch or corresponding with doctors to confer remedy of suffering were essential obstacles to pain management.

The least barrier detected by nurses was the lack of pain medicine in the market, even though we face hitches about the obtainability of some sturdy opioids. On the other hand, an instantaneous relief oral morphine in the Palestinian market does not exist. An explanation could be due to the absence of knowledge about pain management, as oral opioids are the drug of best for temperate-to-strong cancer pain, or could be associated with the present pain management pursuit that comprises intravenous opioids usage, chiefly for cancerous patients, while have taken up residence in hospitals.

6.3.3 Physician-related barriers

Vincent (2005) discovered that physicians' scanty directing of pain medication was the utmost barrier for finest pain management in nurses' clinical practice. Deficiency of knowledge and incorrect worries about addiction and overdosing are examples of physician-related barriers (Mędrzycka-Dąbrowska et al., 2015; Glajchen, 2001; Zuccaro et al., 2012). Another perceived barrier was the physicians' lack of trust in the nursing

assessment of pain in critically ill patients. This indicates the negative effect of lack of communication between the nurses and doctors. Nurses specified that they had trouble contacting or communicating with physicians to deliberate treatment of pain. It has been described that the barriers to effective pain management met by nurses were influenced by their relationship with physicians [Van Niekerk and Martin, 2003; Van Niekerk and Martin, 2002]. With the principal problem being the absence of appropriate communication with other caregivers to consider the pain therapy to be administered to a patient. It has to be put in mind that nurses behave as intermediaries between physicians and patients, and play the main role in the observing of patients' pain, therefore, the provision of effective pain management may be deferred or even deserted [Kaye et al., 2010; Horbury et al., 2005]. Communication about pain is essential to patient luxury, henceforth clear, brief and well-timed communication between nurses and physicians is obligatory for pain management. It looks very imperative that the healthcare administrators should try and accentuate the significance of cooperative and reassuring relationships between team members (Egan and Cornally, 2013). A fear of addiction is one barrier that explicates why physicians are reluctant to prescribe opioids. It has been publicized that 25%-40% of physicians are anxious of addiction, and this proportion was higher for patients with a family history of addiction [Larue 1995; Weinstein et al., 2000]. Pain management should be presented as a chief theme of the curriculum of any medical school, and in entirely residency-training agendas, with the purpose of future physicians never

disremember to adopt pain management in any patient defiance (Al-Mahrezi, 2017).

6.3.4 Patient-related barriers

The patient case and therapy or behavioral expressions may prompt nurses to inject an analgesic quickly. The patient diagnosis or the length of stay may affect nurses; which may become signs of pain intensity and require analgesic introduction. Hesitancy to take analgesics, afraid of side effects, and worry of addiction are examples of patient-related barriers [Mędrzycka-Dąbrowska et al., 2015; Glajchen, 2001; Zuccaro et al., 2012]. More than three quarters of the nurses did not know about the patients' difficulty with completing pain scales (e.g., 0-10), and clients not requiring results (58.5%). Attributable finding is the pain evaluation scales which were proceeding in an actual demanding nursing diagram, demonstrating an obstacle to deliberate on the scales. So, a scale of suffering evaluation should be created and allocated to all nursing in hospitals. The scope of endorsement of this practice was consistent with the findings of Herr et al. (2004). Yet, in only 5% of the cases had the numeric rating scale, noticed on the patient surveillance record, been completed in the study of Coker et al. (2008). This also contrasts with the 72% of the nurses who said that they believed that a pain rating scale is the favorite scheme of assessment [Goodacre and Roden, 2001; Motov and Khan, 2009]. Managing a standard pain rating scale simplifies steadiness in pain assessments, and thoughtful efforts should be spent in nursing colleges and hospitals to prepare and

provide nurses with wide-ranging tools to assess and manage pain correctly. In this study, nurses disaccorded with difficulties concerning patients' informing their pain. Several literature described hindrances, for example, the disinclination to tell pain, lack of commitment to remedy schedules, which was in accordance with the study of Gunnarsdottir et al. (2002). Moreover, nurses did not concur with the barrier pertaining to patients' dodging to pain for not inconveniencing the nurses that was recounted as a patient-related barrier [Coker et al., 2010; Furstenberg et al., 1998]. Fear of addiction is the fear of captivating analgesics for the respite of pain will result in addition to the medication. A fright of addiction is one obstacle that clarifies why physicians are unenthusiastic to advise opioids. It has been exposed that 25% to 40% of physicians concern on the subject of addiction, and this rate was greater for patients with a family history of addiction (Johnson et al., 2004). This analysis of nurse-related barriers discloses that with patient's reluctance to report pain, the assessment becomes more difficult. The patient is supposed to comprehend that it is essential to inform pain in a timely manner, once it appears. Operative pain restriction can only come about if the patient effectually communicates the pain altitude and features to the nurse (Sadeghi-Bazargani et al., 2014).

There is another barrier of fear of becoming indulgent to the influences of medication. Patients are fretful that if they begin taking the medication soon in the disease course the analgesics will not dismiss their pain late if it gets badly behaved (Levin et al., 1985). Nonetheless, some patients may over-report their pain suffering if they are fearful that they will be under-

medicated or that their indications will not be taken truly, while, paradoxically, others may underreport their pain sufferance if they are terrified they will be arranged medications which will initiate them to recrudesce (Center for Substance Abuse Treatment, 2012). Moreover, patients are disturbed with the side effects of analgesics. Patients frequently do not know that lenience to the side effects of the medication advances faster than forbearance to its analgesic effects (except for constipation). For that reason, they might decide on to tolerate the pain rather than to suffer mental bewilderment, constipation, and lethargy [Sherwood et al., 2000; Riddell and Fitch, 1997].

Furthermore, it is vital for nurses to possess knowledge and adeptness to offer even painless imperious care, and this can be achieved across steady continuing education in pain evaluation and management.

6.4 Discussing Hypotheses of the Study

Hypothesis (H01): Knowledge of pain management was significantly associated with nurses' attitudes towards pain management with a significant *p*-value (p=0.000; $p \leq 0.05$). This study result showed a positive correlation between knowledge and attitudes towards pain management, i.e., as the knowledge scores increases the attitudes towards pain management improves. This result contradicts the finding in a study executed in Malaysia revealed that attitude towards pain management was not significant ($p>0.05$) [Ho et al., 2013; Rampanjato et al., 2007]. Miller

found that nurses may have very positive attitudes towards pain management without sufficient knowledge to effectively manage pain.

Moreover, our results are consistent with the study of Karamjeet, (2017) in India, where the majority of respondents i.e. 37 (74%) was having a negative attitude towards pain management, only 13 (26%) was having a positive attitude towards pain management. The knowledge of staff nurses was found to be associated with their attitude towards pain management.

This result proves a positive correlation between knowledge and attitudes in the direction of pain management, that is, as the knowledge scores rises the attitude towards pain management enhances, and, the lower the score designates, the occurrence of a more negative attitude toward pain management. Ekim and Ocakcı, (2013) and Voshall et al. (2013) argued that there is inconsistency between knowledge and attitude, which proposes that nurses may have positive attitude to pain management but does not have satisfactory knowledge to accomplish pain properly and entirely.

Hypothesis (H02): Independent sample T-tests and F-tests were used to test for differences in total knowledge and attitudes mean scores of nurses regarding age, gender, academic education, and pain education in the last 2 years. Knowledge and attitudes of pain management was not associated with the age of the respondents (p=0.069; p>0.05). However, other researchers found contradicting results which showed a negative correlation between knowledge score and demographic variables such as age (Ekim and Ocakc, 2013). This means as nurses grow older, their

knowledge on pain management decreases, which consecutively is not consistent to the study of Manwere and colleagues. (2015) who argued that older respondents of 40 years and above scored high marks on the knowledge score scale indicating a positive association (p=0.003; $p\leq$0.005), neither with the study done in Malaysia conducted by Ho et al., 2013, that also showed that age groups of more than 40 years had better knowledge on pain management (p=0.046). Similarly, there was no association between knowledge and attitudes' score of pain management and one's marital status in the nursing profession (p=0.344; p>0.05). Nonetheless, total knowledge and attitudes' score of pain management was associated with one's years of practice in intensive care units as well as place of work (hospital) (p=0.000; $p\leq$0.05). Females had a higher mean score (M=18.7, SD=5.4) than males (M=15.8, SD=4.4). Nonetheless, our results were consistent with that of Samarkandi (2018), where there were no significant differences found in total mean scores between the educational level (higher than bachelor degree holders and bachelor degree ones). Nonetheless, there were statistically significant differences between nurses who had previously exposure to education in the last 2 years and knowledge and attitudes mean score in favor those who had pain education (0.5048 vs. 0.4166) (p=0.001). This result was compatible with Samarkandi (2018) results. Furthermore, it was accordant with the results of Kassa et al. (2014) which, denoted that nurses who had training had approximately three times greater knowledge [AOR = 2.551; CI 1.479-4.399; P=0.001] than those who had no such training, as well as Al Qadire

(2014) who had found significant improvement of nurses' knowledge and attitude following six hours of educational course on pain assessment and management as well. Tsai et al. (2007) have publicized a noteworthy increase in the nurses' knowledge scores joined pain management courses. A Turkish PhD thesis has revealed that theoretical and practical in-service training on pain significantly had augmented the pain-related information of nurses and also raised the nurses' putting into practice rates of nonpharmacological methods to a statistically significant level (Yildirim et al., 2008). On the contrary, the study of Ghrayeb and Nimer (2017) indicated that education did not make any difference to knowledge and attitudes in regarding pain management. This could be attributed to inadequate preparation in the nursing curriculum and in continuing education while the lack of such program could promote to poor knowledge about pain management. It has been well acknowledged in the literature that educational programs mend nurses' knowledge and skills for pain management.

In consequence, it is recommended that the prevailing syllabus in the nursing curriculum should be revised and a rigorous and inclusive program on pain management be set as a compulsory prerequisite so that student nurses may be primed well before graduation. Additional in-service training should be planned to help nurses' competence in pain assessment and pain management, eradicate knowledge deficits and modify attitudes towards effective pain management.

Some of our results were harmonized to other studies' results (Liyew et al., 2020). Neither there were substantial variances regarding gender for males and females (M7.16) vs. (M = 7.11) respectively, correlating to the mean score knowledge and attitudes with *p*-value = 0.765, nor for marital status (*p*=0.868), (Liyew et al., 2020).

Moreover, a lot of participants (70%) did not attend pain management courses at their workplace or other places. This elucidates the lack of the continuing medical education programmes on themes such as pain management skills and updates. Other studies revealed that there were no significant differences in nurses' pain knowledge and attitudes among subgroups for some variables such as nurses' age groups, nursing experience years and ranks (Alexandrina de Jesus and Jacinta, 2013).

Overall, the results of this study accentuate the necessity for additional training and education on pain management.

Hypothesis (H03): Findings of this study bared a noteworthy negative correlation with the knowledge and attitudes, and the seeming barriers concerning management of pain. However, it was in line with the study findings of Wang and Tsai (2010), who argued that knowledge of pain management was significantly and negatively related to perceived barriers to pain management, while it was not compliant to Craig's study (2014). The result showed that nurses with low knowledge level were having more barriers than those who scored lower knowledge level. This was consistent with the study of Al Khalaileh and Al Qadire (2012), argued that there was

a high level of barriers among the nurses in these oncology units, with a mean total barriers score of 2.5. Alike scores have been conveyed formerly (Oldenmenger et al, 2009). The results designate that the nurses in the units held negative attitudes toward cancer pain. The high scores on the hurtful and physiological effects subscales specify that the participants needed satisfactory knowledge to empower them to dominate cancer pain appropriately. Other results are reviewed in the literature [Beck, 2000; Ger et al., 2000; Morley-Forster et al., 2003; Randall-David et al., 2003; Johnson et al., 2005; Finley et al., 2008]. The nurses' negative attitudes about barriers toward cancer pain management could be a result of an absence of education on this theme. The nurses' scores point out that management of pain for cancerous people is unavailing. Thus, they may incline to diminish patients' pain reports, which is reliable with what has previously been reported [Beck, 2000; Randall-David et al., 2003; Finley et al., 2008]. Consequently, this may depressingly influence the total pain management practice. These results are also unswerving with results from studies that investigated barriers to cancer pain management among other healthcare suppliers [Morley-Forster et al., 2003; Devi et al., 2006]. For example, Devi et al. (2006), plotted 253 physicians operating with cancerous patients, and discovered that the foremost physician barriers to effective cancer pain management were possessing negative attitudes toward it, phobia of addiction, and a lack of knowledge of pain management.

Hypothesis (H04): Outcomes of the study disclosed a high score of perceived barriers amongst nurses in the ICU departments, with a mean total barriers' questionnaire score of 2.399 of 3.00. Comparable scores and qualitative topics have been cited previously in the literature [Shoqirat, 2014; D'emeh et al., 2016; Manwere et al., 2015]. The score of the barriers was compared regarding nurses' demographic factors; gender, marital status, previous pain education in the last 2 years, age, years of practice in intensive care units, and educational level. No significant differences were recognized among those characteristics and the barriers' score, as shown in the results of the one way ANOVA, and t-test, where the *p*-value was >0.05. This current finding is congruent with the findings of the studies of Shoqirat and colleagues. (2019), and Kahsay and Pitkäjärvi. (2019) and elçigil et al. (2011), where it was found that there were no significant differences identified among the demographic variables and the barriers' score. Nonetheless, conversely to the study of Mędrzycka-Dąbrowska et al. (2017), barriers to evidence-based practice were reported significantly more often by women than men. These barriers increased with the respondents' age, and work seniority, but decreased as the level of education increased.

6.5 Conclusions

- The findings of this current study verified that the surveyed nurses had poor knowledge of pain management, and it was associated with poor attitudes toward pain management, particularly in the issues related to pain medication.

- This study has revealed a high barrier score which means a severe gap among ICU nurses toward an effective pain management.

- Nurses who had erstwhile training concerning management of pain in the last 2 years were significantly higher knowledgeable than those who hadn’t, as well as years of practice in intensive care units.

- A significant positive correlation was found between knowledge and attitudes.

- Moreover, another correlation was made between knowledge and attitude score of pain management and barriers, and was found to be negatively significant.

- There was no significant relationship between nurses’ perceived barriers and other characteristics.

6.6 Recommendations

- Nurses have to be well-prepared and knowledgeable on pain management modus operandi and should not hold fabricated beliefs about pain management, which can steer to incongruous and insufficient pain management practices.

- Fitting and convenient strategies to minimize potential barriers can be renovated to better empower nurses to employ practice guidelines to produce effective pain management in ICU patients.

- There is an imperious need to modernize the current curriculum of nursing and medical programs to embrace rationalized strategies for pain relief in ICU patients.

- It is recommended that ICU nurses should be provided with in-service training, and ongoing pain management courses. This education should comprise themes such as pain assessment and symptoms, effects and side-effects of pain medications and nonpharmacological pain management, and mechanisms and evaluation of analgesia.

- It is strongly recommended that strategies such as administering the right drugs, in the right dose, to the right patient, at the right time, for the right reasons should be demarcated to launch a practice protocol.

- Nurses' knowledge and pain management ability should be enhanced by using case studies, and related courses should be

regularly updated, didactic lectures and rotations on pain management for nurses.

- It is recommended to consider pain management in continuous education and nursing undergraduate curricula and restructuring graduate and postgraduate courses correspondingly and formulating current pain management guidelines that increase the effectiveness of nurses in clinical applications.

- Moreover, further studies are needed to identify and conquer barriers of pain management among Palestinian nurses, and to evaluate the effectiveness of conducted pain management courses and appropriate strategies to minimize potential barriers to better enable nurses to implement guidelines to generate effective pain management in ICUs.

- Team up with other specialties, especially physicians, for a multidisciplinary approach education of patients and family members.

- Expectantly, this study is to be espoused and aptly integrated by MoH in Palestine.

References

- Abdalrahim, M. S., Majali, S. A., Stomberg, M. W., and Bergbom, I. (2011). **The effect of postoperative pain management program on improving nurses' knowledge and attitudes toward pain.** Nurse Education in Practice, 11(4), 250-255.

- Adams, S. M., Varaei, S., and Jalalinia, F. (2020). **Nurses' Knowledge and Attitude towards Postoperative Pain Management in Ghana**. Pain research and management, *2020*, 4893707. https://doi.org/10.1155/2020/4893707

- Al Khalaileh, M., and Al Qadire, M. (2012). ***Barriers to cancer pain management: Jordanian nurses' perspectives*. International journal of palliative nursing,** *18*(11), 535–540. https://doi.org/10.12968/ijpn.2012.18.11.535**.**

- Al Qadire, M.A., andAl Khalaileh, M.A. (2014). **Jordanian Nurses Knowledge and Attitude Regarding Pain Management.** *Pain Management Nursing, 15*, 220-228.

- Al-Atiyyat H, Mohammed N. (2009). **Cultural diversity and cancer pain**. *J Hospice Palliat Nurs* 11(3): 154–64

- Alexandrina de Jesus SL, Jacinta PM. (2013). **Pain: Knowledge and attitudes of nursing students, 1 year follow-up.** Text Context Nurs22: 311-317

- Alkhatib Gh, Alqadire M, Alasad AJ. (2019). **Pain Management Knowledge and Attitudes of Healthcare Professionals in Primary Medical Centres. American Society for Pain Management Nursing.** Elsevier.bVolume 21, issue 3, p265-270.

- Al-Khawaldeh, O. A., Al-Hussami, M., and Darawad, M. (2013). **Knowledge and attitudes regarding pain management among Jordanian nursing students**. *Nurse education today*, *33*(4), 339–345. https://doi.org/10.1016/j.nedt.2013.01.006

- Allen R., Thorn B., Fisher S., et al. (2003). **Prescription and dosage of analgesic mediation in relation to resident behaviors in the nursing home**. Journal of the American Geriatrics Society 51 534-538. [Accessed Dec 28 2020].

- Alm AK, Norbergh K-G. (2013). **Nurses' Opinions of pain and the assessed need for pain medication for the elderly.** Pain Manag Nurs.; 14(2):e31–8. https:// doi.org/10.1016/j.pmn.2010.07.007.

- Al-Mahrezi A. (2017). **Towards Effective Pain Management: Breaking the Barriers.** *Oman medical journal*, *32*(5), 357–358. https://doi.org/10.5001/omj.2017.69

- Almalki M, FitzGerald G, Clark M. (2011). **The nursing profession in Saudi Arabia: An overview**. Int Nurs Rev; 58:304–11.

- Alqahtani M, Jones LK. (2015). **Quantitative study of oncology nurses' knowledge and attitudes towards pain management in Saudi Arabian hospitals.** Eur J Oncol Nurs. 19:44–9.

- Al-Shaer D, Hill PD, Anderson MA. (2011). **Nurses' knowledge and attitudes regarding pain assessment and intervention**. Med Surg Nurs; 20:7-11.

- American Journal of Health-system Pharmacy, 70(1), 53–58. <http://www. research gate. net/ profile/ Michael Ramsay/ publication/ 233975043>.

- American Nurses Association (ANA). (2001). **Code of ethics for nurses with interpretive statements.** Silver Springs, MD: American Nurses Publishing.

- American Pain Society (APS). (2009). **Principles of analgesic use in the treatment of acute pain and cancer pain.** (6 th ed.) Glenview Il: American Pain Society

- American Pain Society Quality of Care Committee. (1995). **Quality improvement guidelines for the treatment of acute pain and cancer pain**, in Journal of the American Medical Association. p. 1874-1880.

- Arathuzik, D. (1991). **Pain experience for metastatic breast cancer patients.** Unraveling the mystery. Cancer Nurs. 14(1): p. 41-8.

- Arathuzik, M.D. (1991). **The appraisal of pain and coping in cancer patients**. West J Nurs Res. 13(6): p. 714-731.

- Around the clock

- Ashwill JW, Dorske S**.** (2002). **Nursing Care of Children's**. 2nd. Philadelphia: Saunders; 420 pp.

- Aslan FE and Badır A. (2005). **Reality about pain control: The knowledge and beliefs of nurses on the nature, assessment and management of pain**. Ağrı 17(2): 44-51. [Accessed Dec 29 2020].

- Ayasrah SM, O'Neill TM, Abdalrahim MS, Sutary MM, Kharabsheh MS. (2014). **Pain assessment and Management in Critically ill intubated patients in Jordan: a prospective study.** Int J Health Sci. 2014; 8 (3):287–98 Available from https: //www.ncbi.nlm.nih.gov/pmc/articles/PMC4257364/pdf/ijhs-8-3-287.pdf.

- Badr MN, Morsy WY, Ali NS. (2015). **Critical care Nurses' Knowledge and Practices regarding Pain assessment and management at Cairo University Hospitals.** Egypt J Nurs; 10(1). http://erepository.cu.edu.eg/index.php/EJN/article/ view/4223.

- Barr, J., Fraser, G. L., Puntillo, K., Ely, E. W., Gélinas, C., Dasta, J. F., Davidson, J. E., Devlin, J. W., Kress, J. P., Joffe, A. M., Coursin, D. B., Herr, D. L., Tung, A., Robinson, B. R., Fontaine, D. K., Ramsay, M. A., Riker, R. R., Sessler, C. N., Pun, B., Skrobik, Y., … American College of Critical Care Medicine. (2013). **Clinical practice guidelines for the management of pain, agitation, and delirium in adult patients in the Intensive Care Unit: executive summary.** *American journal of health-system pharmacy: AJHP: official journal of the American Society of Health-System Pharmacists*, *70*(1), 53–58. https://doi.org/10.1093/ajhp/70.1.53

- Bartoszczyk DA, Gilbertson-White S. (2015). **Interventions for nurse-related barriers in cancer pain management.** Oncol Nurs Forum. 42:634–41.

- Basak S, Petpichetchian, W, Kitrungrote, L. (2010). **Knowledge and Attitudes of Nurses and Their Practices Regarding Post-Operative Pain Management in Bangladesh. The 2nd International Conference on Humanities and Social Sciences, Faculty of Liberal Arts**, Prince of Songkla University.

- Batiha A-M and AL Bashtawy M. (2013). **Knowledge of Philadelphia University students regarding blood Donation.**Transfusion Medicine 23, 195–198 . [Accessed Dec 31 2020].

- Batiha A-M. (2012). **Pain Management Barriers in Jordanian Critical Care Units.** International Journal of Advanced Nursing Studies 1(2), 73-83.

- Beck SL. (2000). **An ethnographic study of factors influencing cancer pain management in South Africa.** Cancer Nurs 23(2): 91–9

- Bell L, Duffy A. (2009). **Pain assessment and management in surgical nursing: A literature review.** Br J Nurs: 18:153-6.

- Bennett MI, Bagnall AM, Jose´ Closs S. (2009**). How effective are patient-based educational interventions in the management of cancer pain? Systematic review and meta-analysis.** Pain; 143: 192–199.

- Bernardes SF, Silva SA, Carvalho H, Costa M, Pereira S. (2014). ***Is it a (fe)male pain? Portuguese nurses' and laypeople's gendered representations of common pains*. Eur J Pain**; 18: 530-539.

- Bernhofer E. (2011). **Ethics and Pain Management in Hospitalized Patients"** OJIN: Online JIssues Nurs 17

- Bradbury, J. (2003). **Why men and women feel and react to pain differently?** The Lancet, 361, 2052-2053.

- Brennan, F., Carr, D. B., and Cousins, M. (2007). **Pain management: A fundamental human right. Anesthesia and Analgesia,** 105 (1), 205–221. http://dx.doi.org/ 10.1213/01.ane.0000268145.52345.55.

- Breuer B, Fleishman SB, Cruciani RA, et al. (2011). ***Medical oncologists' attitudes and practice in cancer pain management: A national survey.*** **J Clin Oncol** 29:4769-4775

- Broekmans, S., Vanderschueren, S., Morlion, B., Kumar, A. and Evers, G. (2004). ***Nurses' attitudes toward pain treatment with opioids: a survey in a Belgian university hospital*****. International Journal of Nursing Studies,** 41, pp183-189.

- Buscemi, N., Vandermeer, B., and Curtis, S. (2008). **The Cochrane Library and procedural pain in children: an overview of review.** Evidence Based Child Health, 3(2), 260–279. doi: 10.1002/ebch.225

- Carr, E. C. J., Meredith, P., Chumbley, G., Killen, R., Prytherch, D. R., andSmith, G. B. (2014). ***Pain: A quality of care issue during patients' admission to hospital.*** **Journal of Advanced Nursing**, *70*(6), 13911403. doi:10.1111/jan.12301

- Center for Substance Abuse Treatment. Managing Chronic Pain in Adults With or in Recovery from Substance Use Disorders. Rockville (MD). (2012). **Substance Abuse and Mental Health Services Administration (US)** (Treatment Improvement Protocol (TIP) Series, No.54.) Availablefrom:https://www.ncbi.nlm.nih.gov/books/NBK92048

- Clabo, L.M.L. (2008). ***An ethnography of pain assessment and the role of social context on two postoperative units*. Journal of Advanced Nursing,** 61(5), 531–539. doi: 10.1111/j.1365– 2648.2007.04550.x

- Clarke EB, French B, Bilodeau ML, Capasso VC, Edwards A, Empoliti J, *et al.* (1996). ***Pain management knowledge, attitudes and clinical practice: The impact of nurses' characteristics and education***. **J Pain Symptom Manage;** 11:18-31.

- Closs S.J. (1994). ***Pain in elderly patients***. **J Adv Nur**. 1994; 19: 1072-1081

- Cogan J, Ouimette MF, Vargas-Schaffer G, Yegin Z, Deschamps A, Denault A, *et al.* (2014). **Patient attitudes and beliefs regarding pain medication after cardiac surgery: Barriers to adequate pain management.** Pain Manag Nurs; 15:574-9.

- Coker, E., Papaioannou, A., Kaasalainen, S., Dolovich, L., Turpie, I., and Taniguchi, A. (2010). **Nurses' perceived barriers to optimal pain management in older adults on acute medical units.** Applied nursing research: ANR,23(3), 139–146.

  https://doi.org/10.1016/j.apnr.2008.07.003

- Coker, E., Papaioannou, A., Turpie, I., Dolovich, L., Kaasalainen, S., Taniguchi, A., and Burns, S. (2008). **Pain management practices with older adults on acute medical units.** Perspectives, 32, (1)5–12.

- Colleau, S.M. (2009). **Understanding Health Professional's Fear of Opioids.** *Cancer Pain,* 22, 3-4. Retrieved from: http://www.whocancerpain.wisc.edu/?q=node/332

- Coulling S. (2005). **Nurses' and doctors' knowledge of pain after surgery**. Nurs Stand, 19, 41–49.

- Courbani, E. P., Tafas, C. A., McDonald, D. D., Papathanassoglou, E. D. E., Katsaragakis, S., and Lemonidou, C. (2004). **Personal and professional pain experiences and pain management knowledge among Greek nurses. International Journal of Nursing Studies**, 41, 345-354.

- Craig JA. (2014). **Nursing knowledge and attitudes toward pain management.** Gardner-Webb University; https://digitalcommons.gardner-webb.edu/nursing_etd/8

- Czarnecki, M. L., Turner, H. N., Collins, P. M., Doellman, D. and Wrona, S. (2011). **Procedural Pain Management : A Position Statement with Clinical Practice Recommendations,** Pain Management Nursing. American Society for Pain Management Nursing, 12(2), pp. 95–111. DOI: 10.1016/j.pmn.2011.02.003.

- D'emeh WM, Yacoub MI, Darawad MW, Al-Badawi TH, Shahwan B. (2016). **Pain-related knowledge and barriers among Jordanian Nurses: A national study.** Health; 8:548-555.

- Davis, M. P., and Srivastava, M. (2003). **Demographics, assessment and management of pain in the elderly.** *Drugs and aging, 20*(1), 23–57. https://doi.org/10.2165/00002512-200320010-00003.

- De Berardinis B, Magrini L, Calcinaro S, et al. (2013). **Emergency department pain management and its impact on patients' short term outcome**. Open Emerg Med J.; 5:1–7. https://doi.org/10.2174/1876542420130729001.

- De Silva BS, Rolls C. (2011). **Attitudes, beliefs, and practices of Sri Lankan nurses toward cancer pain management: An ethnographic study**. Nurs Health Sci. 13:419–24.

- Devi BC, Tang TS, Corbex M. (2006). **What doctors know about cancer pain management: an exploratory study in Sarawak, Malaysia?** J Pain Palliat Care Pharmacother 20(2): 15–22 [Accessed Jan 02 2021].

- Devlin, J.W.; O'Neal, H.R.J.; Thomas, C.; Barnes Daly, M.A.; Stollings, J.L.; Janz, D.R.; Ely, E.W.; Lin, J.C. (2020). **Strategies to optimize ICU liberation (A to F) bundle performance in critically Ill adults with coronavirus disease 2019**. *Crit. Care Explor. 2*, e0139.

- Doris, H., Lorna, B., V., Judith, W., and Nora, S. (2000). **Influencing nurses' knowledge, attitudes, and practice in cancer pain management.** Cancer Nursing, 23, 55-63.

- Duignan M, Dunn V. (2008). **Barriers to pain management in emergency departments.** Emerg Nurse; 15(9):30–4. https://doi.org/10.7748/en2008. 02.15.9.30.c8179.

- Duke G, Haas BK, Yarbrough S and Northam S. (2013). **Pain management knowledge and attitudes of baccalaureate nursing students and faculty**. Pain Management Nursing 14:11-19.

- Dunwoody, C. J., Krenzischek, D. A., Pasero, C., Rathmell, J. P., and Polomano, R. C. (2008). **Assessment, physiological monitoring, and consequences of inadequately treated acute pain.** Journal of Peri Anesthesia Nursing, 23(1), S15–S27. http://dx.doi.org/10.1016/j.jopan.2007.11.007

- Eaton LH, Meins AR, Mitchell PH, Voss J, Doorenbos AZ. (2015). **Evidence-based practice beliefs and behaviors of nurses providing cancer pain management: A mixed-methods approach**. Oncol Nurs Forum.; 42:165–73.

- Ebrahimi-Nejad, G., Ebrahimi-Nejad, .A, Bahrampor, A., Kohan, S. (2007). **Comparisons of emotion status and pain perception in neurological patients before and after surgery.** *Journal of Medical Science Research*, 1, 51-58.

- Egan M., and Cornally N. (2013). **Identifying barriers to pain management in long-term care,** Nurs Older People, 25(7), 25-31

- Ekim A, Ocakcı AF. (2013). **Knowledge and attitudes regarding pain management of pediatric nurses in Turkey**. Pain Manag Nurs. 16: 14-18,: e262–7.

- Elcigil, A., Maltepe, H., Eşrefgil, G., and Mutafoglu, K. (2011). **Nurses' perceived barriers to assessment and management of pain in a university hospital**. *Journal of pediatric hematology/oncology*, *33 Suppl 1*, S33–S38. https://doi.org/10.1097/MPH.0b013e3182121bef

- Ferrell B and McCaffery M. (2008). **Knowledge and attitudes survey regarding pain.** City of Hope Available from: http://prc.coh.org. Accessed September 4, 2010.

- Ferrell, B. (2005). **Ethical perspectives on pain and suffering.** *Pain Management Nursing*, *6*(3), 83-90. https://doi.org/10.1016/j.pmn.2005.06.001.

- Finley GA, Forgeron P, Arnaout M. (2008). **Action research: developing a paediatric cancer pain program in Jordan.** J Pain Symptom Manage 35(4): 447–54

- Francis, L., and Fitzpatrick, J. J. (2013). **Postoperative pain: Nurses' knowledge and patients' experiences.** Pain Management Nursing, 14(4), 351-357. http://dx.doi.org/10.1016/j.pmn.2020.09.002

- Furstenberg CT, Ahles TA, Whedon MB, et al. (1998). **Knowledge and attitudes of health-care providers toward cancer pain management: a comparison of physicians, nurses, and pharmacists in the state of New Hampshire.** J Pain Symptom Manage; 15:335–349.

- Gelinas, C. (2007). **Management of pain in cardiac surgery ICU patients: Have we improved overtime?** Intensive and Critical Care Nursing, 23(5), 298–303. http://dx.doi.org/1.101 6/j.iccn.

- Gélinas, C.; Arbour, C. (2009). **Behavioral and physiologic indicators during a nociceptive procedure in conscious and unconscious mechanically ventilated adults: Similar or different?** *J. Crit. Care*, *24*, e7-179.

- Ger LP, Ho ST, Wang JJ. (2000). **Physicians' knowledge and attitudes toward the use of analgesics for cancer pain management: a survey of two medical centers in Taiwan.** J Pain Symptom Manage 20(5): 335–44 [Accessed Jan 02 2021].

- Ghrayeb F, Nimer A. (2017). **Palestinian Nurses' Knowledge and Attitudes Regarding Pain Management**. International Journal of Scientific and Research Publications, Volume 7, Issue 3, ISSN 2250-3153.

- Gilbertson-White S. (2015). **Interventions for nurse-related barriers in cancer pain management.** Oncol Nurs Forum; 42: 634–41.

- Gimbler–Berglund, I., Ljusegren, G., and Enskär, K. (2008). **Factors influencing pain management in children.** Paediatric Nursing, 20(10), 21–24. PMID: 19119745 [PubMed—indexed for MEDLINE]

- Glajchen M. (2001). ***Chronic pain: treatment barriers and strategies for clinical practice.*** **J Am Board Fam Pract**; 14(3):211-218.

- Glowacki D. (2015). **Effective pain management and improvements in patients' outcomes and satisfaction**. Crit Care Nurse. 35:33-43.

- Goodacre S.W., Roden R.K. (2001). ***A protocol to improve analgesia use in the accident and emergency department,*** **J Acid Emerg Med**, 13, 177-622

- Gordon, D. B., Polomano, R. C., Pellino, T. A., Turk, D. C., McCracken, L. M., Sherwood, G., Paice, J. A., Wallace, M. S., Strassels, S. A., and Farrar, J. T. (2010). ***Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) for quality improvement of pain management in hospitalized adults: preliminary psychometric evaluation*****. The journal of pain: official journal of the American Pain Society**, *11*(11), 1172–1186. https://doi.org/10.1016/j.jpain.2010.02.012.

- Gordon, D.B., Dahl, J.L., Miaskowski, C., et al. (2005). **American pain society recommendations for improving the quality of acute and cancer pain management: American pain society quality of care task force.** Archives of Internal Medicine, 165(14), 1574-1580. doi:10.1001/archinte.165.14.1574.

- Gunnarsdottir S, Donovan HS, Serlin RC, Voge, C., and Ward, S. (2002). **Patient-related barriers to pain management: the barriers Questionnaire II (BQ-II).** Pain. 99(3), 385–396. https://doi.org/10.1016/S0304-3959(02)00243-9[Accessed Dec 31 2020].

- Hailemariam, E. (2015). **Assessment of post-operative pain management in Saint Paul's Hospital Millennium Medical College**. Addis Ababa University.

- Hamdan A. (2011). **Nurses Knowledge Regarding Pain Management in Hail Region Hospitals, Saudi Arabia.** Australia: RMIT University.

- Hanks GW, De Conno F, Ripamonti C et al. (1996). **Morphine in cancer pain: modes of administration.** BMJ; 312: 823–826.

- Hanks-Bell, M., Halvey, K., Paice, J. (2004). ***"Pain Assessment and Management in Aging"*. Online Journal of Issues in Nursing**. Vol. 9 No. 3;

- Heather E. (2005). **Improving pain management for critically ill and injured patients.** Canadian association of critical care nurses. 16 (3), 26-31. [Accessed Dec 31 2020].

- Hennessee, P. (2012). "**Knowledge and Attitudes of Nurses toward Pain Management"** Nursing Theses and Capstone Projects. 122. https://digitalcommons.gardner-webb.edu/nursing_etd/122

- Herr, K., Titler, M., Schilling, M., Marsh, J., Xie, X., and Ardery, G., et al. (2004). ***Evidence-based assessment of acute pain in older adults: Current nursing practices and perceived barriers*. Clinical Journal of Pain,** 20, 331–340.

- Herr, K. A., and Garand, L. (2001). **Assessment and measurement of pain in older adults.** Clinics in geriatric medicine, *17*(3), 457–vi. https://doi.org/10.1016/s0749-0690(05)70080-x

- Ho SE, Ho CC, Pang Yuen H, Lexshimi R, Choy YC, et al. (2013). **A study of knowledge and attitudes of registered nurses towards pain management in an urban hospital.** ClinTer 164: 215-219.

- Horbury C., Henderson A., Bromley B. (2005). **Influences of patient behavior on clinical nurses' pain assessment: implications for continuing education**, J Contin Educ Nurs, 36, 18-24

- Howard R. (2003). ***Current states of pain management in children*. The Journal of the American Medical Association** 290 2464-2469. [Accessed Dec 31 2020].

- Howell D, Butler L, Vincent L, Watt-Watson J, Stearns N. (2000). **Influencing nurses' knowledge, attitudes, and practice in cancer pain management**. Cancer Nurs; 23:55–63. https://doi.org/10.1016/j.pmn.2017.05.003

- https://www.cancer.gov/publications/dictionaries/cancer-terms/def/physical-dependence. **"Definition of physical dependence** - NCI Dictionary of Cancer Terms". *2011-02-02. Retrieved 2020-08-18.*

- https://www.merriam-webster.com/dictionary/knowledge

- Husted, H., Lunn, T. H., Troelsen, A., Gaarn-Larsen, L., Kristensen, B. B., and Kehlet, H. (2011). **Why still in hospital after fast-track hip and knee arthroplasty?** *Acta Orthopaedica, 82*(6), 679-684. doi:10.3109/17453674.2011.636682

- Idell, C. S., Grant, M., and Kirk, C. (2007). **Alignment of pain reassessment practices and National Comprehensive Cancer Network guidelines.** *Oncology nursing forum, 34*(3), 661–671. https://doi.org/10.1188/07.ONF.661-671

- Institute of Medicine (US) Committee on Advancing Pain Research, Care, and Education. (2011). **Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research**. Washington (DC): National Academies Press (US); Appendix C. Available from: https://www.ncbi.nlm.nih.gov/books/NBK92521/

- International Association for the Study of Pain. (2020). **IASP declaration of Montréal statement of access to pain management is a fundament human right**. Retrieved August 28,2020from:http://www.isappain.org/AM/Template.cfm?Section=Declaration_of_MontrandNum233_al

- Issa MR, Awajeh AM, Khraisat FS. (2017). **Knowledge and attitude about pain and pain management among critical care nurses in a tertiary hospital**. J Intensive Crit Care; 3:1.

- Jho HJ, Kim Y, Kong KA, Kim DH, Choi JY, et al. (2014). **Knowledge, Practices, and Perceived Barriers Regarding Cancer Pain Management among Physicians and Nurses in Korea: A Nationwide Multicenter Survey**. PLoS ONE 9(8): e105900. doi:10.1371/journal.pone.0105900

- Johnson DC, Kassner CT, Houser J. (2005). ***Barriers to effective symptom management in hospice.*** **J Pain Symptom Manage**;29:69–79

- Jones, A., and Zachariae, R. (2002). ***Gender, anxiety, and experimental pain sensitivity: An overview*. Journal of the American Medical Women's Association**, 57(2), 91-94.

- Joshi, G. P., and Ogunnaike, B. O. (2005). **Consequences of inadequate postoperative pain relief and chronic persistent postoperative pain.** *Anesthesiology Clinics of North America, 23*(1), *21-36.* doi: 10.1016/j.atc.2004.11.013

- Kaasalainen, S., Coker, E., Dolovich, L., Papaioannou, A., Hadjistavropoulos, T., Emili, A., and Ploeg, J. (2007). ***Pain management decision making among long–term care physicians and nurses.* Western Journal of Nursing Research**, 29, 561–580. doi: 10.1177/0193945906295522

- Kahsay, D. T., and Pitkäjärvi, M. (2019). **Emergency nurses´ knowledge, attitude and perceived barriers regarding pain Management in Resource-Limited Settings: cross-sectional study**. BMC nursing,18, 56. https://doi.org/10.1186/s12912-019-0380-9

- Karabulut N, Aktas YY, Gurcayır D, Yılmaz D, Gokmen V. (2015). ***Patient satisfaction with their pain management and comfort level after open heart surgery*. Aust J Adv Nurs**; 32:16-24.

- Karamjeet K. (2017). ***Knowledge and attitude regarding pain management among staff nurses*. Nurse Care Open Access J**; 2(1):5-7. DOI: 10.15406/ncoaj.2017.02.00024

- Kassa RN, Kassa GM. (2014). ***Nurses' Attitude, Practice and Barriers toward Cancer Pain Management***, Addis Ababa, Ethiopia. **J Cancer SciTher** 6: 483-487

- Kassa, H., Murugan, R., Zewdu, F. et al. (2014). **Assessment of knowledge, attitude and practice and associated factors towards palliative care among nurses working in selected hospitals, Addis Ababa, Ethiopia**. *BMC Palliat Care* 13, 6https://doi.org/10.1186/1472-684X-13-6

- Kaye A.D., Baluch A., Scott J.T. (2010). **Pain management in the elderly population: a review**, Ochsner, 10(3), 179-187

- Keating L, and Smith S. (2011). **Acute pain in the emergency department: the challenges.** Rev Pain; 5(3):13–7. https://doi.org/10.1177/ 204946371100500304.

- Kehlet, H., Jensen, T. S., and Woolf, C. J. (2006). **Persistent postsurgical pain: risk factors and prevention**. *Lancet (London, England)*, *367*(9522), 1618–1625. https://doi.org/10.1016/S0140-6736(06)68700-X.

- Khan M, Walsh D AU, Brito-Dellan N. (2011). ***Opioid and Adjuvant Analgesics: Compared and Contrasted.*** **The American journal of hospice and palliative care**. VL - 28. pp 378-83. DO - 10.1177/1049909111410298

- Kizza B. (2012). **Nurses Knowledge and Practices Related to Pain Assessment in Critically Ill Patients at Mulago Hospital**, Uganda, Muhimbili. University of Health and Allied Sciences.

- Kotfis, K.; Zegan-Barańska, M.; Szydłowski, Ł.; Żukowski, M.; Ely, E.W. (2017). **Methods of pain assessment in adult intensive care unit patients—polish version of the CPOT (Critical Care Pain Observation Tool) and BPS (Behavioral Pain Scale).** *Anaesthesiol. Intensive Ther. 49*, 66–72.

- Kwon JH. (2014). **Overcoming barriers in cancer pain management**. J Clin Oncol. 32(16):1727–33.

- LaPar, D. J., Bhamidipati, C. M., Harris, D. A., Kozower, B. D., Jones, D. R., Kron, I. L., Ailawadi, G., and Lau, C. L. (2011). **Gender, race, and socioeconomic status affects outcomes after lung cancer resections in the United States.** *The Annals of thoracic surgery*, *92*(2), 434–439. https://doi.org/10.1016/j.athoracsur.2011.04.048

- Larue F, Colleau SM, Fontaine A, et al. (1995). **Oncologists and primary care physicians' attitudes toward pain control and morphine prescribing in France**. Cancer 76:2375-2382

- Lasch, K., Greenhill, B.A., Wilkes, G., Carr, D., Lee, M., and Blanchard, R. (2002). ***Why study pain? A Qualitative analysis of medical and nursing faculty and students' knowledge of and attitudes to cancer pain management***. **Journal of Palliative Medicine**, 5(1), 57-71.

- Latimer MA, Ritchie JA, Johnston CC. (2010). ***Individual nurse and organizational context considerations for better knowledge use in pain care***. **J Pediatr Nurs**; 25:274-81.

- Latina R, Mauro L, Mitello L, et al. (2015). **Attitude and knowledge of pain management among Italian nurses in hospital settings.** Pain Manag Nurs; 16(6):959–67. https://doi.org/10.1016/j.pmn.2015.10.002.

- Lee S, Dawson J, Lee J, Osman G, Levitin M, Guzel R, Djamgoz M. (2014). ***Management of cancer pain: 1. Wider implications of orthodox analgesics***. **Int J Gen Med**; 7:49-58 https://doi.org/10.2147/IJGM.S42187

- Levin DN, Cleeland CS, Dar R. (1985). **Public attitudes toward cancer pain.** Cancer; 56:2337–2339.

- Lewis, C.P., Corley, D.J., Lake, N.J., Brockopp, D.Y., and Moe, K.A. (2015). ***Overcoming barriers to effective pain management: the use of professionally directed small group discussions.*** **Pain management nursing: official journal of the American Society of Pain Management Nurses**, *16 (2)*, 121-7. DOI: 10.1016/j.pmn.2014.05.002.

- Li, D. T., and Puntillo, K. (2006). **A pilot study on coexisting symptoms in intensive care patients.** Applied Nursing Research, 19(4), 216–219. http://dx.doi.org/10.1016/j. apnr.2006.01.003.

- Liyew, B., Dejen Tilahun, A., Habtie Bayu, N., and Kassew, T. (2020). **Knowledge and Attitude towards Pain Management among Nurses Working at University of Gondar Comprehensive Specialized Hospital**, Northwest Ethiopia. *Pain research and management*, *2020*, 6036575. https://doi.org/10.1155/2020/6036575

- Lovering, S. (2004). **Cultural attitudes/beliefs about pain: A collaborative inquiry journal**. Retrieved August 19, 2020. From: http://www2.fhs.usyd.au/arow/022.htm

- Lui YY. (2006). **The Knowledge and Attitudes Regarding Pain Management of the Medical Nursing Staff in Hong Kong**. S.L.: Open dissertation press. The University of Hong Kong; doi: 10.5353/th_b4501180.

- Lui, L. Y. Y., So, W. K. W., and Fong, D. Y. T. (2008). **Knowledge and attitudes regarding pain management among nurses in Hong Kong medical units.** *Journal of Clinical Nursing, 17(15), 2014–21. Retrieved from: http://www.ncbi.nlm.nih.gov/pubmed/18720572*

- Luo, X., Pietrobon, R., Sun, S. X., Liu, G. G., and Hey, L. (2004). **Estimates and patterns of direct health care expenditures among individuals with back pain in the UnitedStates**. *Spine*, *29*(1),79–86. https://doi.org/10.1097/01.BRS.0000105527.13866.0F

- Macrae WA. (2008). **Chronic post-surgical pain: 10 years on**. Br J Anaesth; 101(1):77–86. https://doi.org/10.1093/bja/aen099.

- Manias E, Botti M, Bucknall T. (2002). **Observation of pain assessment and management—the complexities of practice. Journal of clinical nursing**. VL - 11. pp 724-33. 10.1046/j.1365-2702.2002.00691.

- Mann, E., and Redwood, S. (2000). **Improving pain management: breaking down the invisible barrier.** *British journal of nursing (Mark Allen Publishing)*, *9*(19), 2067–2072. https://doi.org/10.12968/bjon.2000.9.19.16241

- Manwere A; Chipfuwa T; Mukwamba MM; and Chironda G. (2015). ***Knowledge and Attitudes of Registered Nurses towards Pain Management of Adult Medical Patients: A Case of Bindura Hospital***. **Health Science Journal,** Vol. 9 No. 4:3. ISSN 1791-809X.

- Marsac, M. L., and Funk, J. B. (2008). ***Relationships among psychological functioning, dental anxiety, pain perception, and coping in children and adolescents*****. Journal of dentistry for children (Chicago, Ill.),** *75*(3), 243–251.

- McCaffery M. (1968). **Nursing practice theories related to cognition, bodily pain, and man-environment interactions**. University of California at Los Angeles Students' Store, Los Angeles, CA

- McCaffery, M., and Beebe, A. (1990). **Myths and facts ... about chronic nonmalignant pain.**

- McCaffery, M., and Robinson, E. (2002). **Your patient is in pain: here's how you respond.** Nursing, 32(10), 36-47

- McMillian, S., Tittle, M., Hagan, S., Laughlin, J., Tabler, R. (2000). **Knowledge and attitudes of nurses in veteran's hospitals about pain management in patients with cancer**. Oncology Nursing Forum, 27(9), 1415-1423.

- Medrzycka-Dabrowka, W., Dąbrowski, S., Gutysz-Wojnicka, A., Gawroska-Krzemińska, A., and Ozga, D. (2017). **Barriers Perceived by Nurses in the Optimal Treatment of Postoperative Pain.** *Open medicine (Warsaw, Poland)*, *12*(1), 239–246. https://doi.org/10.1515/med-2017-0037

- Mędrzycka-Dąbrowska W, Dąbrowski S, Basiński A. (2015). **Problems and barriers in ensuring effective acute and post-operative pain management –an international perspective**. Adv Clin Exp Med; 24(5):905-910. 10.17219/acem/26394

- Merkel S. (2002). **Pain assessment in infants and young children: The finger span scale.** *The American Journal of Nursing.* 102: 55-56

- Mertin, S., Sawatzky, J. A., Diehl-Jones, W. L., and Lee, T. W. (2007). **Roadblock to recovery: the surgical stress response.** *Dynamics (Pembroke, Ont.)*, *18*(1), 14–22.

- Middleton, C. (2004). **Barriers to the provision of effective pain management**. Nursing Times, 100: 3, 42–45.

- Mnaworren, R. C. B. (2000). **Pediatric Nurses' and attitudes survey regarding pain.** Pediatric Nursing, 26, 971-979.

- Morley-Forster PK, Clark AJ, Speechley M, Moulin DE. (2003). **Attitudes toward opioid use for chronic pain: a Canadian physician survey.** Pain Res Manag 8(4): 189–94 [Accessed Jan 02 2021].

- Motov S.M., Khan A.N. (2009). **Problems and barriers of pain management in the emergency department: Are we ever going to get better?** J Pain Res, 2, 5-11

- National Heart, Lung, and Blood Institute. (2011). **Fact book fiscal year 2010.** Bethesda, MD: U.S. Department of Health and Human Services, National Heart, Lung, and Blood Institute.

- Norrbrink, C., and Lundeberg, T. (2014). **Om Smärta-ett fysiologiskt perspektiv** (2:2 Ed). Lund, Sweden: *Student literature Nursing*, *20*(1), 18.

- Norton L, Gundersen B, Pitcher K. (2002). **Children and pain medications: The pharmacist's view.** The Pain Practitioner 12(4) 4-8.

- O'Dowd E, O'Connor P, Lydon S, et al. (2018). **Stress, coping, and psychological resilience among physicians.** BMC Health Serv Res; 18(1):730.

- Oka, S., Chapman, C. R., Kim, B., Shimizu, O., Noma, N., Takeichi, O., et al. (2010). **Predictability of painful stimulation modulates subjective and physiological responses.** The Journal of Pain, 11(3), 239–246.

- Oldenmenger WH, Sillevis Smitt PAE, van Dooren S, et al. (2009). **A systematic review on barriers hindering adequate cancer pain management and interventions to reduce them: a critical appraisal.** Eur J Cancer; 45: 1370–1380.5. [Accessed Dec 31 2020].

- Omran S, Al Qadire M, Ali NA, Al Hayek MF. (2014). **Knowledge and attitudes about pain management: a comparison of oncology and non-oncology Jordanian nurses.** *Nurs Health*; 2(4):73–80. https://doi.org/10.13189/ nh.2014.020401.

- *Oxford Latin Dictionary* s.v. nascor ~ī nātus (p. 1156). https://en.wikipedia.org/wiki/Pro_re_nata

- Pargeon L, Hailey BJ. (1999). **Barriers to effective cancer pain management: a review of the literature**. J Pain Symptom Manage; 18:358–368

- Pasero C. and McCaffery M. (2011). **Pain assessment and pharmacologic managemen**t-*E-Book*. Elsevier Health Sciences, 2010. Mosby, St. Louis.

- Pasero, C. (2009). **Challenges in pain assessment.** *Journal of PeriAnesthesia Nursing*, *24*(1), 50-54.

- Payen, J.F.; Bru, O.; Bosson, J.L.; Lagrasta, A.; Novel, E.; Deschaux, I.; Lavagne, P.; Jacquot, C. (2001). **Assessing pain in critically Ill sedated patients by using a behavioral pain scale.** *Crit. Care Med. 29*, 2258–2263.

- Penwell-Waines L, Ward W, Kirkpatrick H, et al. (2018). **Perspectives on healthcare provider well-being: looking back, moving forward**. J Clin Psychol Med Settings; 25(3):295–304.

- Pereira Dames LJ, Herdy Alves V, Pereira Rodrigues D, De Souza B, Rangel R, Do Valle Andrade Medeiros F, et al. (2016). **Nurses' practical knowledge on the clinical management of neonatal pain: A descriptive study.** Online Brazilian J Nurs; 15:393–403.

- Polomano R, Dunwoody C, Krenzischek D, Rathmell J. (2008). **Perspective on Pain management in the 21st century**. *Pain Manage Nurs*; 9:3-10.

- Polomano, R. C., Rathmell, J. P., Krenzischek, D. A., and Dunwoody, C. J. (2008a). **Emerging trends and new approaches to acute pain management**. Pain Management Nursing, 9(1), S33–S41. http://dx.doi.org/10.1016/j. jopan.2007.11.006.

- Pud, D. (2004). **Personal past experience with opioids consumption affects attitudes and knowledge related to pain management.** Pain Management Nursing, 5, 153-159.

- Ramira ML, Instone S, Clark MJ. (2016). **Pediatric pain management: An evidence-based approach**. Pediatr Nurs; 42:39–46. 49.

- Rampanjato RM, Florence M, Patrick NC, Finucane BT. (2007). **Factors influencing pain management by nurses in emergency departments in Central Africa**. Emerg Med J 24: 475-476.

- Randall-David F., Wright J, Porterfield DS, Lesser G. (2003). **Barriers to cancer pain management: home-health and hospice nurses and patients.** Support Care Cancer 11(10): 660-5.

- Rawe, C., Trame, C., Moddeman, G., O'Malley, P., Biteman, K., Dalton, T., et al. (2009). **Management of procedural pain: Empowering nurses to care for patients through clinical nurse specialist consultation and intervention**. Clinical Nurse Specialist, 23(3), 131–137.

- Registered Nurses Association of Ontario. (2013). **Assessment and management of pain** (3rd ed). Toronto, ON: Registered Nurses Association of Ontario.

- Reid CM, Gooberman-Hill R, Hanks GW. (2008). **Opioid analgesics for cancer pain: symptom control for the living or comfort for the dying? A qualitative study to investigate the factors influencing the decision to accept morphine for pain caused by cancer.** Ann Oncol; 19: 44–48.

- Rejeh, N., Ahmadi, F., Mohammadi, E, Anoosheh, M., and Kazemnejad. (2009). **Ethical challenges in pain management post–surgery**. Nursing Ethics, 16(2), 161–172. doi: 10.1177.0969733008100077 Review of the relationship between stress

- Riddell A. and Fitch M. I. (1997). **Patients' knowledge of and attitudes toward the management of cancer pain.** Oncol Nurs Forum, 24(10): p. 1775-1784.

- Rothwell, P. M., Fowkes, F. G., Belch, J. F., Ogawa, H., Warlow, C. P., and Meade, T. W. (2011). **Effect of daily aspirin on long-term risk of death due to cancer: analysis of individual patient data from randomized trials**. *Lancet (London, England)*, *377*(9759), 31–41. https://doi.org/10.1016/S0140-6736(10)62110-1

- Sadeghi-Bazargani H., Tabrizi J.S., Azami-Aghdash S. (2014). **Barriers to evidence-based medicine: a systematic review**, J Eval Clin Pract, 20, 793-802

- Salameh B. (2018). **Nurses' knowledge regarding pain management in high acuity care units: A case study of Palestine**. *International journal of health sciences*, *12*(3), 51–57.

- Samarkandi O. A. (2018). **Knowledge and attitudes of nurses toward pain management.** *Saudi journal of anaesthesia*, *12*(2), 220–226. https://doi.org/10.4103/sja.SJA_587_17

- Scheppers E, van Dongen E, Dekker J, et al. (2006). **Potential barriers to the use of health services among ethnic minorities: A review.** Fam Pract; 23(3):325-48.

- Sheinfeld Gorin S, Krebs P, Badr H et al. (2012). **Meta-analysis of psychosocial interventions to reduce pain in patients with cancer.** J Clin Oncol; 30: 539–547.

- Sherwood G, Adams-McNeill J, Starc PL, Nieto B, Thompson CJ. (2000). **Qualitative assessment of hospitalized patients' satisfaction with pain management**. Res Nurs Health; 23:486–495.

- Shoqirat N, Mahasneh D, Al-Khawaldeh O, Al Hadid L. (2019). **Nurses' Knowledge, Attitudes, and Barriers Toward Pain Management Among Postoperative Patients in Jordan**, Journal of Peri anesthesia Nursing, Volume 34, Issue 2, Pages 359-367, ISSN 10899472,https://doi.org/10.1016/j.jopan.2018.05.012.(http://www.sciencedirect.com/science/article/pii/S1089947218301382)

- Shoqirat N. (2014). "**Sleepless nights and sore operation site'': Patients' experiences of nursing pain management after surgery in Jordan**. Pain Manag Nurs. 15:609-618.

- Shrestha–Ranjit, J.M., and Manias, E. (2010). **Pain assessment and management practices in children following surgery of the lower limb**. Journal of Clinical Nursing, 19(1–2), 118– 128. doi: 10.1111/j.1365–2702.2009.03068.x

- Solowiej K, Mason V, Upton D. (2009). **Review of the relationship between stress and wound healing: part I**. J Wound Crae. 18 (9): 357-66.

- Stott, D. J., Buttery, A. K., Bowman, A., Agnew, R., Burrow, K., Mitchell, S. L., Ramsay, S., and Knight, P. V. (2006). **Comprehensive geriatric assessment and home-based rehabilitation for elderly people with a history of recurrent non-elective hospital admissions**. *Age and ageing*, *35*(5), 487–491. https://doi.org/10.1093/ageing/afl049

- Stotts NA, Puntillo K, Bonham Morris A, Stanik-Hutt J, Thompson CL, White C, et al. (2004). **Wound care pain in hospitalized adult patients**. Hear Lung J Acute Crit Care. 33(5):321–32.

- Sun VCY, Borneman T, Ferrell B, et al. (2007). **Management: an institutional change model.** J Pain Symptom Manage; 34:359–369.

- Suza, D.E., Petpichetchian, W., and Songwathana, P. (2007). **Comparison of pain experiences between Javanese and Batak patients undergoing major surgery in Medan, Indonesia**. *Songklanagarind Medical Journal*, 25, 247-258.

- Tawalbeh L, Ahmad Tubaishat A, Batiha A-M, Manar Al-Azzam M and AlBashtawy M. (2013). **The Relationship Between Social Support and Adherence to Healthy Lifestyle Among Patients With Coronary Artery Disease in the North of Jordan.** Clinical Nursing Research. DOI: 10.1177/1054773813501194. [Accessed Dec 31 2020].

- Thomas H S. (2013). **Management of Pain in the Emergency Department,** International Scholarly Research Notices, vol. 2013, Article ID 583132, 19 pages. https://doi.org/10.1155/2013/583132

- Thomas ML, Elliott JE, Rao SM, Fahey KF, Paul SM, Miaskowski C, et al. (2012). **A randomized, clinical trial of education or motivational-interviewing-based coaching compared to usual care to improve cancer pain management**. Oncol Nurs Forum. 39:39–49.

- Thun, M. J., Henley, S. J., and Patrono, C. (2002). **Nonsteroidal anti-inflammatory drugs as anticancer agents: mechanistic, pharmacologic, and clinical issues.** *Journal of the National Cancer Institute*, *94*(4), 252–266. https://doi.org/10.1093/jnci/94.4.252

- Titler, M., Herr, K., Schilling, M., Marsh, J., Xie, X., and Ardery, G., et al. (2003). **Acute pain treatment for older adults hospitalized with hip fracture: Current nursing practices and perceived barriers.** Applied Nursing Research, 16, 211–227.

- Toba, H. A., Samara, A. M., and Zyoud, S. H. (2019). **Nurses' knowledge, perceived barriers, and practices regarding cancer pain management: a cross-sectional study from Palestine.** *BMC medical education*, *19*(1), 167. https://doi.org/10.1186/s12909-0191613- z

- Tortorella GT. (2014). **Evaluating Medical-Surgical Nurses Knowledge and Attitudes Regarding Pain**: **A Descriptive Comparative Analysis** (Doctoral Dissertation, The William Paterson University of New Jersey), UMI Number: 3617158, 96,

- Tsai FC, Tsai YF, Chien CC, Lin CC. (2007). **Emergency nurses' knowledge of perceived barriers in pain management in Taiwan**. Journal of Clinical Nursing 16, 2088-2095.

- Tsang A, Von Korff M, Lee S, Alonso J, Karam E, Angermeyer MC, Borges GL, Bromet EJ, de Girolamo G, de Graaf R, Gureje O, Lepine JP, Haro JM, Levinson D, Oakley Browne MA, Posada-Villa J, Seedat S, Watanabe M. (2008). **Common chronic pain conditions in developed and developing countries: Gender and age differences and comorbidity with depression-anxiety disorders.** J Pain 9:883-891

- Tsao, J.C. I., Lu, Q., Kim, S.C., and Zeltzer, L.K. (2006). **Relationship among anxious symptomatology, anxiety sensitivity and laboratory pain responsivity in children.** *Cognitive Behavioral Therapy*, 35, 207-215.

- Tse MM, Ho SS2. (2014). **Enhancing knowledge and attitudes in pain management: a pain management education program for nursing home staff.** Pain ManagNurs 15: 2-11.

- Turk, D. C., and Melzack, R. (2011). **Handbook of pain assessment.** New York: Guilford Press.

- Turk, D.C., and Dworkin, R.H. (2004). **What should be the core outcomes in chronic pain clinical trials?** Arthritis Research Therapy, 6(4), 151-154. Doi: 10.1186/ar1196

- Twycross, A., and Collins, S. (2013). **Nurses' views about the barriers and facilitators to effective management of paediatric pain**. Pain Management Nursing, 14(4), 164–172. doi: 10.1016/j.pmn.2011.10/007

- Vadivelu N, Urman RD, Hines RL, editors. (2011). **Essentials of pain management**. New York, NY: Springer New York; https://doi.org/10.1007/978-0-387- 87579-8.

- Vallerand, A., Musto, S., and Polomano, R. (2011). **Nursing's role in cancer pain management.** *Current Pain and Headache Reports, 15*(4), 250262. doi: 10.1007/s11916-011-0203-5

- Van Niekerk LM, Martin F. (2002). **The Impact of the Nurse-Physician Professional Relationship on Nurses' Experience of Ethical Dilemmas in Effective Pain Management**. Journal of Professional Nursing 18 (5) 276-288. [Accessed Dec 31 2020].

- Van Niekerk LM, Martin F. (2003). **The impact of the nurse-physician relationship on barriers encountered by nurses during pain management.** Pain Manag Nurs; 4:3–10.

- Vickers N, Wright S, Staines A. (2014). Surgical nurses in teaching hospitals in Ireland: Understanding pain. Br J Nurs.; 23:924-929

- Vincent, C.V.H. (2005). **Nurses' knowledge, attitudes, and practices regarding children's pain.** *Journal of Maternal and Child nursing*, 30, 177-183.

- Voshall B, Dunn KS, Shelestak D. (2013). **Knowledge and attitudes of pain management among nursing faculty.** Pain Manag Nurs; 14:e226–35.

- Walker, A., Grainge, M. and Card, T. **Aspirin and other non-steroidal anti-inflammatory drug use and colorectal cancer survival: a cohort study**. *Br J Cancer* **107,** 1602–1607 (2012). https://doi.org/10.1038/bjc.2012.427

- Wang H-L, Tsai Y-F. (2010). **Nurses' knowledge and barriers regarding pain management in intensive care units: ICU nurses and**

pain management. J Clin Nurs.; 19(21–22):3188–96. https://doi.org/10.1111/j.1365-2702. 2010.03226.x.

- Ware LJ, Bruckenthal P, Davis GC, et al. (2010). **Factors that influence patient advocacy by pain management nurses: results of the American society for pain management nursing survey**. Pain Manag Nurs; 1–8. DOI: 10.1016/j.pmn.2009.12.001. [Accessed Dec 31 2020].

- Weinstein SM, Laux LF, Thornby JI, et al. (2000). **Physicians' attitudes toward pain and the use of opioid analgesics: Results of a survey from the Texas Cancer Pain Initiative.** South Med J 93:479- 487

- Wells, N., Pasero, C., and McCaffery, M. (2008). **Improving the quality of care through pain assessment and management.** In R.G. Hughes (Ed.) Patient Safety and Quality: An Evidence-Based Handbook for Nurses. (pp. 469-486).Rockville MD: AHRQ.

- Werner, M. (2010). ***Smärta och smärtbehandling*** (2 ed). Stockholm, Sweden: Liber.

- Wilson B. (2011). **Nurses' knowledge of pain**. J Clin Nurs. 16:1012–20.

- World Health Organization. (1996). **Cancer Pain Relief**, 2nd edn. Geneva: World Health Organization.

- Yaqoob SH, Nasaif HA. (2015). **Nurses' knowledge and attitudes toward pain assessment and management for adult sickle cell disease patients during sickling crisis**. Clin Nurs Stud.; 3(4):36–43. https://doi.org/10. 5430/cns.v3n4p36.

- Yava A, Çicek H, Tosun N, Özcan C, Yildiz D, Dizer B. (2013). **Knowledge and attitudes of nurses about pain management in Turkey**. Int J Caring Sci;6(3):494505 http://www.internationaljournalofcaringsciences.org/docs/23.%20Yava.pdf.

- Yildirim YK, Cicek F, Uyar M. (2008). **Knowledge and attitudes of Turkish oncology nurses about cancer pain management.** Pain Manag Nurs. 9:17–25.

- Zaza C, Baine N. (2002). **Cancer pain and psychosocial factors: A critical review of the literature.** J Pain Symptom Manage 24:526-542.

- Zhang, C., Hsu, L., Zou, B., Li, J., Wang, H., Huang, J. (2007). **Effects of a pain education program on nurses' pain knowledge, Attitudes and Pain Assessment Practices in China.** Journal of Pain and Symptom Management, 36(6), 616-627.

- Zuccaro SM, Vellucci R, Sarzi-Puttini P, Cherubino P, Labianca R, Fornasari D. (2012). **Barriers to pain management: focus on opioid therapy**. Clin Drug Investig; 22(32) (Suppl 1):11-19 .10.2165/11630040-000000000-00000.

Annexes

Annex (A): Questionnaire

An-Najah National University
Faculty of Graduate Studies

Consent form for subjects participating in research study

Consent Form

Version date: August 2020

Title of Research: "**Nurses' knowledge, Attitudes and Barriers to Effective Pain Management in Intensive Care Units Governmental Hospitals in West Bank, Palestine.**"

Principle Investigator:

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Purpose of Research:

We wish to assess nurses' knowledge and attitudes toward pain management of ICU patients, and to identify barriers that affect the optimal management of pain among ICU nurses in the Governmental hospitals in the West Bank, Palestine, during the year 2020. This may be encompassing significant information to our research and the recommended results will be valuable for planning and improving the pain management levels.

We are highly appreciated with your cooperation if you could take the time to go through this questionnaire and answer the relevant questions. Hopefully, it will not take you longer than 10-15 minutes to fill in this questionnaire.

We appreciate your participation in this study and in providing the information needed for filling in the questionnaire. We will keep your information as confidential, maintain your privacy; and you have the right to participate and to leave the study at any time you decide with no any obligation, noting that the introduced information will not be used but for scientific research only. The researcher will offer you the results if you would like to. If you have any other queries, please do not hesitate to contact me.

Thank you for your time and kind consideration.

Mobile: 0599103966
Mail: b.hariri2071@gmail.com

Date of Approval: _____/_____ /_____

Participant signature: ----------

Questionnaire

Bart I: Socio-demographic Factors

Please answer the following questions and circle to the most closely answer that matches your opinion.

1. Gender

   (a) Male
   (b) Female

2. Marital status

   (a) Single
   (b) Married
   (c) Divorced
   (d) Widow/er/ed

3. Years of practice in Intensive Care Units

   (a) 6 months – < 1 year
   (b) 1- < 5 Years
   (c) 5- < 10 Years
   (d) ≥ 10 Years

4. Age

   (a) 23 - < 28 years
   (b) 28 - < 33 Years
   (c) 33 - < 38 Years
   (d) ≥ 38 Years

5. Please, state your level of academic education

   (a) Bachelor degree
   (b) Higher than bachelor's degree

6. Where do you work? (Hospital)

   ---

7. Did you have previous pain education in the last 2 years?

   (a) Yes
   (b) No

Bart II: Knowledge and Attitudes Survey Regarding Pain

True/False – Circle the correct answer, please. (Correct answers are in **bold** and ***italics***).

T	***F***	1.	Vital signs are always reliable indicators of the intensity of a patient's pain.
T	***F***	2.	Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.
T	***F***	3.	Patients who can be distracted from pain usually do not have severe pain.
T	F	4.	Patients may sleep in spite of severe pain.
T	***F***	5.	Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.
T	F	6.	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.
T	F	7.	Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent.
T	***F***	8.	The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours
T	***F***	9.	Opioids should not be used in patients with a history of substance abuse.
T	***F***	10.	Elderly patients cannot tolerate opioids for pain relief.
T	***F***	11.	Patients should be encouraged to endure as much pain as possible before using an opioid.
T	***F***	12.	Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity.
T	F	13.	Patients' spiritual beliefs may lead them to think pain and suffering are necessary.
T	F	14.	After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.
T	***F***	15.	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.
T	F	16.	Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5-10 mg of morphine PO.
T	***F***	17.	If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.
T	***F***	18.	Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.
T	F	19.	Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment.
T	F	20.	Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.
T	F	21.	The term 'equianalgesia' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief.
T	F	22.	Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.

Multiple Choice – Place a check by the correct answer (Correct answers are in **bold** and *italics*).

23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is
a. Intravenous
b. Intramuscular
c. Subcutaneous
d. Oral
e. Rectal

24. The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is
a. Intravenous
b. Intramuscular
c. Subcutaneous
d. Oral
e. Rectal

25. Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?
a. Codeine
b. Morphine
c. Meperidine
d. Tramadol

26. A 30 mg dose of oral morphine is approximately equivalent to:
a. Morphine 5 mg IV
b. Morphine 10 mg IV
c. Morphine 30 mg IV
d. Morphine 60 mg IV

27. Analgesics for post-operative pain should initially be given
a. Around the clock on a fixed schedule
b. Only when the patient asks for the medication
c. Only when the nurse determines that the patient has moderate or greater discomfort

28. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is
a. Less than 1%
b. 1-10%
c. 11-20%
d. 21-40%
e. > 41%

29. The most likely reason a patient with pain would request increased doses of pain medication is
a. The patient is experiencing increased pain.
b. The patient is experiencing increased anxiety or depression.
c. The patient is requesting more staff attention.
d. The patient's requests are related to addiction.

30. Which of the following is useful for treatment of cancer pain?
a. Ibuprofen (Motrin)
b. Hydromorphone (Dilaudid)
c. Gabapentin (Neurontin)
d. All of the above

31. The most accurate judge of the intensity of the patient's pain is
    a. The treating physician
    b. The patient's primary nurse
    c. The patient
    d. The pharmacist
    e. The patient's spouse or family

32. Which of the following describes the best approach for cultural considerations in caring for patients in pain:
    a. There are no longer cultural influences in Palestine due to the diversity of the population.
    b Patients should be individually assessed to determine cultural influences.
    c. Cultural influences can be determined by an individual's socioeconomic status (e.g., blue-collar workers report more pain than white-collar workers do).

33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?

    < 1% ***5 – 15%*** 25 - 50% 75 - 100%

34. The time to peak effect for morphine given IV is
    a. 15 min.
    b. 45 min.
    c. 1 hour
    d. 2 hours

35. The time to peak effect for morphine given orally is
    a. 5 min.
    b. 30 min.
    c. 1 – 2 hours
    d. 3 hours

36. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:
    a. Sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued.
    b. Impaired control over drug use, compulsive use, and craving.
    c. The need for higher doses to achieve the same effect.
    d. a and b

37. Which statement is true regarding opioid induced respiratory depression?
    a. More common several nights after surgery due to accumulation of opioid.
    b. Obstructive sleep apnea is an important risk factor.
    c. Occurs more frequently in those already on higher doses of opioids before surgery.
    d. Can be easily assessed using intermittent pulse oximetry.

Case Studies
Two patient case studies (A and B) are presented. For each patient you are asked to make decisions about pain and medication.

Directions: Please select one answer for each question.

Patient A: Ahmad is 25 years old, and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

38. **A.** On the patient's record, you must mark his pain on the scale below. Circle the number that represents your assessment of Ahmad's pain.

0 1 2 3 4 5 6 7 ***8*** 9 10

No pain/discomfort Worst Pain/discomfort

38. **B.** Your assessment, above, is made two hours after Ahmad received morphine 2 mg IV. Half-hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time.

1. Administer no morphine at this time.
2. Administer morphine 1 mg IV now.
3. Administer morphine 2 mg IV now.
4. ***Administer morphine 3 mg IV now.***

Patient B: Mohammad is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information:
BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

39. **A.** On the patient's record, you must mark his pain on the scale below. Circle the number that represents your assessment of Robert's pain:

0 1 2 3 4 5 6 7 ***8*** 9 10

No pain/discomfort Worst Pain/discomfort

39. **B.** Your assessment, above, is made two hours after Mohammad received morphine 2 mg IV. Half-hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time:

1. Administer no morphine at this time.
2. Administer morphine 1 mg IV now.
3. Administer morphine 2 mg IV now.
4. Administer morphine 3 mg IV now.

40. From your perception, how can you improve pain management in ICUs?

…….

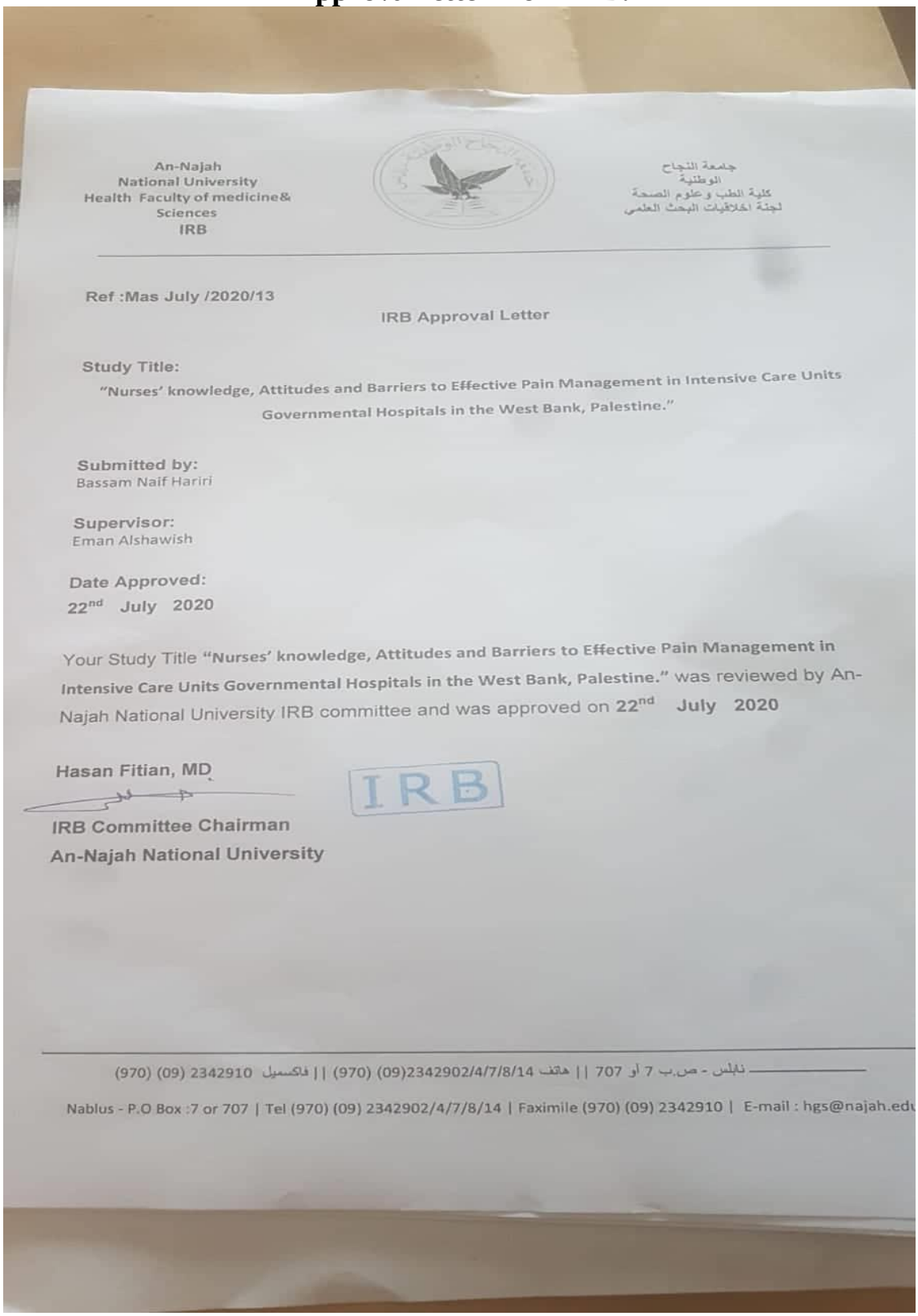
…….

Bart IV: Mean of Nurses' Perceived Barriers to Assessment and Management of Pain Barriers

No:	Statement		Agree	Disagree	Do not know
1.	**Patients-Related barriers**	Patients' difficulty with completing pain scales (eg, 0-10)			
2.		Consumers not demanding results			
3.		Patients' reluctance to take pain medication for fear of addiction			
4.		Caregiver's indifference			
5.		Patients' reluctance to take pain medications because of side effects (e.g. constipation, how it makes them feel, etc.)			
6.		Patients reporting their pain to the doctor, but not to the nurse			
7.		Patient's reluctance to take opioids			
8.		Patient's reluctance to report pain			
9.		Patients not wanting to bother the nurses			
10.	**Nurses-Related Barriers**	Inadequate time for health teaching with patients (eg, as needed drug order, alternatives, addiction, etc.)			
11.		Inadequate time to deliver non-pharmacologic pain relief measures			
12.		Inadequate staff knowledge of pain management			
13.		Nursing staff reluctance to administer opiates			
14.		Fear of pain medications because of side effects			
15.		Inadequate assessment of pain			
16.		Nurses indifference			
17.	**Physician-related barriers**	Inadequate assessment of pain and pain relief			
18.		Doctor's indifference			
19.		Physicians' reluctance to prescribe opiates because of the side effects			
20.		Inadequate knowledge of pain management			
21.		Physicians' fear of addiction of medicine			
22.		Physicians' reluctance to prescribe adequate pain relief for fear of overmedicating			
23.		Physicians' lack of trust in the nursing assessment of pain			
24.	**System-Related Barriers**	Lack of psychosocial support services			
25.		Patient-to-nurse ratio			
26.		Lack of social workers who are experienced in hospital settings			
27.		Lack of guidelines for pain management			
28.		Lack of access to professionals who practice specialized pain treatment methods			
29.		Difficulty contacting or communicating with physicians to discuss treatment of pain in patients			
30.		Not having a documented pain treatment plan for each patient			
31.		Lack of alternatives non-pharmacologic therapy for pain Management (cold, hot, acupuncture) Narcotic prescription regulation			
32.		Inconsistent practices around giving as needed medications for patient			
33.		Lack of medicine in markets			
34.		Lack of equipment or skill in using equipment			

THANK YOU SO MUCH for YOUR KINDNESS.

Annex (B)
Approval letter from IRB.



An-Najah
National University
Health Faculty of medicine&
Sciences
IRB

جامعة النجاح
الوطنية
كلية الطب و علوم الصحة
لجنة اخلاقيات البحث العلمي

Ref :Mas July /2020/13

IRB Approval Letter

Study Title:
"Nurses' knowledge, Attitudes and Barriers to Effective Pain Management in Intensive Care Units Governmental Hospitals in the West Bank, Palestine."

Submitted by:
Bassam Naif Hariri

Supervisor:
Eman Alshawish

Date Approved:
22nd July 2020

Your Study Title "Nurses' knowledge, Attitudes and Barriers to Effective Pain Management in Intensive Care Units Governmental Hospitals in the West Bank, Palestine." was reviewed by An-Najah National University IRB committee and was approved on 22nd July 2020

Hasan Fitian, MD
IRB Committee Chairman
An-Najah National University

IRB

نابلس - ص.ب 7 أو 707 || هاتف 14/8/7/4/2342902(09) (970) || فاكسميل 2342910 (09) (970)

Nablus - P.O Box :7 or 707 | Tel (970) (09) 2342902/4/7/8/14 | Faximile (970) (09) 2342910 | E-mail : hgs@najah.edu

Annex (C)

IRB Approval.

AN-NAJAH UNIVERS

PROTOCOL FOR HUMAN SUBJECTS RESEARCH

NEW PROJECTS ONLY

Investigator's Assurance

By submitting this protocol, I attest that I am aware of the applicable principles, policies, regulations, and laws governing the protection of human subjects in research and that I will be guided by them in the conduct of this research.

_____

_____

To apply for human subjects IRB review:

Download this New Projects IRB Protocol and save it on a floppy disk or on your hard drive. You may then open it, type in all requested information, save the file (please use your last name and New Project Protocol as the title: e.g., Musmar New Project Protocol), and send the file as an e-mail attachment, along with your informed consent letter(s), to the Institutional Review Board at

" irb@najah.edu".

It is essential that you answer all questions on this form since this is the primary source of information used by Board members to make their decisions. Also, only include information necessary to answer the questions. Please keep your responses as free of jargon as possible.

Please also send, by campus mail, all supporting materials that cannot be e-mailed (e.g., measures, permission letters from off-campus sites) to the IRB at An-Najah University, Nablus, Palestine. If your research requires review by the full Board, you will be so notified and asked to provide an additional 12 copies of the supporting materials.

PLEASE DO NOT INCLUDE THIS PAGE WITH YOUR SUBMISSION

REV 9/08

Office of the Institutional Review Board

PLEASE BE SURE TO COMPLETE ALL SECTIONS

Current Date of Submission: 20/7/2020

IRB office use only: Date received in IRB office (stamp)_____

If this is a revision in response to an IRB Report of Action (ROA)-approval pending, indicate the date of the ROA: _____

Title of Research: "Nurses' knowledge, Attitudes and Barriers to Effective Pain Management in Intensive Care Units Governmental Hospitals in the West Bank, Palestine."

Principal Investigator: Bassam Naif Hariri

Department/School: **Master of Nursing**

Room # where mail can be sent _____

Phone: **0599103966** E-mail: **b.hariri2071@gmail.com**

Other Investigator:

Department/School: **Faculty of Medicine and Health Sciences- Dean of Nursing College**

Room # where mail can be sent:

Phone: 0595778058 E-mail: alshawish@najah.edu

Faculty Sponsor (for Student Research): **Dr. Eman Alshawish

Department/School: **Faculty of Medicine and Health Sciences- Nursing and midwifery**

Room # where mail can be sent:

Phone 0595778058 E-mail: alshawish@najah.edu

Student Street Address Jenin/ Al-Almaneyyah Avenue

City Jenin **State** Jenin **Zip _____**

Type of Research (please check):

Dissertation _____ (PLEASE NOTE: IRB review of dissertation research requires prior successful proposal defense.)

PhD Defense Date: _____

Master's Thesis ✓

Class project _____

All other projects_____

** If the primary investigator is a student, check here to indicate that your faculty sponsor has read the entire application, including cover letters, informed consents, and data collection instruments, and asserts that this application is accurate and complete.

Dates Human Subjects Portion of Research Scheduled: from: (01/08/2020**) to (**01/12/2020).

Site(s) of Human Subject Data Collection: **Intensive Care Units Governmental Hospitals in West Bank, Palestine.**

(*NOTE: If sites are administratively separate from the University, please submit approval letters, or indicate when they will be forthcoming.)*

Funding Agency (if applicable): Self-funded

I. NATURE OF THE RESEARCH

In the judgment of the Principal Investigator, this research qualifies for which of the following types of review:

Review Type:___ exempt (category)✓ _____expedited (category) _____full Board[3]

II. PURPOSE OF RESEARCH

Briefly describe the objective(s) of the research (please keep description jargon free and use 100 words or less; the IRB will file this information in our descriptions of approved projects).

The aims of this study are to assess nurses' knowledge and attitudes toward pain management of ICU patients, and to identify barriers that affect the optimal management of pain among ICU nurses of the Governmental hospitals in the Wet Bank in Palestine. Specific Objectives: To detect the relationship between the levels of knowledge/attitude score and any other factors affecting nurses in ICUs. Moreover, to find out the barrier that mostly affects pain management in ICUs.

III. METHODS

[3] All research that is either externally funded or greater than minimal risk must be reviewed by the full Board

Approximate number of subjects: 164 ICU Nurses

Subjects will be (check only if applicable):

Minors (under 18)

Involuntarily institutionalized

Mentally handicapped

Describe <u>in detail</u> how the subjects will be selected and recruited:

The study will be conducted in fourteen (14) governmental hospitals that represent the hospitals in the West Bank in Palestine. Nurses who work in the Intensive Care Units (ICUs) in each hospital will be invited to participate in this study. The researcher will recruit about 160 convenient nurses from the settings. Nurses who have been working in hospitals for at least 6 months will be included in this study.

Describe <u>exactly what will be done</u> to subjects once they have agreed to participate in the project:

Once the subjects (ICU nurses) have agreed to participate in the study, nurses will be invited to fulfill a questionnaire, which will be in English language since that nurses can understand and answer questions in English. The questionnaire will be clear and free of jargon. Items will be adjectively understood. While the participation is voluntary, any of the nurses can withdraw anytime. They will be understood that this study is for scientific purposes only.

What incentives will be offered, if any? Nothing

IV. RISKS/BENEFITS TO PARTICIPANTS

Identify possible risks to subjects:

(NOTE: These may be of a physical, psychological, social or legal nature. If subjects are vulnerable populations, or if risks are more than minimal, please describe what additional safeguards will be taken.)

According to literature review from different articles alike to my project intervention, there are no risks; physical, psychological, social or legal nature.

What are the benefits and how will they be optimized?

This study undertakes the significant implications of the findings of the research on improving the appropriateness of nurses' knowledge and attitudes toward pain management of ICU patients, and identifying barriers that affect the optimal management of pain among ICU nurses. Moreover, this research will try to draw

conclusions concerning the important outcomes and its contribution to the reduction of lack or poor nurses' knowledge and attitudes toward pain management of ICU patients, recommend future actions, future scope and strategies for wider dissemination.

Do benefits outweigh risks in your opinion? Yes ✓ No: _____

Are there potential legal risks to the Principal Investigator or University? Yes No ✓

V. INFORMED CONSENT

Describe how participants will be informed about the research before they give their consent. Be sure to submit with this protocol a copy of the informed consent/assent letter(s) you will use. Please prepare your informed consent letter at the 8th grade reading level or lower as dictated by the needs of the subjects. (See IRB website for required elements of an informed consent.)

You are being invited to participate in a research project being conducted in the ICUs. Your participation is totally voluntary. It is up to you to decide whether to take part in this study.

Before you decide, it is important for you to understand what the research involves. This consent form will tell you about the study, why the research is being done, and the possible benefits, risks and discomforts.

If you wish to participate, you will be asked to sign this form. If you decide to take part in this study, you are still free to withdraw at any time and without giving any reasons for your decision.

If you do not wish to participate, you do not have to provide any reason for your decision. You will not lose the benefit of any professional rights or job you are being in.

Please read this form carefully and feel free to discuss it with your family, friends before you decide.

VI. PRIVACY/CONFIDENTIALITY

Please describe whether the research would involve observation or intrusion in situations where subjects have a reasonable expectation of privacy. If existing records are to be examined, has appropriate permission been sought; i.e. from institutions, subjects, physicians? What specific provisions have been made to protect the confidentiality of sensitive information about individuals?

The researcher will protect your privacy and safeguard the confidentiality of information collected about you in this study. While absolute confidentiality cannot be guaranteed, every effort will be made to ensure that the information you provide is kept entirely confidential.

Your name will not be attached to any information, not mentioned in any report, not made available to anyone outside this research. The intention of the researcher is to publish results of this study in scientific journals, and to present the findings at related conferences and workshops, but your identity will not be revealed.

Describe how participants will be informed about the research before they give their co to submit with this protocol a copy of the informed consent/assent letter(s) you will use. F your informed consent letter at the 8th grade reading level or lower as dictated by th subjects. (See IRB website for required elements of an informed consent.)

You are being invited, because you will be undergoing to participate in a research conducted in the ICUs. Your participation is entirely voluntary. It is up to you to decide w part in this study.

Before you decide, it is important for you to understand what the research involves. This will tell you about the study, why the research is being done and the possible bene discomforts.

If you wish to participate, you will be asked to sign this form. If you decide to take part you are still free to withdraw at any time and without giving any reasons for your decisio

If you do not wish to participate, you do not have to provide any reason for your decision lose the benefit of any professional rights or job you are being in.

Please read this form carefully and feel free to discuss it with your family, workmat decide.

Benefits:

There will be no direct benefits to you for participating in this study. We hope that th gained from this study can be used in the future to benefit other people with a similar con

Risks and discomforts:

There are no physical risks associated with this study.

Costs and reimbursements:

There is no cost to you for participating in this study. You will not be paid for your participation.

Who to contact for questions about this study:

If you have any questions about this study, please do not hesitate to contact the principal investigato Bassam Naif Hariri (**0599103966**).

Consent:

I, _ _____, have read and understood th above information and agree to participate in the study entitled:

"Nurses' knowledge, Attitudes and Barriers to Effective Pain Management in Intensive Car Units Governmental Hospitals in the West Bank, Palestine."

I understand that my participation is voluntary, and that all the information collected will be kep confidential and used only for scientific objectives.

I am not waiving any of my legal rights by signing this consent form. I freely consent to participate i this study.

Signature_____ Date_____

جامعة النجاح الوطنية

كلية الدراسات العليا

معرفة وسلوك التمريض والعوائق التي يواجهونها في الادارة الفعالة للألم داخل أقسام العناية المكثفة في المستشفيات الحكومية في الضفة الغربية فلسطين

إعداد

بسام نايف حريري

إشراف

د. إيمان الشاويش

قدمت هذه الأطروحة استكمالا لمتطلبات الحصول على درجة الماجستير في برنامج تمريض العناية المكثفة، من كلية الدراسات العليا، في جامعة النجاح الوطنية، نابلس- فلسطين.

2021

معرفة وسلوك التمريض والعوائق التي يواجهونها في الادارة الفعالة للألم داخل أقسام العناية المكثفة في المستشفيات الحكومية في الضفة الغربية فلسطين

إعداد

بسام نايف حريري

إشراف

د. إيمان الشاويش

الملخص

الخلفية: يعتبر الألم معاناة بالغة الأهمية يعاني منه المرضى وخصوصاً الذين يتم إدخالهم إلى وحدات العناية المركزة (ICUs)، وقد يؤدي إلى اضطرابات الألم المزمن، ويمكن أن يؤثر سلبا على النتائج الفسيولوجية والنفسية للمرضى وأسرهم.

الأهداف: هدفت هذه الدراسة إلى تقييم معرفة التمريض وسلوكهم تجاه إدارة الألم لمرضى وحدات العناية المركزة، وتحديد العوائق التي تؤثر على الإدارة المثلى للألم بين تمريض وحدات العناية المركزة في المستشفيات الحكومية في الضفة الغربية، فلسطين. علاوة على ذلك, لاكتشاف العلاقة بين مستويات المعرفة/درجة السلوك وأي عوامل أخرى تؤثر في الغالب على إدارة الألم في وحدات العناية المركزة كأهداف محددة.

المنهجية والإجراءات: تم استخدام المسح المقطعي حول تمريض وحدات العناية المركزة. شملت الدراسة (12) مستشفى حكومي في الضفة الغربية، فلسطين، خلال الفترة الواقعة ما بين آب وكانون أول 2020. تمت دعوة التمريض العاملين في وحدات العناية المركزة في كل مستشفى للمشاركة في هذه الدراسة، وتألفت العينة التمريضية من 123 ممرضا وممرضة، بمعدل استجابة (75%). شملت هذه الدراسة التمريض الذين عملوا في المستشفيات الحكومية لمدة ستة أشهر على الأقل. كانت الأداة عبارة عن استبانه مستقاة من نموذج استطلاعي عالمي (NKASRP)، وتم استخدامه لجمع البيانات حول إدارة الألم بقيمة اختبار = 0.80 . علاوة على ذلك، استخدم الباحث الحزمة الإحصائية للعلوم الاجتماعية (SPSS) في تحليل البيانات.

النتائج: أظهرت النتائج أنه على الرغم من حقيقية أن 37 ممرض وممرضة (30.1%) فقط من التمريض الذين يعتنون بمرضى وحدات العناية المركزة قد تلقوا تعليماً سابقاً فيما يتعلق بإدارة الألم في آخر عامين، فان أكثر من نصف الممرضات والممرضين (57.7%) شهدوا أن لديهم دوراً فعالاً في إدارة الألم. كان معدل الاستجابة الصحيحة لمقياس NKASRP هو 47.83%، بينما كان متوسط عدد الإجابات الصحيحة لجميع الأسئلة 13.51±19.61. تم العثور على فرق دال إحصائيا فيما يتعلق بسنوات الممارسة في وحدات العناية المركزة، وكذلك تثقيف سابق عن ادارة الألم في العامين الماضيين لصالح أولئك الذين تلقوا تعليماً لادارة الالم (0.5048) مقابل (0.4166)، بمتوسط درجات المعرفة والسلوك عند مستوى دلالة ($p<0.05$). كان هناك ارتباط ايجابي وثيق الصلة بين المعرفة والسلوك. أوضحت الدراسة أن الأسئلة الخمسة الأقل إجابة صحيحة كانت مرتبطة ببنود دراسة الحالة حول مسار إعطاء المسكنات الأفيونية والاعتماد الجسدي. كانت النتيجة الإجمالية للعوائق 2.399 من3. لم يتم العثور على فرق دال إحصائياً بين السمات الديموغرافية والمهنية لتمريض والعوائق الملاحظة المدركة. ومع ذلك، فان أكثر العوائق المتصورة والتي لاحظها التمريض هي عدم كفاية معرفة التمريض بإدارة الألم بالتساوي مع اللامبالاة من التمريض (73.2%).

الاستنتاجات: خلصت النتائج إلى أن التمريض الذين شملهم الاستطلاع لديهم معرفة ضعيفة لإدارة الألم و أقل من المستوى المأمول، وكانوا مرتبطين بسلوك و تصرفات ضعيفة المستوى، فضلاً عن درجة عالية من العوائق، كما تشير إلى وجود فجوة نحو إدارة الألم الفعالة، تم العثور على علاقة ايجابية ذات دلالة إحصائية بين المعرفة و السلوك.

التوصيات: يجب أن يكون التمريض في حالة اعداد جيد وعلى دراية بطريقة ادارة الالم. يوصى بتزويد تمريض وحدات العناية المركزة بتدريب أثناء الخدمة ودورات مستمرة في ادارة الالم. يمكن تجديد و تعزيز الاستراتيجيات الملائمة والمريحة لتقليل العوائق المحتملة لتحسين تمكين التمريض بشكل أفضل من خلال استخدام إرشادات الممارسة للحصول على إدارة فعالة للألم لمرضى وحدات العناية المركزة. من المتوقع أن يتم تبني هذه الدراسة ودمجها بشكل مناسب من قبل وزارة الصحة في فلسطين.