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ماجستيــر الرعايـــــــة الحثيثــــــة

Knowledge, Attitudes and Practices of Nurses Regarding Pain Management in Intensive Care Units at Governmental Hospitals in Gaza Strip

معرفة الممرضين ومواقفهم وممارساتهم تجاه التحكم بالألم في أقسام العناية المكثفة في مستشفيات قطاع غزة الحكومية

By
Hytham M. H. Bahja

Supervised by
Dr. Abdalkarim S. Radwan

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Declaration

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إقرار

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Student's name:	**Hytham M. H. Bahja**	اسم الطالب:
Signature:	**Hytham M. H. Bahja**	التوقيع:
Date:	January, 2022	التاريخ:

الجامعة الإسلامية بغزة
Islamic University of Gaza
عمـادة البحث العلمي والدراسات العليا

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نتيجة الحكم على أطروحة ماجستير

بناء على موافقة عمادة البحث العلمي والدراسات العليا بالجامعة الإسلامية بغزة على تشكيل لجنة الحكم على أطروحة الباحث/ هيثم محمد **عطا** حسين بهجه لنيل درجة الماجستير في كلية التمريض/ قسم تمريض العناية الحثيثة وموضوعها:

معرفة الممرضين ومواقفهم وممارساتهم تجاه التحكم بالألم في أقسام العناية المكثفة في مستشفيات قطاع غزة الحكومية

Knowledge, Attitudes and Practice of Nurses Regarding Pain Management in Intensive Care Units at Governmental Hospitals in Gaza Strip

وبعد المناقشة العلنية التي تمت اليوم الثلاثاء 6 رجب 1443هـ الموافق 2022/02/08م الساعة الثامنة والنصف صباحا، في قاعة مؤتمرات مبنى القدس اجتمعت لجنة الحكم على الأطروحة والمكونة من:

د. عبد الكريم سعيد رضوان	مشرفا ورئيسا	....
د. أحمد علي الشاعر	مناقشا داخليا	....
د. شرف عمر الشرافي	مناقشا خارجيا	....

وبعد المداولة أوصت اللجنة بمنح الباحث درجة الماجستير في كلية التمريض/قسم تمريض العناية الحثيثة.

واللجنة إذ تمنحه هذه الدرجة فإنها توصيه بتقوى الله تعالى ولزوم طاعته وأن يسخر علمه في خدمة دينه ووطنه.

والله ولي التوفيق،،،

عميد البحث العلمي والدراسات العليا

أ.د. يوسف ابراهيم الجيش

Abstract

This study aimed to assess the knowledge, attitudes and practices of nurses regarding pain management in intensive care units (ICUs) at governmental hospitals in Gaza Strip.

An analytical descriptive design was employed, and a census sample of the study population was selected, consisting of 130 nurses, of whom 115 answered the questionnaire with a response rate of 88.5%. To collect the data, a self administered questionnaire was used that included sociodemographic data, data about knowledge and attitude, and data about practice. SPSS program was used to analyze the data.

From results: 115 nurses who completed the questionnaire, 80% were males, and the participants mean age was 29.57±5.317 years, while the percentage of those who received training in pain management was 60%. The results showed a low level of nurses in knowledge and attitude with mean of 52.09%, and the sociodemographic variables did not present any statistically significant differences except for age (P=0.037). However, the participants showed an above moderate level of practices, with mean precent 70.2%, which was significantly affected by the training on pain management with (P=0.026).

There is a necessary need to update and develop curricula regarding pain management. On the other hand, it is recommended to pay attention to holding comprehensive training in pain management at hospitals.

الملخص

تهدف هذه الدراسة إلى معرفة الممرضين ومواقفهم وممارساتهم اتجاه إدارة الألم لدى مرضى أقسام العناية المركزة في المستشفيات الحكومية في قطاع غزة، وقد تم استخدام التصميم الوصفي التحليلي، وتم اختيار عينة شاملة من مجتمع الدراسة تتكون من 130 ممرض، أجاب 115 منهم على الاستبيان بمعدل استجابة 88.5%، لجمع البيانات تم استخدام استبيان يتم اجابته بواسطة المشارك نفسه يتضمن بيانات اجتماعية ديموغرافية وبيانات حول المعرفة والمواقف وبيانات حول الممارسة، تم استخدام برنامج SPSS لتحليل البيانات.

بينت النتائج أن 115 ممرضاً أكملوا الاستبيان 80% منهم ذكور، وكان متوسط عمر المشاركين 29.57 سنة، بينما كانت نسبة الذين تلقوا تدريباً في إدارة الألم 60%. وأظهرت النتائج تدني مستوى المعرفة والمواقف للممرضات بلغ متوسط 52.09%، ولم تظهر المتغيرات الاجتماعية الديموغرافية أي فروق ذات دلالة إحصائية باستثناء العمر ، حيث أثر العمر بشكل دال إحصائياً (P = 0.037) كما أظهر المشاركون مستوى متوسط من الممارسة والذي بلغ معدله 70.2%، وكان هناك فرقاً دال إحصائياً في متوسط الممارسة بالنسبة لتلقي تدريب على إدارة الألم (P=0.026).

أظهرت النتائج أن هناك حاجة ضرورية لتحديث وتطوير المناهج المتعلقة بإدارة الألم. من ناحية أخرى أوصت الدراسة بالاهتمام بإجراء تدريب شامل في إدارة الألم في المستشفيات.

Dedication

To my beloved mother and my dear father who have always believed in my abilities and encouraged me to advance and progress.

To my brothers they are my strength and my pride

To my wonderful sisters, they are the source of kindness

To my loyal friends a source of inspiration

To my colleagues at work and study

Acknowledgment

In the name of Allah, the Most Gracious, the Most Merciful, by the grace and success of Allah, this research was accomplished, which was the result of continuous work and a great contribution from many people.

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I also extend my thanks and gratitude to my friends and colleagues in the college and hospitals for their efforts in providing advice and assisting in this research and data collection.

I also thank all the nurses who responded and contributed to the study.

بِسْمِ ٱللَّهِ ٱلرَّحْمَٰنِ ٱلرَّحِيمِ

﴿وَقُلِ اعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ ۖ وَسَتُرَدُّونَ إِلَىٰ عَالِمِ الْغَيْبِ وَالشَّهَادَةِ فَيُنَبِّئُكُمْ بِمَا كُنْتُمْ تَعْمَلُونَ﴾

[سورة التوبة: 105]

"Do deeds! Allah will see your deeds, and (so will) His

Messenger and the believers. And you will be brought back to

the All-Knower of the unseen and the seen. Then He will

inform you of what you used to do."

[At-Tawba: 105]

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List of Abbreviations

CCPOT	Critical Care Pain Observation Tool
BPS	Behavioral Pain Scale
CNS	Central Nervous System
CTR	Chest Tube Removal
ED	Emergency Departments
EGH	European Gaza Hospital
ETS	Endotracheal Suctioning
GS	Gaza Strip.
ICU	Intensive Care Unit
IASP	International Association for the Study of Pain
KAP	Knowledge, Attitude, and Practice
MMS	Military of Medical Services
MOH	Ministry of Health
NKASRP	Nurses' Knowledge and Attitudes Survey Regarding Pain
NGOs	Non-Governmental Organizations
NRS	Numeric Rating Scale
NSAIDS	Nonsteroidal Anti-Inflammatory Drugs
PCBS	Palestinian Central Bureau of Statistics
SSPS	Statistical Package for Social Sciences
TENS	Transcutan Electrical Nerve Stimulation
UNRWA	United Nations Relief and Works Agency
VAS	Visual Analogue Scale
WB	West Bank
WHO	World Health Organization

Chapter I
Introduction

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Introduction

1.1. Background

Pain is a direct cause that makes people come to the hospital, and it is also one of the most important symptoms that patients face during treatment in the hospital departments, including the intensive care unit (Oswald, 2017). It has become a world public health issue. Therefore, it considers one of the symptoms that cause concern to the patient, and it is one of the most common symptoms that a patient who is exposed to acute disease or injury suffers from (Besen et al., 2019). The experience of pain differs from one person to another, as it is considered a subjective experience that includes many aspects: cognitive, sensory, physiological, emotional, behavioral, and spiritual. It is also affected by many factors such as: gender, age, culture, beliefs, customs and prior experience of pain. Thus, if the pain is not effectively dealt with by detecting and treating it, the patient will be prone to delayed recovery because of its impact on the physical, psychological and behavioral aspects. It may also impede the patients' adequate cooperation with rehabilitation and thus the emergence of complications that increase the length of stay in the hospital (Carrillo-Torres et al., 2018).

Pain is among the most important duties of nurses, although studies indicate that the patient who suffers from acute pain may suffer from insufficient management of this pain due to the delay in the use of drug treatments or their insufficient use. The healthcare providers focous on giving a diagnosis to the patient and find out the cause of the pain, and in the meantime, the main reason for referring the patient to the hospital is forgotten because the priority of attention is to the disease itself. (De Berardinis B et al, 2013).

Intensive care patients suffer from moderate to severe pain while resting or during basic therapeutic procedures (John W Devlin et al., 2018). In addition, The critical patients are usually unable to self-report their discomfort and pain due to sedative drugs which likely leads to its underestimation and under-treatment of pain (Rawal G. et al, 2019). The inability of the patient to self-report about pain is one of the challenges facing the health team, in addition to the instability of the patient's

health condition and being on a respirator, as well as the lack of sufficient knowledge and attitude for effective pain control (Sedighie, 2020). On other hand, The effective pain control from the nurse's view count on many factors such as good communication skills among nurses and patients, good nurse's knowledge, attitudes and beliefs about pain and pain management (Yaqoob SH, 2015).

1.2. Problem Statement

Nurses who stay more time with a patient than other team play an important role in assessing and managing patients pain during hospitalization. Therefore, it is necessary for the nurse to have sufficient knowledge and appropriate attitude to be able to provide efficient care in managing the patient's pain (Alzghoul & Azimah Chew Abdullah, 2016)

So, this study aimed to assess the level of knowledge, attitudes and practices(KAP) regarding pain management among intensive care units (ICU) nurses in governmental hospitals at Gaza Strip- Palestine.

1.3. Significance of the problem

Through the researcher's work experience in hospitals, he noticed that most patients, as well as their families, depend mainly on the nurse regarding the pain they suffer from, and they expect the nurse to advise them and releive their pain, nurse's knowledge, attitudes and practice seem to be lacked in some pain assessment.

Upon my knowledge there is lake studies in Gaza strip that have assessed intensive care units (ICU) nurses' level of knowledge toward pain and pain management.

So this study provided assessment of knowledge, attitudes and practices as it need to prvide cleare vesion to key person in health care system or in nursing educational insituation. And this study seted recommendation to the key person about the points that need strength in continuous education and nursing curriculum .

1.4. General objective

This study aimed to assess the knowledge, attitudes and practices of nurses regarding pain management in ICUs at governmental hospitals in Gaza Strip.

1.5. Specific objectives

1. To assess knowledge, attitudes and practices of ICU nurses regarding pain management in ICU at governmental hospital in Gaza Strip.

2. To identify relationship between the sociodemographic data and knowledge, attitudes and practices of nurses.

3. To identify relationship between Relationship between (knowledge and attitudes) and practices of pain management

4. To set recommendations to key persons in governmental hospital to improve knowledge, attitudes and practices of nurses.

1.6. Research questions

1. What is the level of knowledge, attitudes and practices of ICU nurses regarding pain management in ICU at governmental hospital in Gaza Strip?

2. Is there relationship between the selected sociodemographic data and knowledge, attitudes and practices of nurses?

3. Is there relationship between (knowledge and attitudes) and practices of pain management

4. What are the recommendations to improve the knowledge, attitudes and practices of nurses?

1.7. Context of study

1.6.1 Geographical and demographical context

Palestine enjoys distinct and important historical and geographical characteristics. In terms of geographical location, it sits in the far west in the continent of Asia, and is located on the eastern side of the Mediterranean, which makes it have a distinctive coast known as the coastal plain, extending from Rafah in the south and continuing to Ras Al-Naqoura in the north, as it borders Jordan from the side Eastern. The area of Palestine covers 27,000 square kilometers. After Palestine was subjected to the Israeli occupation, it lost much of its area and is now limited to two separate areas: the West Bank, which borders Jordan and the Gaza Strip, and its outlet is the Rafah crossing through Egypt, where there is no seaport for

travel or an airport in Palestine. The area of the West Bank is 5,655sq Km and the Gaza Strip (GS)365sq Km (PCBS, 2017).

According to the 2020 survey, the population of Palestine stood at 13.5 million in the world. The distribution of the population indicates that 3.05 million people live in the governorates of the North (West Bank) and 2.05 million in the governorates of the South (Gaza Strip). The gender distribution of the population shows that 2.59 million males and 2.51 million females. (PCBS, 2020).

The Gaza Strip is part of Palestine with its narrow area, but with a distinguished geographical location, as it forms a strip on the Mediterranean Sea and is considered a crossing point from the continent of Asia to the continent of Africa, where it is bordered by Egypt and because of this important location, it has been coveted by many countries over time, and in most of its periods it was subjected to occupation, the last of which was the Israeli occupation in 1967. Although the area of the Gaza Strip does not exceed 6.1% of the total area of Palestine with an area of 365 square kilometers, it is a densely populated area. GS consist of five governorates: North of Gaza, Gaza City, Mid-zone, Khan-younis, and Rafah (PCBS, 2017)

1.6.2 Health sector in the Gaza strip:

In the Gaza Strip, health care is provided through several institutions that fall under one of these categories: the Ministry of Health (MOH), Non-Governmental Organizations (NGOs), Military of Medical Services (MMS), United Nations Relief and Works Agency UNRWA for Palestine Refugees.

The Ministry of Health runs 63.2% of the beds in the majority of the Palestinian health facility, 37.9% of specialist hospital beds, 14.5% of the birth family and all physiological and psychological services of the family. The beds of the Rehabilitation and Physiotherapy facilities in Palestine entirely directed, executed and possessed by the NGO's. The number of hospitals in the MOH 28 hospitals, with a capacity of 3,531 beds, representing 54.9 percent of the total number of beds in Palestine. There are 15 hospitals run by the Ministry of Health in the West Bank, with a capacity of 1,794 beds, or about 49.5 per cent of the total hospital beds of the Ministry of Health, whereas there are 13 hospitals headed by the Ministry of Health

in the Gaza Strip 1782 beds, or 50.2% of all beds of the Ministry of Health in Palestine. (Ministry of Health, 2019).

1.8. Theoretical and Operational definitions

1.7.1 Theoretical definitions

- **KAP**: survey of a specific population to collect information on what is known, believed and done regarding to a particular topic(WHO,2008).
- **Pain:** an unpleasant sensory and emotional experience associated with, or described under the angle of, actual or potential tissue damage (IASP 2012).
- **Nurse**: a person has completed a basic general nursing education program and is licensed by the appropriate regulatory authority to practice nursing in his or her country (The International Council of Nurses(ICN),2002).
- **Pain management**: refers to the appropriate treatment and procedures developed in relation to pain assessment, which should be developed in collaboration with the patient and family(Gordon et al., 2005).
- **Knowledge**: information and skills gained by an individual through experience or education; theoretical or practical understanding of the material (Oxford dictionary,2021).
- **Attitudes**: are unconscious motives for actions and reactions in life which are strengthened or modified by experience(Francis & Fitzpatrick, 2013).
- **Practice**: what is normally or regularly done, often as a habit, tradition or custom (Cambridge English Dictionary, 2019).

1.7.2 Operational definitions

- **Pain:** any unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage that is complained by patient in ICU.
- **Nurse**: a person who has completed a program (diploma or bachelorette degree) of nursing education and work in ICU at governmental hospital.
- **Pain management**: the treatment and interventions that patient is received by ICU nurses to treat or relief the pain.
- **Knowledge**: the actual information and skills the nurses have related to pain management according to questionnaire score.

- **Attitudes** : positive or negative response of nurses for treat the patients pain in ICU according to questionnaire score.
- **Practice:** the action that the nurse in ICU do to relieve or treat a pain that involve pain assessment, pharmacological management, and non-pharmacological management.
- .

Chapter II
Conceptual Framework and
Literature Review

Chapter II
Conceptual Framework and Literature Review

2.1 introduction

In the folds of this chapter, researcher addressed the conceptual framework created by the researcher and based on it in his thesis.

And this chapter involved the previous studies that related to the study. These literature included studies in the Gaza Strip and others in the West Bank. Other studies were in neighboring regions such as Jordan and Saudi Arabia, and others were in African regions and some in Europe and the United States of America.

These studies were review to building the conceptual framework on which the study relied, and a part of the questionnaire related to the practical part was formed by the researcher after referring to these studies.

2.2 Conceptual framework

The researcher develop conceptual framework which include the variables that affect knowledge , attitudes and practices regrding pain management. the framework consist of three domain : socio-demographic domain, knowledge & attitudes level domain, and practices domain. The first domain socio-demographic that include data about: years of experience as a nurse and as an ICU nurse, continuous education & training, hospital, age, gender, and the Level of education. The second domain include pain knowledge and attitudes of ICU nurses: .

In this study, it was hypothesized that if nurses had sufficient knowledge and appropriate attitude regarding pain management, this would affect their practice, leading to the achievement of adequate and appropriate pain management for the patient.

```
┌─────────────────────────┐  ┌──────────────────────┐  ┌─────────────────────────┐
│ Years of experience as  │  │                      │  │       Age , Gender      │
│        a nurse          │  │ Sociodemographic data│  │   Level of education    │
│ Years of experience in  │  │                      │  │ Pain experience, hospital│
│          ICU            │  │                      │  │                         │
│ Continuous education    │  │                      │  │                         │
│       training          │  │                      │  │                         │
└─────────────────────────┘  └──────────────────────┘  └─────────────────────────┘
```

Knowledge and attitudes level
Pain assessment, Pharmacologic
management, Non pharmacologic
management, communication between nurses

Practices

Pain management
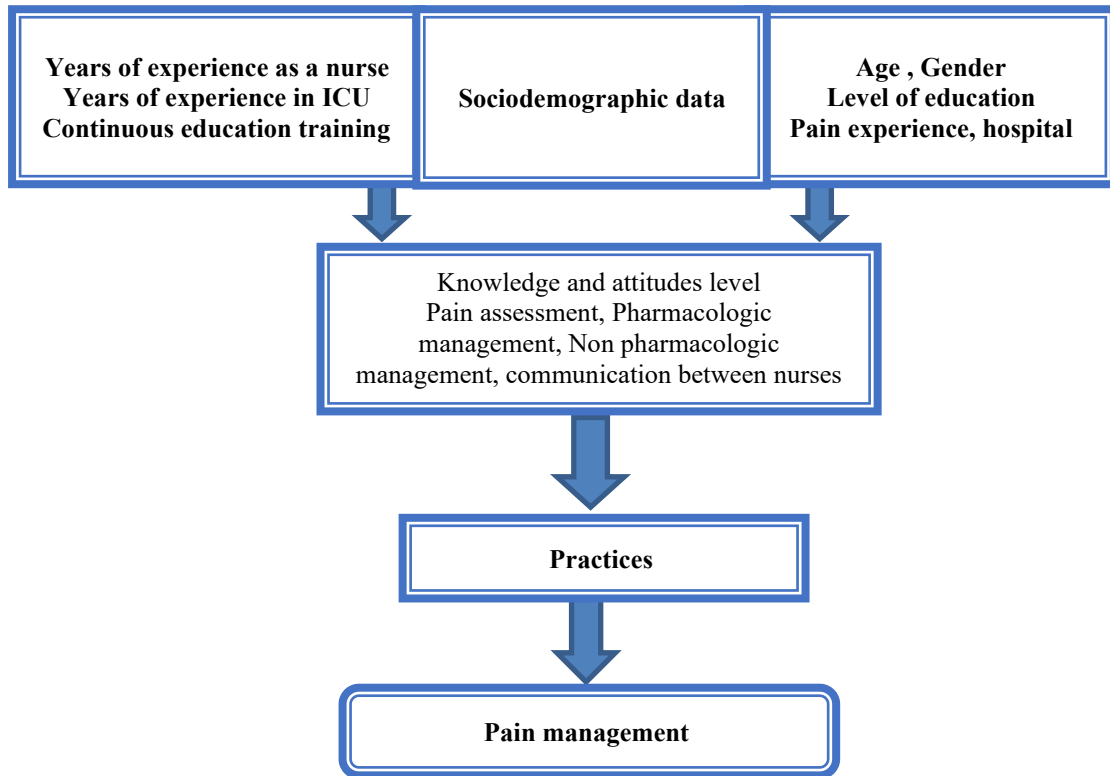
Figure (2.1): Conceptual framework

2.3 Literature Review

2.3.1 KAP study

KAP study is widely used in research related to health sciences, because it gives useful information about the three elements of interest to the researcher: knowledge, attitude, and practice, while being easy to design and conduct. The implementation of KAP study first began in the field of family planning and population research in 1950. It is a means of making a representative survey of the target population through which the three axes related to the subject can be deduced: knowledge (what is known), attitude (what is certified) and practice (what is done) (Andrade et al., 2020)

KAP study is used to determine the basic and actual level of knowledge that the study community possesses. After that, the points that needs in educational programs to improve this knowledge are known. Also, after conducting the educational program, the official implements a KAP study to evaluate the educational program and see if it has achieved the goals (WHO, 2008).

2.3.2 ICU definition

The ICU is one of the most important departments of the hospital because it provides critical care to patients whose condition is critical or serious and needs specific treatments with accurate calculations, as well as continuous follow-up without interruption.

The definition of the World Federation of Societies of Intensive and Critical Care Medicine included the basic determinants of ICU, where it was defined as: an organized system of care delivery to critically ill patients that provides medical and critical care and specialized nursing care, monotoring, and multiple modalities of physiologic organ support to sustain life during a period of acute organ system insufficiency. Although the concept of the intensive care unit is based on specific geographic boundaries, the tasks and activities go beyond these boundaries beyond the spatial boundaries, as they include hospital departments as well as emergency and follow-up clinics. (Marshall et al., 2017)

2.3.3 Pain definition

There are many definitions that researchers have created to describe pain, one of the most important being the updated definition of The International Association for the Study of Pain (IASP) which describe pain as an unpleasant sensory and emotional experience associated with or similar to that associated with actual or potential tissue injury (IASP, 2021). The pain definition that pain expert nurse McCaffery gave in 1968 was simple: It is whatever the person going through the experience says it is, existing any time or place , this definition is widely used by nurses as it reflexes the subjective nature of a pain and the individuality for every person (Pasero, 2018).

2.3.4 Physiology of pain

The mechanism through which the body is exposed to pain is as follows: the nociceptors detect a toxic chemical, mechanical or thermal stimulus which converts into an electrical signal (action potential) then C-fibres and Aδ-fibres convey the signal to the dorsal horn of the spinal cord. after that secondary nociceptive in the spinothalamic tract carry afferent neurons in the input to the thalamus in the central

nervous system (CNS) leading to pain perception and a response sent via efferent pathways, resulting in modulation of pain and/or a reaction.

Withdrawal reflex: A polysynaptic spine reflex that causes the movement of a part of the body away from a painful stimulus by flexor muscles contraction and relaxation of extensor muscles (Yam et al., 2018).

2.3.5 Types of pain

Acute pain has a sudden onset and provides a warning of a disease process or a threat to the body and chronic pain Lasts longer than the duration of time an insult or injury to the body is expected to heal. Pain with no apparent biological value lasted beyond the usual tissue curing time (typically at least 3 months). Nociceptive pain: pain that is triggered by chemical, mechanical, or thermal stimuli (noxious stimuli) Nociceptive pain contain somatic pain (musculoskeletal pain) that is localized, sharp pain and varies in duration and quality and visceral pain which is dull, diffuse, deep pain. Neuropathic pain results from an abnormal neural activity caused from an disease process, injury, or nervous system dysfunction.Table1(2.1) show different types of pain (Kim, 2020; James C. Watson, 2018).

Table (2.1): Types of pain

Types of pain	
Acute pain	has a sudden onset and gives a warning of a pathological process or a threat to the body.
Chronic pain	Lasts longer than the length of time an body injury or insult is expected to heal. A pain with no apparent biological value lasted longer than the usual tissue healing time(at least 3 months).
Maladaptive pain	This is unnecessary pain and is out of proportion related to tissue damage. This type of pain tends to persist long after tissue curing and is often caused by alterations in the central nervous system.
Adaptive pain	Pain that protects person from injury and promotes healing after an injury.
Allodynia	Pain caused by a stimulus which does not normally cause pain.
Nociceptive pain	Pain caused by activating nociceptors caused by actual or threatened tissue damage to non-neural tissues.
Visceral pain	stretch receptors mediated Visceral pain. This pain is usually referred to deep, dull, poorly localized, and crampy.
Neuropathic pain	Pain result from an alteration in neural activity caused by disease process, injury, or alteration in activity of nervous system.

2.3.6 Pain in adult

Pain is a bitter and stressful experience for patient who suffers from an injury or disease, therefore he may be subject to less pain treatment. According to studies it is considered a global health problem, 55 percent to 78.6 percent of inpatients experience moderate-to-severe pain and one in five adults has been estimated to have pain and one in 10 adults to have chronic pain each year.(Goldberg & McGee, 2011) The adult hospitalized patient suffer from pain due to injury, disease effects, routine nursing procedures and invasive procedures (Liyew et al., 2020).

A systematic review conducted by Gregory and McGowan showed that pain prevalence ranged from 37·7 percent to 84 percent, severe pain prevalence ranged from 9 percent to 36 percent (Gregory & McGowan, 2016). And according to Italian study about 4 out of 10 adults complained of pain, with a higher prevalence in women (Damico et al., 2018).

2.3.7 Pain in ICU patient

The intensive care patient faces many problems of distress and discomfort due to the procedures that are carried out for the purpose of treatment or diagnosis. Among these problems, pain considers main sources of discomfort and psychological stress during an ICU stay and after hospital discharge (Kalfon et al., 2020; Puntillo et al., 2014).

A study conducted by Ayasrah (2019) that aim to find out pain levels and the factors predictive of pain for patients under mechanical ventilation during rest and during routine nursing care and procedures, 247 mechanically ventilated patients from medical and surgical ICUs at a military hospital in Amman were assessed using physiological measures and Behavioral Pain Scale (BPS), the results show that 33.2% of patients suffered pain at rest, Variables that influenced resting pain were age, method of ventilation and sedation., 90% of patients suffered pain during the procedures. age, receiving sedation and/or analgesia in last hour, sedation score, the type of painful procedure and resting pain levels were significant predictors of pain during nursing procedures. Therefore, many mechanically ventilated patients suffer from resting and procedural pain.

28 countries (3851 patients, 192 ICUs) were enrolled in a multicenter, multinational study to identify procedural pain distress and the psychological response. the results show that the pain distress scores were highest for endotracheal suctioning (ETS) and tracheal suctioning, chest tube removal (CTR), and wound drain and there were significant relative risks (RR) for a higher degree of pain distress included certain procedures: turning, Endotracheal suctioning, tracheal suctioning, wound drain removal, and arterial line insertion; pre-procedural pain intensity; and use of opioids (Puntillo et al., 2018).

Thus, the importance of proper handling of pain becomes clear to these critical patients, especially since most of them cannot complain about the pain.

2.3.8 Pain assessment

Pain assessment is a key step upon which a comprehensive plan for treating the patient's pain will be developed, Regularly assessing pain in intensive care patients helps to effectively manage this pain and thus improve the quality of life in the intensive care unit and after patients are discharged. A patients in intensive care mostly unable to report pain and discomfort because of sedation, muscle relaxants and intubation Thus, they are subject to less pain control. The inability of the patient to speak does not eliminate his suffering from pain, and therefore the pain must be identified in another way in order to be treated in an appropriate way (Kotfis et al., 2017; Rawal et al., 2019).

When assessing the pain, the nurse should include the pain characteristics which include physical or sensory aspects of pain : location, onset, duration, severity, quality, progression, any radiation, any factors relieve or exacerbate the pain, and effects of previous therapies. An appropriate pain assessment tools must be selected for the patients according to whether the patient is able to speak and interact or not. If the patient is conscious, oriented and able to communicate with the nurse , the nurse should use the self-reporting of pain as it considers the gold standard for pain assessment (Gregory, 2019).

The most common pain intensity scales used in awake and cooperative patients are the Numeric Rating Scale (NRS) that consists of a scale 0–10 and the Visual Analogue Scale (VAS) that contain verbal descriptors from least to most

intense pain Behavioral Pain Scale (BPS) and Critical Care Pain Observation Tool (CPOT) have been recommended in patient who is unable to communicate because of sedation or mechanical ventilation and in unconscious patients (Zaccagnino & Nedeljkovic, 2017).

Numerical rating scale (NRS): Consists of a scale 0–10 with (0) "no pain" and (10) "worst possible pain". Patients rate their pain select the number that best match their pain intensity [Figure (2.2)].
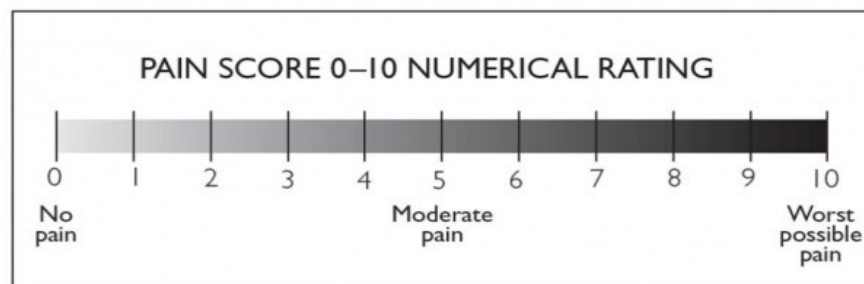
Figure (2.2): Numerical rating scale (NRS)

Visual analog scale (VAS): The patients can visualize/see and describe the intensity of pain on 0–10 scale. Zero for no pain and ten for maximum pain [Figure (2.3)].
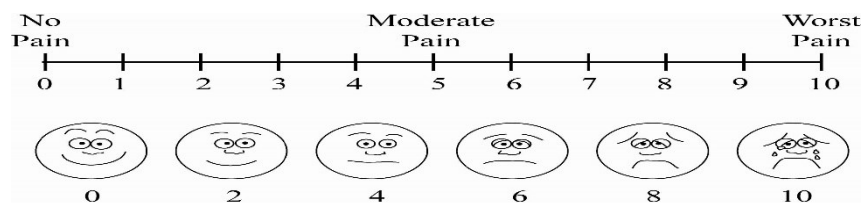
Figure (2.3): Visual analog scale (VAS)

Behavioral pain scale (BPS): a clinical observational pain score that used in patients on a ventilator, the BPS evaluates three behaviors: facial expressions, upper limb movement, and ventilator compliance [Table 2.2]. its score ranges from 3 to 12, and the pain requiring management if a score ≥6.

Table (2.2): Behavioral pain scale (BPS)

Indicator	Item	Score
Facial expression	Relaxed	1
	Partially tightened (brow lowering)	2
	Fully tightened (eyelid closing)	3
	Grimacing	4
Upper limb movement	No movement	1

Indicator	Item	Score
	Partially bent	2
	Fully bent with flexed finger	3
	Permanently retracted	4
Compliance with ventilation	Tolerating movement	1
	Coughing with tolerating ventilation most time	2
	Ventilator fighting	3
	Unable to control ventilation	4
Total score	3(minimal pain)- 12(maximum pain)	

Critical care pain observation tool (CPOT): This tool determines four components: facial expressions, muscle tension, body movements, and ventilator compliance if the patient on ventilator or vocalization for the extubated patient [Figure 2.4]. its score ranges from two to eight and if a score ≥2 require pain management.

Figure (2.4): Critical Care Pain Observation

2.3.9 Pain management

Pain management does not necessarily aim to fully relieve pain. They may include reduction of pain, improvement of quality of life, improvement of psychological and physical functioning, improvement of the ability to work,

enhancing the capacity to operate in society and reduced utilization of healthcare. Pain control in the ICU may be challenging and difficult for some reasons. The action of opioid and non-opioid analgesics are altered because of organ dysfunction; patients usual complain of instable hemodynamic. Therefore, The American Pain Society recommends that the patient participant in the plan of pain management and choosing treatment that combines pharmacologic and non-pharmacologic methods for managing acute pain and pain from cancer (Besen et al., 2019).

Pharmacologic method:

Analgesia administration in ICU patients: When pharmacological management is planned to use its important to determine the route of administration. The intravenous (IV) rout is the mode of choice in ICU patients because the impaired gastrointestinal tract function may lead to unpredictable absorption of the enteral medication such as oral medication and absorption may be altered due to subcutaneous edema or shock that leads to altered absorption of drugs administered via the subcutaneous or intramuscular routes. Other factors as the severity and frequency of pain and the analgesic medication pharmacokinetics determine if the medication to be given as intermittent or continuous infusion administration (Rawal et al., 2019).

Common analgesic medications used in ICU:

❖ **Opioid analgesic agents:**

In ICU Opioids medications remain the main choice for giving analgesia in ICU patients as a result of their high potency and their effects as sedative and anxiolytic effects. Opioids can be given by multiple routes. the commonly used opioids medication include Fentanyl, Morphine, and Remifentanil. Opioid choice and dosage should be individualized based on potency, pharmacodynamics and pharmacokinetics, side effects, organ dysfunction and co-morbidities in patients (Narayanan et al., 2016). Table 2 enumerates common analgesics and their pharmacology.

❖ **Non-opioid analgesic agent:**

It can be used alone or added to other treatments such as opioid analgesics. and thus helps reduce the dose of opioid used which means fewer side effects. Based on the 2018 Clinical Practice Guidelines for adult patients in the ICU, non-opioid analgesics may be used as adjunctive pain medications. Nonsteroidal anti-inflammatory drugs (NSAIDs) using in critical patients is controversial although they have effect of opioid- sparing. The kidney dysfunction, gastrointestinal bleeding and platelet function inhibition are the most important unwanted side effects. Paracetamol commonly used for short-control of pain (mild to moderate) and fever. It considers safe drug compared with other NSAIDs as it does not result in platelet dysfunction, gastritis or kidney toxicity and safer than opioids as it does not pose a potential risk of respiratory depression. However, paracetamol if administered in high dose can results in abnormalities of hepatic function. Clonidine and Dexmedetomidine are two commonly α2adrenoceptor agonists used in pain management as they provide both analgesia and sedation effect. The patients on Dexmedetomidine infusion shown to have decreased duration and prevalence of confusion and delirium if compared with midazolam or morphine. The common side-effect of both includes decrease of the heart rate and hypotension. (J W Devlin & Skrobik, 2018; Ou et al., 2020; Rawal et al., 2019)

Nonpharmacological pain management interventions

Consist from a set of physical and psychological pain management methods which make a vital role and can be implemented both independently or complementarily (Lewis et al., 2018)19 The most common non-pharmacological means for pain control are: the use of music therapy, relaxation techniques, the use of a heating or cooling methods, repositioning, massage, respiratory and relaxation deep breathing exercises, diet, exercise, spiritual methods as praying and the use of calming voices. According to study conducted by Kia et al. (2021) (55.8 %) of the participants nurses used methods of non-pharmacological pain control, the study reported that the most common way used by participants was repositioning (M = 2.72). Another study surveyed by Lewis et al. (2018) to assess nurses awareness and use of nonpharmacological management of pain the results showed that all

participants at least used one or more nonpharmacological interventions. the most frequently used were positioning and repositioning with 97 percent, application of heat or cold with 95.6 percent, and distraction with 92.7 percent. spiritual practices used least often with 20.6 percent, transcutaneous electrical nerve stimulation, and superficial massage.

For those in pain, a physiotherapy or occupational therapy trial may be useful. With the help of a physiotherapist, exercises that focus on a particular type of pathology can help with pain management. Also, Occupational therapists may give help by recommend devices that aid to improve persons daily activities. Exercise, particularly in water, is beneficial to patients with arthritic pain, and aerobic exercise has actually reduced the pain associated with fibromyalgia. Massage is another method that is soothing and lead to physically and mentally relaxation, This improvement in pain relief is due to increased blood circulation and muscle tension relief. Vibration is a kind of electrical massage. Where it can be used lightly to get a sense of relaxation and also a sense of sedation resulting from vibration events to numbness and paresthesia. in the place applied to it. Heat and cold therapies assist in the treatment of pain as heat decrease inflammatory process and thus improve relaxation. However, Cold is often more effective in manage pain as it decrease muscle spasms caused by underlying joint pathology, skeletal muscle spasm, or nerve root irritation. The use of heat and cold Alternatively may be more effective if either one is used alone.(Moller, 2014)

Multiple psychological techniques help in pain relieving. Cognitive-behavioral means need the patient's effective participation. it has proven to be an effective method of coping for patients who suffer from chronic pain and decline the emotional distress caused by chronic pain through direct patient to focus on the way he perceives his pain and adapted with it.

Transcutan electrical nerve stimulation (TENS) one of method applied to both sides of the area with pain. When electrode placed to surface of the skin and apply electric current of 50-100 Hz as it passed the area of pain. This inhibit the transmission of nociceptive alerts on the spinal cord and brain. This method should used in combination with other acute pain methods of pain management. It is usual

effective in the pain of fractures, cholecystectomy, appendectomy, laminectomy, post-thoracotomy, burns and angina.(Lee & Sun, 2016)

2.3.10 Nurses knowledge , attitudes and practice related pain management

There is many studies that conducted to explore and assess the level of knowledge and attitudes of nurses regarding pain management.and another researches focused on ICU nurses .the studies was conducted internationally and regionally and locally in Palestine which focused on the west bank area.

Salameh (2018) survey 123 nurse who works in high acuity care units in Palestine to investigated the nurses' level of knowledge and attitudes regarding pain management, she use cross-sectional descriptive design and the data were collected from seven hospitals in the west bank in Palestine that contain surgical and medical wards by using self-administered questionnaire the result showed that the total mean of correct answers was 17.4± 4.2 from the 39 questions were asked, this falling from the pass mark indicated low knowledge and attitudes that the nurses had regarding pain management, and the result illustrated that there was no significant relationship between the nurses knowledge and attitudes and demographic data, except for the level of education. After these results, it became clear that there is a lack of knowledge and attitude among nurses, which requires improvement through an integrated educational and training program, as well as through improving the curricula.

The researcher (Amra, 2018) aims in study to examine the level of the nurse in terms of knowledge, attitude and practice of children pain management. Convenience sample consisted of 87 participants who work at 3 major hospital in south GS in pediatric departments was included in descriptive cross-sectional study and asked to complete self-administered questionnaire. By analyzing the results, it was found that the mean score for knowledge was 69.1, which is considered average, while the mean score for the attitude was 38.3 which was low. As for practice, the mean score was 63.7 which is considered average. Also, no statistically significant effect of sociodemographic factors on knowledge, attitude, and practice was found. (Amra, 2018)

In addition, there's a survey performed in GS/Palestine via (Qasim, 2021) to assess knowledge and attitude of nurses worked at neonatal intensive care units regarding pain management. The researcher used across-sectional descriptive design and selected sample contain 102 nurses complete a self-administer questionnaire. After analyzing the data, it was concluded that nurses have a low level of knowledge(59.42 percent) and a very low level in practice (58.33 percent).

Another survey conducted by Toba et al. (2019) the researchers use cross-sectional design to examine the nurses' knowledge and practice regarding pain management and to identify some barriers interrelated with adequate pain control among cancer patients. A sample of 250 nurses who work in private and governmental hospitals located in West Bank/Palestine selected conveniently to gather data by distribution self-administered questionnaire developed by researchers based on previous studies and it contained five main parts: demographic data, knowledge questions, perceived barriers, pain assessment and documentation practice, and the last part was the perceptions regarding the most delaying process in opioid administration. From total sample, 220 nurses completed the questionnaire with 88 percent response rate. The mean of correct answers score of knowledge questions was 5.1 ± 2.1. the result showed that there was a relationship between the knowledge score and gender of participant as males scores were significantly higher ($p = 0.001$) than females scores. The most barriers reported by nurses in this study were Inadequate pain assessment (76.8 percent), low knowledge of pain control (70.5 percent) and the strict regulation on opioid use (69.5 percent). 56.4% of participants reported that contacting the physician for the opioids prescription as the main delaying process.

Nimer & Ghrayeb (2017) investigated a sample of 380 nurses selected by a stratified random method. The researchers use a quantitative cross-sectional design to assess the level of knowledge and attitudes related to pain management, it take place in 6 governmental and private hospitals in West-Bank / Palestine. To collect data the researchers used a modified Arabic version of KASRP to answer the research questions. The results of the survey showed that a low level of knowledge and attitudes of nurses with mean score of 15.5 out of 34 (45.6 percent). From findings there were no significant difference in the mean of score in relation with

gender, age-group, level of education, and previous training courses, but significant in relation with the work place (p <0.001).This results indicate that there are serious challenges to reach an adequate pain management and there is need for curricular evaluation that may recommend changing to promote pain management and to correct the ingrained misconceptions.

In 2020, study employed quantitative-comparative design to identify the nurses' level of knowledge and attitudes and which demographic data affect it so by use simple random sampling method the researchers selected 262 nurses who work at 3 big hospitals in Hail City/ Saudi Arabia to complete a self-report questionnaire. After analyzed data the results showed that the nurses had low level of knowledge and attitudes with mean of 20.39. The mean level of knowledge had significant differences in relation with number of training (0.01) and area of assignment (0.01). from these finding the nurses had knowledge deficit and low attitudes about pain management which need furthermore training and education through planned program to repair this deficit. (Panlican et al., 2020)

In a study completed by (Al Omari et al., 2021), the aim was to observe the effect of knowledge and attitude regarding pain management on the practice of nurses a quantitative, comparative, correlational, and cross-sectional survey approach was used. The data was collected by distributing a questionnaire to 267 nurses working in a private hospital in both Jordan and Ireland. The data were analyzed and compared. The results indicated that there is a statistically significant relationship between nurses' knowledge and attitude and nurses' pain management practices and it had a regression coefficient of 0.14 with p = 0.002. The results also showed that there is a statistically significant difference in the knowledge result for each of the country and gender.

In Iran, a study was conducted to determine the frequency of non-pharmacological pain interventions in ICU and to find out the barriers that prevent use of these methods. Therefore, the descriptive cross-sectional study was applied to 224 nurses in the period from April 6 to June 5, 2019. And data were gathered by aquestionnaire and a checklist developed by researcher that contain the obstacles that hindered the nonpharmacological pain control methods use, and the results were

as follows: 55.8 % of nurses working in ICU used nonpharmacological pain control methods repositioning was the most common method used by ICU nurses (M = 2.72), while others methods such as reflexology and acupuncture were used less frequently. Also, the most common barriers to the use of nonpharmacological pain control methods were fatigue and multiple responsibilities. And there were no significant differences in the non-pharmacological pain management methods using in relation to demographic variables (Kia et al., 2021).

Another survey conducted in Turkey that employed a descriptive study to assess the level of nurses' knowledge regarding non-drug methods of pain management and the application. So, 181 nurses who working in the clinics of Siran State Hospital and Kelkit State Hospital as The whole census was taken as a sample for the study with response rate: 80.8%. the data were collected by questionnaire that completed by face-to-face interview. The finding showed that 58% of the nurses did not involve in any training courses about pain management And 87.3% of nurses failed to follow the pain management publication., 84.5 percent of nurses used both non-pharmacological and pharmacological methods in pain control. And the result showed that the most of nurses rated the pain levels of the patients with percent of 80.1 and 56.9% performed massage and manipulation, 95% of them knew hot–cold applications, 87.3% of nurses applied hot/cold applications (Tercan, 2017).

A study was conducted by Mondol et al. (2018) aimed to assess the knowledge and practices of nurses' about pain assessment in critical patients it carried in Bangladesh. A descriptive cross-sectional study was applied between April and August 2017. The researchers used non-probability sampling method to select 200 nurses who participated in the study. From result, about 84% of the participants had adequate knowledge regarding pain assessment and more than half (58.5%) of the participants used a pain assessment tool. About 74.5% reported that they discussed the pain scores and management through nurse to nurse report. Also, 74.5% of the nurses mentioned that pain management and assessment discussed during unit rounds. About 69.0% stated that pain assessment and management is a priority of unit and about 49%of the nurses reported that the pain assessment tool is low important, and (21%) say it's not at all important. 44.5%

of the participants stated the frequent assessment and documentation of a pain in interactive critical patients was minimally important. The most of the participants used a pain assessment tool for patients sometimes with percent of (61.5%), 61 percent of the nurses always agreed with statements of patients about pain and 73.5 percent of the participants documented findings after pain assessment for interactive patients. The educational level of the participants was significantly associated with their knowledge (p<0.001) about pain assessment and applying a pain assessment tool (p<0.000).

There is another study in the northwest of the United States which aimed to assess nurses' knowledge and attitudes related pain and to investigate which personal and professional variables predict knowledge and attitudes and whether knowledge and attitudes correlated with satisfaction of patients. The researcher employed cross-sectional, descriptive, correlational design and selected a sample of 217 nurses who working in long-term, acute, and ambulatory care. So, they asked to complete KASRP questionnaire to collect data. The findings showed that the mean score of knowledge and attitudes 72 percent and it's clear that being a certified nurse, having experience more than five years, and receiving education about pain management in the last year were predictive of a higher score on the KASRP Survey, and from results showed that highest nursing degree, nursing unit, personal pain experience, average pain, gender and family history of chronic pain lacked significant differences in knowledge and attitudes survey scores but there strong correlation between HCAHPS scores and knowledge of pain management.(Brant et al., 2017)

There are many studies conducted in low-income countries, Ou et al. (2020) conducted a study in low-income areas in China That aimed to investigate the knowledge and attitudes of nurses toward pain management This cross-sectional study contained 4,668 registered nurses who working in 48 county hospitals. The participants asked to complete a KASRP questionnaire via the WeChat site to collect data, from results 43.6% of participants reported they had never received continuing education about pain. The participants had a low level of knowledge and attitudes as the mean score was (40.3 ± 7.95), and the score of >80% hadn't achieved. Further, from 40 items, only 2 had a correct rate of >80%. The findings showed that KASRP score did not significantly affected by continuing pain education. But linear

regression showed that position, professional title, education level, ethnicity, and department were independent factors affected KASRP scores.

A quantitative cross -sectional survey was applied to identify the level of nurses´ knowledge, attitudes and the perceived limitations related to pain management. 162 nurses were selected from emergency departments in seven hospitals in Eritrea to participate in the study and fill in the questionnaires. After analyzing the data, it became clear that the mean of the results was 45, which is considered low. It was also found that there is statistical significance between the level of knowledge and attitude and between the educational level, as nurses with bachelor's degrees obtained points more than others (95 % CI= 7.1 –16.7 and 9.4 – 19.1; p < 0.001). Similarly, participants with previous pain training achieved significantly higher level of knowledge than those without previous training (p = 0. 003). Among the most important obstacles affecting adequate pain management, which were measured in the emergency department, are overcrowding in the department (2.57 ± 1.25), lack of a protocol for assessing patient pain (2.45 ± 1.52), workload of nurses (2.44 ± 1.29), and the lack of an approved tool for patient pain assessment (2.43 ± 1.43). There was no significant difference in perceived barriers in related to participants demographic data. It is concluded from the study that there is a severe weakness in the knowledge and attitude of nurses in emergency departments, which calls for the development of curricula and courses to strengthen nurses in this regard.(Kahsay & Pitkäjärvi, 2019b)

Liyew et al. (2020) conducted cross-sectional study that aimed to determine nurses' level of knowledge and attitude about pain management it targeted a nurses who worked at University of Gondar comprehensive specialized referral hospital that located in Northwest Ethiopia. The researchers selected 422 participants using a stratified random sampling method. From results it was found that a total of 411 nurses participated in this study in which more than half of the nurses were male, and the participants' scores of knowledge was 66.9 percent with a mean score of 7.14±1.74. and there scores of attitude was 51.7 percent with a mean score of 49.33 ±7.13. Conclusion and Recommendation. Through the results, it is clear that nurses have a good level of knowledge, but they have a low level of attitude, which requires

better preparation of nurses through an integrated educational program to improve both knowledge and attitude, and thus improve the quality of nursing care provided.

Also, research done by(Alzghoul & Azimah Chew Abdullah, 2016) assumed that knowledge and attitude as part of the KAP model predicted significantly in nursing practices. Accordingly, a questionnaire was used that includes knowledge and attitude as well as practice and distributed to a sample of 266 qualified nurses for pain management in public hospitals in Jordan. The founding reported a strong association between attitudes of nurses towards pain management and practice of pain management (t = 11.996, p< 0.001) and reported a significant positive relationship between the pain management knowledge and pain management practices (t = 6.60, p< 0.001). both knowledge and attitude were predictor for practice. Therefore, the study recommended paying attention to both sides of knowledge and attitude regarding pain management to reach an effective practice and thus raise the quality of care provided to the patient in terms of pain management.

Manwere et al. (2015) survived 50 registered medical surgical nurses from Bindura Hospital in Zimbabwe to identify the nurses' knowledge and attitudes pain control of adult medical patients at Bindura Hospital. the researchers use a descriptive cross-sectional study and the sample chosen by systematic random sampling method.to collect data researchers distributed self-reported questionnaire which was developed by literature review and Data was analyzed by SSPS program. The level of knowledge was low with a mean of 64.5 percent and low attitudes level with a total mean attitude score of 56%.there was association between Knowledge and experience by years in the nursing work (p=.003; p ≤.005).and it associated with the participants age (p=.001; p ≤.005) with those of older (40 years and above). So the study recommended the need of Curricular changes aiming to promote knowledge and attitudes regarding control of pain in patients with medical aspects and correct the misconceptions about patients' pain and its control are needed.

There is another study conducted by (Ufashingabire et al., 2016) aimed to assess nurses knowledge and attitudes about pain management of ICU patients in 3 university teaching hospitals located in Rwanda. A quantitative descriptive study with sample contain of 69 nurses worked at ICU the data collected Using the

questionnaire generated by Ferrell and McCaffery after some adaptation to local geographical area. From the results we elicited that participants had low knowledge and had poor attitudes about pain management. There was strong effect on the participants knowledge by the level of nursing education (p<0.008), the hospital where nurses worked (P<0.0001). And there was knowledge deficit and inappropriate attitude related to pain control seen in some participants who worked in ICU Which led to an underestimation of pain than it is, and therefore less treatment for the patient who suffers from pain. Through the study, the performance of nursing in terms of pain control appeared to be weak due to several factors, and therefore there is a great need to improve curricula and also prepare training programs.

There is a study conducted by ALBAQAWI et al. (2016), about Saudi Arabian Nurses' Knowledge and Attitudes Regarding Pain Management the aim of this study was to know the knowledge and attitudes of nurses in five Saudi Arabian (Hail region) hospitals about pain control by using the questionnaire of KASRP. five hundred of Nurses' Knowledge and Attitudes Survey Regarding Pain (KASRP) tool were distributed for the estimated population which contain the nurses working in five hospitals the return rate was 60% (303 nurses).descriptive statistics measures calculated variability and inferential statistics were used to analyze data In this research, the mean correct answers rate to the items was 41.75 percent, with rates ranging from 5–87 %. That show low knowledge about pain, pain assessment, pain management and pain medications. The nurses showed low attitudes about pain assessment and insufficient knowledge about pharmacological and non-pharmacological methods of pain control. The study suggested to review and enhance education about pain control and make an annual evaluation of skills for all nurses.

2.3.11 Educational program effect on the pain management knowledge and attitude:

Salim et al. (2020) used a quantitative-experimental design to examine which design from the four pain management educational designs promoted knowledge and attitudes about pain. Another objective were to compare a nurse's knowledge and attitudes about pain before and after the educational programs. The researchers

selected sample randomly that included 200 registered nurses and divided in 4 educational groups: 2 experimental and 2 control groups. A participants in the tow experimental groups participated in pain management program but control group didn't. From results researchers have found that a score of participants in experimental group who significantly higher than a score in the control group who didn't received education program (p < 0.01). and mean scores of knowledge and attitude over 3 months wasn't statistically significant which indicted the level of knowledge did not change with time in any of the groups. The education program has been shown to be effective in promoting nurses' pain knowledge and attitude.(Salim et al., 2020)

Issa et al.(2019) conducted a pretest-posttest experimental study in Saudi Arabia to determine the effects of pain management educational program on the level of knowledge and attitudes of ICU nurse regarding pain assessment and treatment. After undergoing an educational program on pain management, 181 nurses completed a questionnaire to know their level of knowledge and attitude ,which were assessed before the educational program, After analysis data The findings showed knowledge and attitudes improvement about pain assessment and control in nurses working in ICU. From these results, it becomes clear the importance of educational programs in improving the knowledge and attitude towards pain control among nurses working in the ICU.

Another study in Iran conducted by Sedighie (2020) The purpose of this study was to examine the impact of a comprehensive pain control education program on the knowledge and attitudes of nurses in ICUs. So, researcher employed quasi-experimental design and divided study in two stages ,before and after-intervention, in order to observe the awareness and attitude of participants who worked in the ICU of Tehran Modarres Hospital. Within the pre-intervention stage, the awareness and attitudes of the participants were surveyed using a tool. After implementing the education program about pain management. Then, the participants' awareness and attitude about pain control were surveyed another time. Finally, deference in the nurses' awareness and attitude scores were analyzed. according to the findings of this study, there was significant differences in the mean of the nurses' score of awareness in pre- and post- intervention stages (P< 0.05). Although the average

participant score (71.03) increased post-intervention, no significant statistical differences were observed. Additionally, Based on participant demographics, there was only a significant relationship between work experience in the ICU and attitudes. According to the finding of this study, training and conducting a complete program for pain control aid nurses to become more aware. As a result, using pain control models to promote nurses' knowledge and attitudes about pain treatment in ICU patients is suggested (Sedighie, 2020).

There is a study applied to 111 nurses from Ethiopia to assess the influence of an in-service educational program on knowledge and attitudes of nurses who working in an Ethiopian university hospital regarding pain management. The researchers used a quasi-experimental design and the participants received intensive pain education for two consecutive days and a follow-up training session was conducted a month later.

KASRP questionnaire was distributed to measure the impact of educational program. On average, 41.4 percent of the nurses answered the KASRP questions correctly before the intervention of education program and 63.0 percent after the intervention. The average score of nurses' knowledge and attitudes towards pain increased significantly after participating in the education program. (Z = 99.08, p).(Germossa et al., 2018)

2.4 Summary

Through this chapter, the conceptual framework was formed, where the basic concepts of the study were linked to each other. Through the conceptual framework, the relationship between knowledge, attitude, and best practice of pain control is shown, as well as the effect of sociodemographic characteristics on these variables. These were the main points around which the study revolved.

After that, pain was addressed in terms of definition, types, evaluation methods, and finally how to manage pain, whether by pharmacological or non-pharmacological methods. We also discussed pain in adult patients and in intensive care units

Many previous studies that were related to this study were also reviewed, as it was found that most researchers used the descriptive cross-sectional approach in their studies, such as (Brant et al., 2017; Kahsay, 2019; Manwere et al., 2015; Mondol et al., 2018; Ou et al., 2020; Qasim, 2021; Salameh, 2018; Tercan, 2017; Toba et al., 2019a), and there are other researchers who used comparative design as (Panlican et al., 2020), while there are others who used experimental or quasi-experimental design as (Germossa et al., 2018; Issa et al., 2019; Salim et al., 2020; Sedighie, 2020).

As for the purpose of the studies, most of them were to know the level of nurses in terms of knowledge and attitude, as it was in studies completed by (Brant et al., 2017; Kahsay & Pitkäjärvi, 2019a; Liyew et al., 2020; Nimer & Ghrayeb, 2017; Ou et al., 2020; Panlican et al., 2020; Salameh, 2018) , and some others added to that practice, such as (Mondol et al., 2018; Qasim, 2021; Tercan, 2017; Toba et al., 2019b), and some of them aimed to know the effect of the educational program regarding pain management on nurses' knowledge, attitudes and practices, such as (Germossa et al., 2018; Issa et al., 2019; Salim et al., 2020; Sedighie, 2020).

There are many studies, such as (Alzghoul & Azimah Chew Abdullah, 2016; Brant et al., 2017; Liyew et al., 2020; Manwere et al., 2015; Mondol et al., 2018; Nimer & Ghrayeb, 2017; Ou et al., 2020; Panlican et al., 2020; Toba et al., 2019b), that targeted nurses in different departments, others focused on intensive care nurses such as (Issa et al., 2019; Kia et al., 2021; Salameh, 2018; Sedighie, 2020), and others focus on neonatal and pediatric ICUs such as (Qasim, 2021).

In the context of selecting the sample, some used a comprehensive sample such as q(Kahsay & Pitkäjärvi, 2019a; Qasim, 2021; Tercan, 2017), some used a random sample such as (Liyew et al., 2020; Manwere et al., 2015; Nimer & Ghrayeb, 2017; Panlican et al., 2020; Salim et al., 2020)and others used a non-probability sample such as (Ou et al., 2020; Toba et al., 2019b).

Chapter III

Methodology

Chapter III
Methodology

This chapter explained the method that researcher used to answer the study questions and the items of research method were presented and explained from design of study and reaching to the data analysis . this items show the researcher work and how he reach to the results.

3.1 Study design

The study was carried out using a descriptive and analytical design "to assess knowledge, attitudes and practices of nurses regarding pain management in ICUs at governmental hospital in Gaza Strip.

3.2 Study population

The study population consists of the total number of nurses working in the adult intensive care units in government hospitals and who have more than six months of experience. Their number reached 130 nurses during the study period: 38 nurses from Al-shifa complex, 31 nurses from European Gaza Hospital, 17 nurses from Indonesian hospital, 27 nurses from Nasser complex, and 17 nurses from al Aqsa Hospital.

3.3 Sample and sampling

A census sample was selected for the entire study population, which numbered 130 nurses, and the number of participants in the study was 115 nurses, with a response rate of 88.5%.

3.4 Study Setting

This study was conducted in ICUs at main Gaza governmental hospitals including: Al-shifa complex, European Gaza Hospital, Indonesian hospital, Nasser complex, and al Aqsa Hospital.

3.5 Eligibility Criteria

Inclusion Criteria: Nurses working in ICUs of target hospitals: Al-shifa complex, European Gaza Hospital, Indonesian hospital, Nasser complex, and al Aqsa Hospital. And providing nursing care for patients.

Exclusion Criteria: Nurses who were under six months of experience.

3.6 Period of Study:

The study began in April 2021 and was completed in December 2021.

3.7 Data collection and Study instruments:

This research used a self-administered questionnaire, which consists of three domains: the first domain is sociodemographic data that includes. The second part is adapted from Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP) tool it created by Ferrell and McCaffery to make assessment of nurses' knowledge and attitudes about pain control. The NKASRP tool contains items regarding pain assessment, pharmacological and nonpharmacological manipulations, and attitudes of pain control. But in this study research adapted NKASRP tool and the the questions related to oral administration of drugs were omitted because the patient in intensive care needs accurate administration It is calculated for absorption and effectiveness, and this is not available in oral treatments, as the patient suffers from an imbalance in the functions of the stomach and organs as a whole in general. A question related to alcoholic beverages has also been cancelled, as it is forbidden and not allowed to be used in the Gaza Strip. Therefore the second contain 32 item, it consist of 21 true or false item, 9 multiple choice item, and 2 question about case study. Each question that is solved correctly in this part will be given one point, and the wrong answer will be given a score of zero. Thus, the scores are combined to determine the level of knowledge and attitude of each participant.

As for the third domain it is a Likert scale ranking from 0 to 5 to measure the practices of pain management for nurses. This part was created by the researcher with the help of previous studies and was presented to a number of experts (annex 2 show the list of experts). It contain 15 item about practice of pain management. Annex 1 show the questinaire.

3.8 Pilot study

A questionnaire was distributed to 30 participants to conduct a pilot study, through which it was possible to measure validity and reliability. The content of the questionnaire was not modified after that, and therefore it was included in the study

3.9 Validity and Reliability:

The questionnaire was presented to a number of academic experts to know the Validity, and there were modifications and additions made to the questionnaire, especially the practical part.

The Cronbach alpha coefficient of the questionnaire was measured for both the knowledge and attitude part, as well as the practice part.

Table (3.1): Cronbache alpha coefficient

Domain	Number of items	Alpha coefficient
Knowledge and attitude about pain management	21	0.848
Practice of pain management	15	0.837

From above table Cronbach alpha coefficient was.848 for knowledge and attitude about pain management quetionaire and.837 for practice of pain management questionnaire and this indicates a high reliability of the tool.

NKASRP tool is valid as Since Its created in 1987 studies have undergone extensive tests on nurses and identified as distinguishing between levels of expertise and the NKASRP tool is reliable with a test–retest reliability of >0.80 and a Cronbach α of 0.70 (McCaffery and Ferrell, 2014).

The researcher used Spearman Correlation test to test the correlation between each item in practice part and the total score of the tool as showed in the following table.

Table (3.2): Correlation between each item and total score of the questionnaire

No.	Item	Correlation
1	In my perspective, I give the patient adequate pain management	0.559 **
2	I assess patient's pain every nursing shift	0.656 **
3	I document patient's pain every nursing shift	0.553 **
4	I assess patient's pain when needed (ie when patient complains of pain)	0.597 **
5	I use a pain assessment tool for patients	0.434 **
6	I assess and document pain characteristic at least every 8 hours	0.537 **
7	I discuss pain scores and management during nurse-to-nurse report	0.592 **
8	I take patient's complaint of pain seriously	0.584 **
9	I suggest with patient methods (pharmacological or	0.543 **

	nonpharmacological) that will be used to manage pain	
10	I document time, name, route, and dosage of each administered opioid, or non-opioid analgesic	0491 **
11	I assess contraindication for the prescribed analgesic prior to its administration	0.494 **
12	I assess the effect of analgesic after administering pain medication	0574 **
13	I assess opioid-related side effects by monitor respiration rate, sedation levels,nausea/vomiting, and so on	0.625 **
14	I use nonpharmacological intervention such as massages, distraction …etc.	0.533 **
15	I provide counseling and education for patient and his family (for conscious patients)	0.588 **

**Significant at 0.01

Above table shown that practice item have a statistically significant correlation with a total score of the questionnaire and it consider high correlation and this enforced the researcher application of the questionnaire.

3.10 Ethical and Administrative Considerations

An ethical approval (Annex 3) was obtained from the Helsinki Committee. Also, administrative approval was asked from the MOH (Annex 4). All nurse participated was informed around the study goal and objectives.

A special form was designed before applying the study, When engaging in this study, the researcher does not expect any harm to the participants and the data will be entered and dealt with reliably and honestly. It will cost you a little time, knowing that participation is voluntary and not compulsory

3.11 Statistical Analysis

Statistical Package of social sciences (SPSS) software version 22. was used in order to analyze data. And the following statistical tools and tests was used to reach the study results:

- Descriptive statistics as: mean, frequency, percentage, standered deviation.
- Person correlation test.
- Cronbach alpha test.
- Fisher Exact test.
- Chi-sequare test.

3.12 Limitation of Study:

Lack of cooperation by few nurses who refused to fill the questionnaire led to difficulty in collecting data.

The new Corona epidemic also caused restrictions in movement and access for participating nurses.

Chapter IV

Results and discussion

Chapter IV
Results and discussion

4.1 Characteristics of study participants
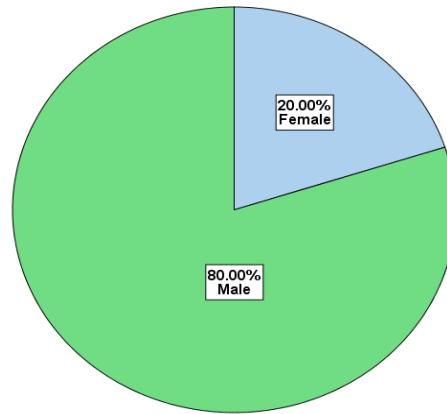
Figure (4.1): Distribuation of nurses by gender.

The participants of the study consisted of 115 nurses who are working in ICUs at governmental hospitals in GS, 92 (80%) were males and 23 (20%) were females, this may be because most females prefer to work in a department that requires less effort than the intensive care department as it requires great physical effort in caring for patients who often depend on the nurse for everything.
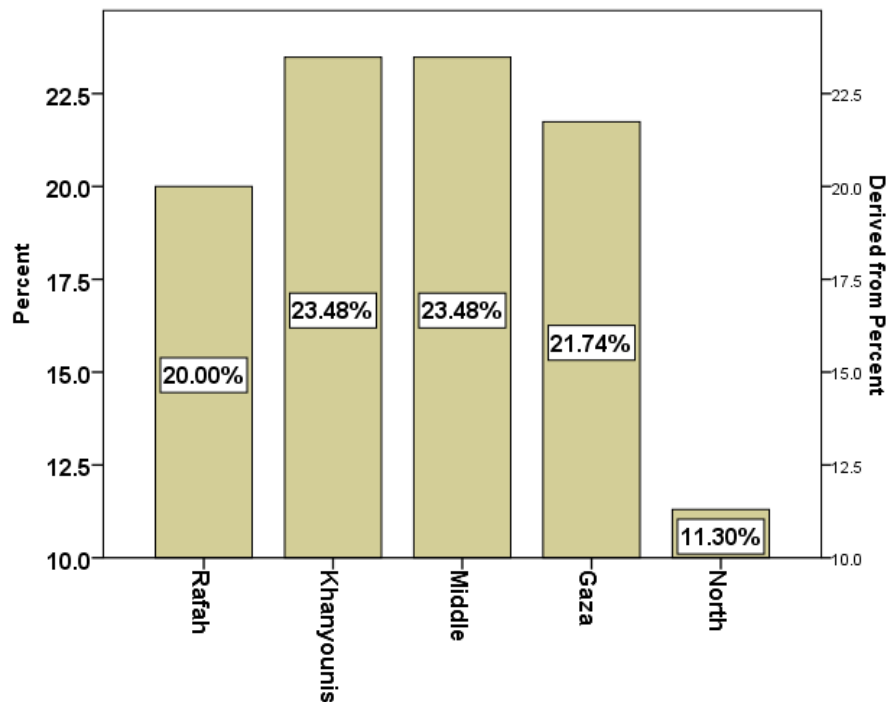
Figure (4.2): distribution of nurses by place of resdency

According to residency: 23 (20%) were from Rafah, 27 (23.5%) were from Khanyounis, 27 (23.5%) were from the middle zone, 25 (21.7%) were from Gaza, and 13 (11.3%) were from the north of Gaza. It is clear from the figure that there is a convergence of the number of nurses in relation to the place of residence in all areas except north of Gaza, and this is probably because the nurses prefer to work in hospitals close to their residence, which may not include adult ICU.

Table (4.1): Sociodemographic characteristics of study participants (n=115)

Variables		N	Percent
Age	25 years and less	29	25.2
	26 – 30 years	45	39.1
	31 – 35 years	32	27.8
	36 years and more	9	7.8
	Total	115	100.0
	Mean= 29.57±5.317 years		
Level of education	Bachelor	101	87.8
	Master degree	14	12.2
	Total	115	100.0

The participants mean age was 29.57±5.317 years, most of them 45 (39.1%) aged 26 – 30 years and 32 (27.8%) aged 31 – 35 years old, This is explained by the number of employment in the recent period, which was large due to the needs in the ministry. Concerning level of education, 101 (87.8%) have bachelor degree in nursing, and 14 (12.2%) have master degree, as there is a plan from the Ministry to have nursing from a bachelor's degree or higher in order to improve the quality of care provided.
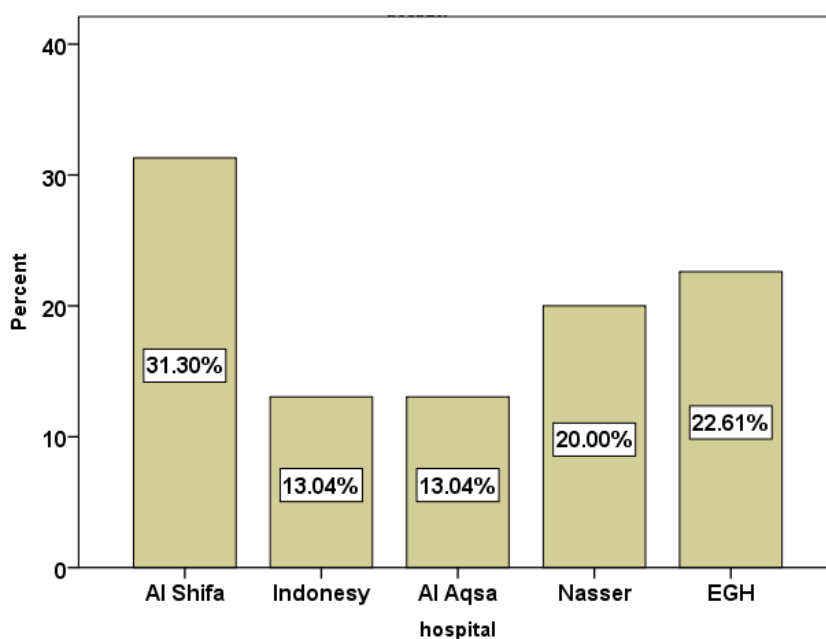
Figure (4.3): distribution of nurses by hospital.

Figure (4.3) showed that 36 (31.3%) of study participants were from Al Shifa hospital, 15 (13%) were from the Indonesian hospital, 15 (13%) were from Shohada Al Aqsa hospital, 23 (20%) were from Nasser hospital, and 26 (22.7%) were from European Gaza Hospital.
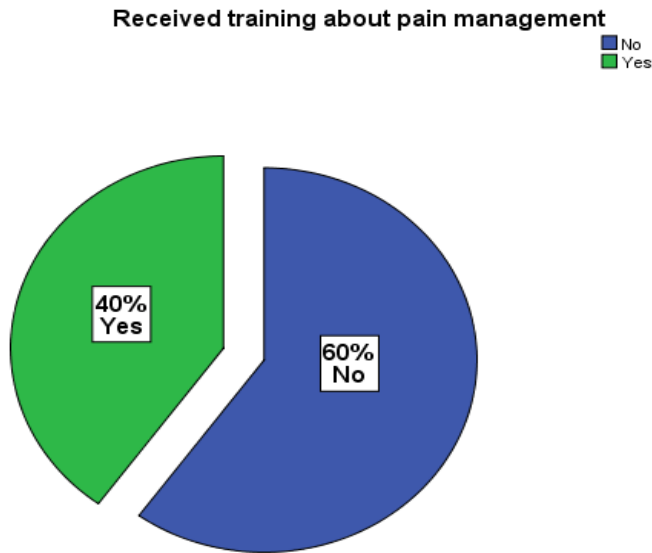
Figure (4.4): distribution of nurses according to pain training attendance.

From Figure (4.4), it's clear that a most of the study participants 69 (60%) have not received training about pain management, while 46 (40%) received training about pain management. Similarly, a study conducted by Kahsay & Pitkäjärvi (2019) showed the same percentage of nurses who received training. On other hand, a study surveyed by Alzghoul & Azimah Chew Abdullah (2016), the percentage of those receiving training was much lower, as it was 73.3%.
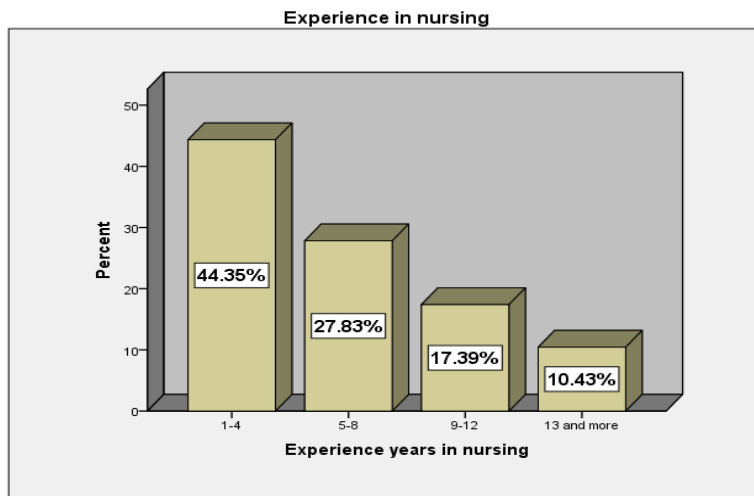
Figure (4.5): participants experience in nursing
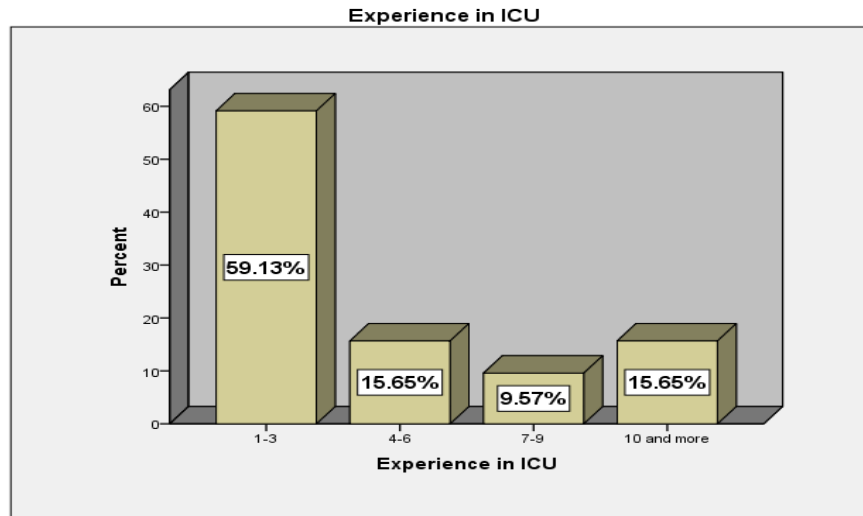
Figure (4.6): nurses' experience in ICU

From figure (4.5)The mean years of experience in nursing was 6.44±5.028 years; 51 (44.3%) have 1 – 4 years of experience in nursing, and 32 (27.8%) have 5 – 8 years of experience.

Regarding experience in ICU, Figure(4.6) showed that the mean years of experience was 4.47±4.218 years; 68 (59.1%) have 1 – 3 years of experience in ICU, 18 (15.7%) have 4 – 6 years of experience, 11 (9.6%) have 7 – 9 years of experience, and 18 (15.7%) have 10 years and more experience in ICU. These results are consistent with what mentioned before that the number of recruitment was large in the recent period, and most of them were to fill the deficit in the ICUs and emergency departments.

4.2 Knowledge and attitude towards pain management in ICU

Table (4.2): true or false question about knowledge and attitude towards pain management in ICU (n=115)

No.	Item	Correct answer n (%)	
1	Vital signs are always reliable indicators of the intensity of a patient's pain	40	34.8
2	Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences	52	45.2
3	Patients who can be distracted from pain usually do not have severe pain	43	37.4
4	Patients may sleep in spite of severe pain	35	30.4

No.	Item	Correct answer n (%)	
5	Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases	37	32.2
6	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months	57	49.6
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	83	72.2
8	The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours	68	59.1
9	Opioids should not be used in patients with a history of substance abuse	72	62.6
10	Elderly patients cannot tolerate opioids for pain relief	81	70.4
11	Patients should be encouraged to endure as much pain as possible before using an opioid	56	48.7
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	79	68.7
13	Patients' spiritual beliefs may lead them to think pain and suffering are necessary	77	67.0
14	After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response	90	78.3
15	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real	34	29.6
16	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	31	27.0
17	Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose	75	65.2
18	Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regimen	71	61.7
19	Narcotic/opioid addiction is defined as a chronic neuro-biologic 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	87	75.7
20	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	81	70.4
21	Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression	85	73.9

Table (4.3): multiple-choice questions about knowledge and attitude towards pain management in ICU (n=115)

No.	Item	Correct answer n (%)	
22	The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is: (intravenous)	100	87.0
23	Analgesics for post-operative pain should initially be given: (around the clock on a fixed schedule)	54	47.0
24	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%)	28	24.3
25	The most likely reason a patient with pain would request increased doses of pain medication is: (The patient is experiencing increased pain)	57	49.6
26	The most accurate judge of the intensity of the patient's pain is: (the patient)	79	68.7
27	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)	61	53.0
28	The time to peak effect for morphine given IV is: (15 minutes)	37	32.2
29	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)	57	49.6
30	Which statement is true regarding opioid induced respiratory depression: (Obstructive sleep apnea is an important risk factor)	62	53.9
31a	Assessment of pain	20	17.4
31b	Action to be taken (administer morphine 3 mg IV now)	28	24.3
	Overall mean percent	52.09	

Table (4.3a) and table (4.3b) showed that the highest score was in item 22 that report the administration route recommended of opioid analgesics for clients with severe pain of sudden onset such as trauma or postoperative pain is intravenous way (87%), in (Salameh, 2018) research it count just 59.3%, followed by item 14 that talked about adjusted the doses of opioids after the first dose (78.3%), in (Salameh, 2018) study percent was 65.9%, followed by item 19 that define the addiction (75.7%). The lowest score was in knowing the severity of pain (17.4%), In (Salameh, 2018) research we found 26% of nurses had correct answer on this item, followed by being knowledgeable that the likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is less than 1% (24.3%),it was 37.4 % in (Salameh, 2018), followed by item 16 (27%)

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that explain if the patient didn't have diagnosis and known source of pain the nurse can use medication to control pain.

In (Salameh, 2018) survey the highest percent of correct answer was for the question of "Patients' spiritual beliefs may lead them to think pain and suffering are necessary" but in this study the percentage of correct answers to it was 67%.

Overall, the mean percentage of knowledge and attitude was 52.09%, which indicated that the ICU nurses have low knowledge and attitude about pain management.

This is in agreement with many studies, which acknowledged that the mean knowledge and attitude were low. Among these studies, a study conducted in WB by (Salameh, 2018), where the average knowledge and attitude was lower than participants in this study scored 45%. The results also agreed with a study conducted in WB by (Nimer & Ghrayeb, 2017) and there was a low average of knowledge and attitude (mean=45.6%) and lower than a nurses in this study scored. There is also a consistency between these results and what (Qasim, 2021) reached when he assess the neonatal ICU nurses' knowledge which was low with a percentage of mean (59.4), which is a higher percentage than what was reached in this study.

In United States, in the study conducted by Brant et al. (2017), the results were better than nurses in this study achieved , as the knowledge mean reached 72% and this is possible because the nursing sample was more experienced, 56% had experience more than 10 years, and most of them had pain education in the past year.

Table (4.4): Level of knowledge and attitude towards pain management

Rank	Level of knowledge and attitude	
	N	%
Low (Less than 60%)	99	86.1
Moderate (60 – 80%)	15	13.0
High (More than 80%)	1	0.9

Table (4.4) showed that 99 (86.1%) of study participants have low knowledge and attitude about pain management, 15 (13%) have moderate knowledge and attitude, and 1 (0.9%) have high knowledge and attitude about pain management.

There a consistency between these results and what (Thapa & Gurung, 2020) reached, The survey revealed that 85.1% participants had low knowledge level.

Table (4.5): Differences in knowledge and attitude about pain management related to gender

Rank	Gender		Statistics	P value
	Female n (%)	Male n (%)		
Low	20(87.0)	79(85.9)		
Moderate	3(13.0)	12(13.0)	0.510	1.000
High	0	1(1.1)		
Total	23(100.0)	92(100.0)		

Fisher Exact Test

Table (4.5) showed that 87% of female nurses and 85.9% of male nurses have low knowledge and attitude about pain management, without significant differences between the two groups.

The concordance seems clear with a studies conducted by (Kahsay & Pitkäjärvi, 2019a; Nimer & Ghrayeb, 2017; Salameh, 2018) that observed that there is no statistically significant difference with respect to gender

This is what Panlican et al., (2020) opposed in his study. In addition, These results do not correspond in this aspect with a study conducted by (Toba et al., 2019a), which showed that a males had significantly higher scores (p = 0.001) compared to females.

Another study is not in line with this result, as it was found in the (Samarkandi, 2018) study that females achieved better results than males, and there was statistical significance with p= 0.011. the same disagreement was in a study conducted by (Al Omari et al., 2021).

Table (4.6): Differences in knowledge and attitude about pain management related to age

Rank	Age (Year)				Statistics	P value
	≤ 25 n (%)	26 - 30 n (%)	31 – 35 n (%)	≥ 36 n (%)		
Low	25(86.2)	42(93.3)	27(84.4)	5(55.6)		
Moderate	4(13.8)	3(6.7)	5(15.6)	3(33.3)	11.293	0.037*
High	0	0	0	1(11.1)		
Total	29(100.0)	45(100.0)	32(100.0)	9(100.0)		

Fisher Exact Test   *Significant at 0.05

Table (4.6) showed that 13.8% of nurses from the age group 25 years and less, 6.7% of the nurses from the age group 26 – 30 years, 15.6% of the nurses from the age group 31 – 35 years, and 33.3% of the nurses from the age group 36 years

and more have moderate level of knowledge and attitude, and 11.1% of the nurses from the age group 36 years and more have high level of knowledge and attitude about pain management with statistically significant differences (P= 0.037). This result indicated that older age nurses have higher level of knowledge and attitude about pain management compared to younger age nurses. It is possible to explain this result that age of nurse add much to theire attitudes toward pain as they may had more pain experience in theire live or in their family.

These outputs are not in line with what was included by the research by (Nimer & Ghrayeb, 2017; Salameh, 2018; Toba et al., 2019a) that the age of nurses does not have a statistically significant effect on nurses' knowledge and attitudes regarding pain control.

Panlican et al., (2020) also has opposing results that there is no statistical significance in the relationship between age and both knowledge and attitude (P= 0.4), The same is true for studies conducted by (Brant et al., 2017; Kahsay & Pitkäjärvi, 2019a).

Table (4.7): Differences in knowledge and attitude about pain management related to place of residency

| Rank | Place of residency | | | | | statistics | P value |
	Rafah n (%)	Khanyounis n (%)	Middle n (%)	Gaza n (%)	North n (%)		
Low	20(87.0)	23(85.2)	23(85.2)	20(80.0)	13(100.0)		
Moderate	3(13.0)	3(20.0)	4(14.8)	5(20.0)	0	6.760	0.624
High	0	1(3.7)	0	0	0		
Total	23(100.0)	27(100.0)	27(100.0)	25(100.0)	13(100.0)		

Fisher Exact Test

Table (4.7) showed that 87% of nurses from Rafah, 85.2% of nurses from Khanyounis, 85.2% of nurses from the middle zone, 80% of the nurses from Gaza, and 100% of the nurses from the north have low level of knowledge and attitude about pain management without statistically significant differences. This result indicated that there were no significant differences in level of knowledge and attitude about pain management related to place of residency.

It is possible to explain this result that the culture in the Gaza Strip is very similar in most areas, and therefore the difference in the residential area may not affect the level of knowledge of the nurse and his attitude towards pain management.

Table (4.8): Differences in knowledge and attitude towards pain management related to level of education

Rank	Level of education		Statistics	P value
	Bachelor n (%)	Master n (%)		
Low	89(88.1)	10(71.4)	6.070	0.063
Moderate	12(11.9)	3(21.4)		
High	0	1(7.1)		
Total	101(100.0)	14(100.0)		

Fisher Exact Test

Table (4.8) showed that 88.1% of nurses with bachelor degree and 71.4% of nurses with master degree have low level of knowledge and attitude about pain management. This result indicated that there were no significant differences in level of knowledge and attitude about pain management related to qualification of nurses.the result can be explained by that the master degree did not add much to nurses about pain management as many of nurses had master degree away from nursing science. and this consistent with researches done by (Nimer & Ghrayeb, 2017)

This is not in line with the results of the (Kahsay & Pitkäjärvi, 2019a; Salameh, 2018) study , which said that there is a statistically significant relationship between knowledge and attitude with regard to academic qualification.

Table (4.9): Differences in knowledge and attitude about pain management related to hospital

Rank	Hospital					Statistics	P value
	Al Shifa n (%)	Indonesy n (%)	Al Aqsa n (%)	Nasser n (%)	EGH n (%)		
Low	31(86.1)	14(93.3)	13(86.7)	18(78.3)	23(88.5)	5.382	0.885
Moderate	4(11.1)	1(6.7)	2(13.3)	5(21.7)	3(11.5)		
High	1(2.8)	0	0	0	0		
Total	36(100.0)	15(100.0)	15(100.0)	23(100.0)	26(100.0)		

Fisher Exact Test

Table (4.9) showed that 86.1% of nurses from Al Shifa hospital, 93.3% of nurses from Indonesy hospital, 86.7% of nurses from Shohada Al Aqsa hospital, 78.3% of nurses from Nasser hospital, and 88.5% of nurses from EGH have low level of knowledge and attitude about pain management without significant

difference. This result indicated that there were no significant differences in level of knowledge and attitude about pain management knowledge related to hospital.

In study completed via (Nimer & Ghrayeb, 2017) there was a statistically significant difference between knowledge, attitude, and hospital in which participants worked with p less than.001. That is, the level of knowledge and attitude changed with the change in the place in which the nurse worked.

Another study completed by (Ufashingabire et al., 2016) disagree with study result and it reported that the mean of knowledge had significant deference in relation to hospital.

Table (4.10): Differences in knowledge and attitude about pain management related to experience in nursing

Rank	Experience in nursing (Year)				Statistics	P value
	1 – 4 n (%)	5 - 8 n (%)	9 – 12 n (%)	≥ 13 n (%)		
Low	45(88.2)	30(93.8)	16(80.0)	8(66.7)		
Moderate	6(11.8)	2(6.2)	4(20.0)	3(25.0)	9.374	0.087
High	0	0	0	1(8.3)		
Total	51(100.0)	32(100.0)	20(100.0)	12(100.0)		

Fisher Exact Test

Table (4.10) showed that 88.2% of nurses with 1 - 4 years of experience in nursing, 93.8% of nurses with 5 – 8 years of experience, 80% of nurses with 9 – 12 years of experience, and 66.7% of nurses with 13 years and more of experience in nursing have low level of knowledge and attitude about pain management without significant difference. This result indicated that there were no significant differences in level of knowledge and attitude about pain management related to years of experience in nursing. This can be explained by that the nurses in theire experience at ICUs focous in other skills they think it most important to save the patient and to inhance the critical case.

In this context, the finding agree with what (Salameh, 2018)indicated in his survey that years of working is not statistically significant in relation to the knowledge and attitude of the participants in the study.That is true for studies conducted by (Kahsay & Pitkäjärvi, 2019a; Panlican et al., 2020) And through their results, it was found that the effect of experience on knowledge and attitude is not statistically significant.

But (Brant et al., 2017) did not agree with the results of the study, and indicated in its results that one of the predictors of knowledge is having more than five years of experience.

Table (4.11): Differences in knowledge and attitude about pain management related to experience in ICU

Rank	Experience in ICU (Year)				Statistics	P value
	1 – 3 n (%)	4 - 6 n (%)	7 – 9 n (%)	≥ 10 n (%)		
Low	61(89.7)	16(88.9)	9(81.8)	13(72.2)		
Moderate	7(10.3)	2(11.1)	2(13.3)	4(22.2)	7.522	0.256
High	0	0	0	1(5.6)		
Total	68(100.0)	18(100.0)	11(100.0)	18(100.0)		

Fisher Exact Test

Table (4.11) showed that 89.7% of nurses with 1 - 3 years of experience in ICU, 88.9% of nurses with 4 – 6 years of experience, 81.8% of nurses with 7 – 9 years of experience, and 72.2% of nurses with 10 years and more of experience in ICU have low level of knowledge and attitude about pain management without significant difference. This result indicated that there were no significant differences in level of knowledge and attitude about pain management related to years of experience in ICU. Also, This can be explained by that the nurses in theire experience at ICUs focous in other skills they think it most important to save the patient and to inhance the critical case.

This is not in line with the results of the study conducted by (Sedighie, 2020) , which said that there is a statistically significant relationship between knowledge with regard to experience in ICU.

Table (4.12): Differences in knowledge and attitude towards pain management related to training

Rank	Received training		χ^2	P value
	No n (%)	Yes n (%)		
Low	57(82.6)	42(91.3)		
Moderate	12(17.4)	3(6.5)	4.242	0.089
High	0	1(2.2)		
Total	69(100.0)	46(100.0)		

Chi square test

Table (4.12) showed that 82.6% of nurses who did not receive training, and 91.3% of nurses who received training have low level of knowledge and attitude

about pain management without significant difference. This result indicated that there were no significant differences in level of knowledge and attitude about pain management related to training. This can be attributed to the fact that most of the training that nurses receive is not mandatory, and therefore the nurse is not obliged to pay attention to these courses.

A study conducted by (Samarkandi, 2018) showed in agreement with this result that there is no statistically significant effect of training and education on knowledge and attitude.

When reviewing a survey conducted by (Panlican et al., 2020), it becomes clear that there is a positive relationship (p =.01) between the number of training times, which can range between 0 and 5 times or more, and the level of knowledge and attitude of the nurses ,This is in contrast to the results in this research.

Another survey conducted by (Kahsay & Pitkäjärvi, 2019a) reflected the inconsistency , it revealed that there statistically significant relationship (p=.003) other study reported the same thing (Brant et al., 2017).

However, the study agreed with a survey conducted by (Nimer & Ghrayeb, 2017) where it became clear that there is no statistically significant effect by age.

4.3 Practice of pain management in ICU

Table (4.13): Level of practicing pain management in ICU (n= 115)

No.	Item	Never	Rarely	Sometimes	Often	Always	Mean	SD	%	Rank
1	In my perspective, I give the patient adequate pain management	2.6	11.3	30.4	47.8	7.8	3.47	0.892	69.4	8
2	I assess patient's pain every nursing shift	0.9	13.0	46.1	27.8	12.2	3.37	0.893	67.4	10
3	I document patient's pain every nursing shift	2.6	15.7	33.0	30.4	18.3	3.46	1.045	69.2	9
4	I assess patient's pain when needed (ie when patient complains of pain)	0.9	6.1	27.8	45.2	20.0	3.77	0.869	75.4	6
5	I use a pain assessment tool for patients	14.8	27.0	32.2	20.0	6.1	2.76	1.121	55.2	14
6	I assess and document pain characteristic at least every 8 hours	16.5	23.5	36.5	18.3	5.2	2.72	1.105	54.4	15

No.	Item	Never	Rarely	Sometimes	Often	Always	Mean	SD	%	Rank
7	I discuss pain scores and management during nurse-to-nurse report	7.8	21.7	34.8	27.8	7.8	3.06	1.062	61.2	13
8	I take patient's complaint of pain seriously	1.7	6.1	20.9	47.8	23.5	3.85	0.910	77.0	5
9	I suggest with patient methods (pharmacological or nonpharmacological) that will be used to manage pain	3.5	15.7	37.4	35.7	7.8	3.29	0.944	65.8	12
10	I document time, name, route, and dosage of each administered opioid, or non-opioid analgesic	1.7	2.6	16.5	20.9	58.3	4.31	0.958	86.2	1
11	I assess contraindication for the prescribed analgesic prior to its administration	0	7.8	20.0	35.7	36.5	4.01	0.941	80.2	2
12	I assess the effect of analgesic after administering pain medication	0.9	5.2	27.8	39.1	27.0	3.86	0.907	77.2	4
13	I assess opioid-related side effects by monitor respiration rate, sedation levels,nausea/vomiting, and so on	0	3.5	27.8	40.0	28.7	3.94	0.841	78.8	3
14	I use nonpharmacological intervention such as massages, distraction …etc.	5.2	21.7	35.7	27.8	9.6	3.15	1.037	63.0	11
15	I provide counseling and education for patient and his family (for conscious patients)	1.7	9.6	32.2	36.5	20.0	3.63	0.967	72.6	7
Overall average							3.51	0.535	70.2	

Table (4.13) showed that the highest score was in "I documenting time, name, route, and dosage of each administered opioid, or non-opioid analgesic" with mean score 4.31 and mean percent 86.2%, followed by (assessing contraindication for the prescribed analgesic prior to its administration) with mean score 4.01 and mean percent 80.2%, and "assessing opioid-related side effects by monitor respiration rate, sedation levels,nausea/vomiting, and so" on with mean score 3.94 and mean percent 78.8%. The lowest score was in assessing and documenting pain characteristic at least every 8 hours with mean score 2.72 and mean percent 54.4%, followed by using

a pain assessment tool for patients with mean score 2.76 and mean percent 55.2%.This is slightly less than what was found in a study that was formed by Net, which showed that the percentage of nurses who use the assessment tool is slightly more than half 58,5%.

The overall mean score was 3.51 with mean percent 70.2%, which indicated that practicing of pain management was above moderate.

Thus, the practice level of nurses in this study is much higher than what was found in a study regarding neonatal nurses' knowledge in the Gaza Strip, where the practice mean was (58.3%).(Qasim, 2021)

But there is harmony with the study completed by Alzghoul & Azimah Chew Abdullah (2016) which reported a moderate level of pain management practices (Mean = 4.968±1.310)

Table (4.14): Differences in practice of pain management related to gender

	Gender	n	Mean	SD	T	P value
Practice of pain management	Female	23	3.643	0.717	1.333	0.185
	Male	92	3.477	0.479		

Table (4.14) showed that there were statistically no significant differences in practice of pain management between male and female nurses (t= 1.333, P= 0.185).

In this regard, (Amra, 2018) agreed with this result and pointed out that gender does not represent a statistically significant difference in the practice of nurses with (p =.147)

Table (4.15): Differences in practice of pain management related to age

Age (years)		n	Mean	SD	F	P value
Practice of pain management	25 and less	29	3.655	0.442	1.889	0.136
	26-30	45	3.552	0.606		
	31-35	32	3.368	0.481		
	36 and more	9	3.340	0.530		
	Total	115	3.510	0.535		

Table (4.15) showed that there were statistically no significant differences in practicing pain management related to age of nurses (F= 1.889, P= 0.136).

The agreement was clear for this result with a study conducted by (Amra, 2018) that indicated that age does not affect the nurses' practice regarding pain management in a statistically significant manner (P =.147).

A survey conducted by (Thapa & Gurung, 2020) disagree with results of this study regarding age effect as the age make significant relationship in practice level.

Table (4.16): Differences in practice of pain management related to place of residency

Place of residency		N	Mean	SD	F	P value
Practice of pain management	Rafah	23	3.626	0.627	0.639	0.636
	Khanyounis	27	3.533	0.506		
	Middle	27	3.442	0.448		
	Gaza	25	3.416	0.569		
	North	13	3.584	0.549		
	Total	115	3.510	0.535		

Table (4.16) showed that there were statistically no significant differences in practicing pain management related to place of residency (F= 0.639, P= 0.636).

In a study conducted by (Al Omari et al., 2021) there was a statistically significant difference in the outcome for the place of residence, perhaps this was due to the significant difference in culture between the places of residence, but in here the places of residence carry the same culture and language.

Table (4.17): Differences in practice of pain management related to qualification

	Level of education	N	Mean	SD	T	P value
Practice of pain management	Bachelor	101	3.509	0.535	0.062	0.951
	Master	14	3.519	0.557		

Table (4.17) showed that there were statistically no significant differences in practicing pain management related to level of education (t= 0.062, P= 0.951).

This result in line with another research finding conducted via (Thapa & Gurung, 2020).

Another study agreed with this result, as (Amra, 2018) indicated that the practice of nurses does not differ in a statistically significant way in relation to the educational qualification (P=.060).

Table (4.18): Differences in practice of pain management related to hospital

Hospital		N	Mean	SD	F	P value
Practice of pain management	Al Shifa	36	3.446	0.526	0.415	0.797
	Indonesy	15	3.582	0.598		
	Al Aqsa	15	3.435	0.395		
	Nasser	23	3.521	0.590		
	EGH	26	3.592	0.553		
	Total	115	3.510	0.535		

Table (4.18) showed that there were statistically no significant differences in practicing pain management related to hospital (F= 0.415, P= 0.797).

This result agrees with what we mentioned when discussing the hospital's relationship with knowledge and attitude, and there was no statistical difference for

the hospital in which the nurse works, and this disagreed with several studies as(Nimer & Ghrayeb, 2017; Ufashingabire et al., 2016).

Table (4.19): Differences in practice of pain management related to years of experience in nursing

Years of experience in nursing		n	Mean	SD	F	P value
Practice of pain management	1-4 years	51	3.585	0.495	1.563	0.202
	5-8 years	32	3.556	0.627		
	9-12 years	20	3.390	0.482		
	13 years and more	12	3.272	0.475		
	Total	115	3.510	0.535		

Table (4.19) showed that there were statistically no significant differences in practicing pain management related to years of experience in nursing (F= 1.563, P= 0.202).

This finding consistent with result of study conducted by (Thapa & Gurung, 2020) indicated that experience as a nurse does not have a statistically significant effect on the nurse's practice.

This result was in line with what (Amra, 2018) indicated that experience as a nurse does not have a statistically significant effect on the nurse's practice of pain management (P=.631).

Table (4.20): Differences in practice of pain management related to years of experience in ICU

Years of experience in ICU		n	Mean	SD	F	P value
Practice of pain management	1-3 years	68	3.588	0.531	1.779	0.155
	4-6 years	18	3.529	0.558		
	7-9 years	11	3.315	0.535		
	10 years and more	18	3.318	0.494		
	Total	115	3.510	0.535		

Table (4.20) showed that there were statistically no significant differences in practicing pain management related to years of experience in ICU (F= 1.779, P= 0.155).

In general, this result agrees with what we mentioned previously regarding experience as a nurse and its impact on practice, as it was not statistically significant.(Amra, 2018; Thapa & Gurung, 2020)

Table (4.21): Differences in practice of pain management related to training about pain management

	Received training	n	Mean	SD	T	P value
Practice of pain management	No	69	3.601	0.531	2.251	0.026*
	Yes	46	3.375	0.517		

*Significant at 0.05

Table (4.21) showed that there were statistically significant differences in practicing pain management related to training (t= 2.251, P= 0.026). This result indicated that ICU nurses who received training about pain management expressed better practice of pain management compared to those who have not been trained about pain management. From this result it become clear the need to focous on training and continuous education to improve painpractice.

This finding congruent with study result which surveyed via (Thapa & Gurung, 2020) as the results indicated that training had a statistically significant effect on the nurse's practice.

4.4 Relationship between (knowledge and attitudes) and practice of pain management

Table (4.22): Relationship between (knowledge and attitudes) and practice of pain management

		Practice
Knowledge and attitude towards pain management	R	0.007
	P value	0.944

The results showed that there were statistically no significant relationship between knowledge and attitude towards pain management and practice of pain management (r= 0.007, P= 0.944). This result is in accordance with other results of this study; even though there was low level of knowledge and attitude towards pain management (52.09%) but the level of practice of pain management was higher (70.2%).

(Amra, 2018) showed agreement with this result, as he indicated that knowledge does not have a statistically significant effect on the nurse's practice of pain management.

This results inconsistent with a finding of survey conducted by Alzghoul & Azimah Chew Abdullah (2016) which reported a strong association between attitudes of nurses towards pain management and practice of pain management (t = 11.996, p< 0.001) and reported a significant positive relationship between the pain management knowledge and pain management practices (t = 6.60, p< 0.001).

In other side, there is study conducted by (Thapa & Gurung, 2020) in agreement with this study result, and the researchers reported that there was no significant statistically relationship between (knowledge and attitude) and practice.

This contradiction is also in relation to what the results indicated in a study conducted by (Al Omari et al., 2021) that there is an effect of practice by both knowledge and attitude.

Chapter V
Conclusions and
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5.1 Conclusion

Pain is a physically and emotionally painful experience that patients experience during their hospitalization and patients in intensive care unit experience pain either while resting or during routine care procedures such as repositioning or endotracheal tube aspiration. Therefore, it was necessary for the nurses to have sufficient knowledge and appropriate attitudes to carry out effective management for pain.

This study aimed to assess the knowledge, attitudes and practice of nurses regarding pain management in ICUs at governmental hospitals in Gaza Strip.

Of the 115 nurses who completed the questionnaire, 80% were males, and the average age of the participants was 29.57 years, while the percentage of those who received training in pain management was 60%. The results showed a low level of nurses in knowledge and attitude, with mean 52.09%, and the sociodemographic variables did not present any statistically significant differences except for age (P=0.037). However, the participants showed a good level of practice, with mean 70.2%, which was significantly affected by the training on pain management with (P=0.026).

From these results, it was revealed the low level of knowledge of pain management for nurses working in intensive care departments, and it was found that they have a good level of practice.

5.2 Recommendation

1. Universities and educational institutions should review nursing curricula and improving their pain management content.
2. The study recommends that those responsible for continuing education in hospitals hold educational programs that include all nurses working in ICUs.
3. Nurses should develop their knowledge by themselves using available resources.
4. Nurses should participate in educational and training programs.

5.3 Suggestions for further research studies

1. To identify the effect of pain educational program on knowledge and practice of nurse worked in ICUs.
2. To assess nurses' knowledge and practice regarding pain management in emergency department.
3. To determine the impact of effective pain management on length of stay in ICUs.
4. To assess the effect of educational program about self-management of pain.
5. To oberve the practices of nurses work in ICUs regrding pain management.

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Quran Karim

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Annexes

Annexes

Annex (1): Study Questionnaire

The Islamic University of Gaza		الجامعة الاسلامية — غزة
Deanship of research and Graduate Studies		عمادة الدراسات العليا
Faculty of Nursing		كلية التمريض
Master of Critical care		ماجستير الرعاية الحثيثة

Dear colleagues

You are invited to be part of this study which is a part of the requirements for master degree of critical care nursing at Islamic university of Gaza.

The purpose of this study is to assess the Knowledge, Attitudes and Practice of Nurses Regarding Pain Management in ICUs at Governmental Hospitals in Gaza Strip. You are selected because you have met the inclusion criteria for participation. You're opinions and experience are important and needed to give an accurate assessment of the current knowledge, altitude and practice of pain management in the ICUs. The researcher thankfully appreciates your participation in this study through answering the questionnaire which will take you approximately 15 minutes , I really appreciate your time and effort.

Your participation is so important in my research. I hope that you will answer all questions according to your opinion and experience, so please answer the questions accurately and your answer will be respected.

If you accept to join this study, you have the right to withdraw from the study any time.

However, your answer will be respected and confidentially taking as it will be used for the study purposes only.

If you have a complaint concerning the manner in which research is being conducting, or if you would like to contact the researcher about any aspect of this study please contact with him:

Researcher: Hytham M. Bahja

Mobile: 0592115821

Email: hytham120111997@hotmail.com

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PART ONE: SOCIO-DEMOGRAPHIC DATA
Please check the box that right for you and complete the blank.
1- Gender □ Male □ Female
2- Age in years …………………
3- Place of residence □ Rafah □ Khan Younis □ Middle Area □ Gaza □ North Gaza

4- Educational degree	□ Diploma □ Bachelor □ Master or higher
5- Hospital	□ Al Shifa Hospital □ The Indonesian Hospital □ Al Aqsa Hospital □ Nasser Hospital □ European Gaza Hospital

6- Years of experience as a nurse ………………..
7- Years of experience as an ICU nurse: ………………
8- Have you attended any Training/In-service education in pain management since graduate as a nurse □ Yes □ No

Part two: Knowledge and Attitudes Survey Regarding Pain
True/False – Circle the correct answer.

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 underdev eloped, 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-inflamma tory 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 wo rk 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. 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	17. Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.
T	F	18. Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment.
T	F	19. Narcotic/opioid addiction is defined as a chronic neurobio logic 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	20. 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	21. Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.

Multiple Choice – Circle the correct answer.

22. 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

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D. Oral

E. Rectal

23. 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

24. A patient with persistent cancer pain has been receiving daily opioid analgesics fo r 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%

25. 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.

26. 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

27. Which of the following describes the best approach for cultural considerations in caring for patients in pain:

   A. There are no longer cultural influences due to the diversity of the population.

   B. Cultural influences can be determined by an individual's ethnicity (e.g., Asians are stoic, Italians are expressive, etc).

   C. Patients should be individually assessed to determine cultural influences.

   D. Cultural influences can be determined by an individual's socioeconomic status (e.g., blue collar workers report more pain than white collar workers).

28. The time to peak effect for morphine given IV is

   A. 15 min.

   B. 45 min.

   C. 1 hour

   D. 2 hours

29. 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

30. 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.

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Directions: Please select one answer for each question.

38. Patient A : Andrew 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.

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

0   1   2   3   4   5   6   7   8   9   10

No pain/discomfort   Worst

                                                                                    Pain/discomfort

B.   Your assessment, above, is made two hours after he 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

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| Part three: Pain Management Practice					
Please mark the appropriate answer according to your application in practice.					
	Never	Rarely	Sometime	Often	Routinely
In your perspective does the patient receive adequate pain management?					
Do you assess patient's pain every nursing shift?					
Do you document patient's pain every nursing shift?					
Do you assess patient's pain when needed (ie when patient complains of pain)?					
Do you use a pain assessment tool for patients?					
Does pain characteristic assess and document at least every 8 hours?					
Does pain scores and management discussed during nurse-to-nurse report?					
Do you take patient's complaint of pain seriously?					
Do you suggest with patient methods (pharmacological or nonpharmacological) that will use to manage pain?					
Do you document time, name, route, and dosage of each administered opioid, or non-opioid analgesic?					
Do you assess contraindication for the prescribed analgesic prior to its administration?					
Do you assess the effect of analgesic after administering pain medication?					
Do you assess opioid-related side effects by monitor respiration rate, sedation levels‹nausea/vomiting, and so on?					
Do you use nonpharmacological intervention such as massages, distraction …etc?					
Do you provide counseling and education for patient and his family (for conscious patients)?					

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Annex (2): The List of Experts

Prof. Dr. Yousef Ibrahim Aljeesh	Prof. Dr. In Public Health Nursing Faculty, Islamic University of Gaza
Prof. Nasser Abu-El-Noor	Professor in Health Policy Faculty of Nursing, Islamic University of Gaza
Prof. Ashraf Eljedi	Professor in Public Health Dean of Faculty of Nursing The Islamic University of Gaza, Palestine
Dr.sharaf Omar ALshurafi	Assistant Professor of Medical Surgical Nursing Al-Aqsa University
Dr. Khalid Jamal Khadoura	Assistant Professor of Epidemiology Faculty of Medical Sciences, Israa University, Gaza
Dr Osama jabr Emad	Head of psychiatry research department, MOH.Palestine
Mr. Ahmed Alramlawi	Master's degree in crisis and disaster management, Member of the Infection Control Committee at Al-Shifa Hospital, MOH

Annex (3): Helsinki committee approval letter

المجلــس الفلسطيــني للبحــث الصحــي
Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار

Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee
For Ethical Approval

Date: 2021/06/07

Number: PHRC/HC/892/21

الاسم:

Name: Hytham M. Bahja

We would like to inform you that the committee had discussed the proposal of your study about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم

حول:

Knowledge, Attitudes and Practice of Nurses Regarding Pain Management in Intensive Care Units at Governmental Hospitals in Gaza Strip

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/892/21 in its meeting on 2021/06/07

و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member

Namer R. Abu Shaban
For
Chairman

Member

Dr. Yehia Abed

Genral Conditions:-
1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-

E-Mail:pal.phrc@gmail.com

Gaza - Palestine

غزة - فلسطين
شارع النصر - مفترق العيون

Annex (4): The Approval letter from Ministry of Health

State of Palestine
Ministry of health

دولة فلسطين
وزارة الصحة

التاريخ:16/06/2021

السيد : رامي عيد العبادله   المحترم

رقم المراسلة 708672

مدير عام بالوزارة /الإدارة العامة لتنمية القوى البشرية/وزارة الصحة

السلام عليكم ,,,

الموضوع/ تسهيل مهمة الباحث// هيثم بهجه

التفاصيل //
بخصوص الموضوع أعلاه، يرجى تسهيل مهمة الباحث/   **هيثم محمد عطا حسين بهجه**
الملتحق ببرنامج ماجستير الرعاية الحثيثة – الجامعة الاسلامية بغزة في إجراء بحث بعنوان:-
"Knowledge, Attitudes and Practice of Nurses Regarding Pain Management in Intensive
Care Units at Governmental Hospitals in Gaza Strip"

حيث الباحث بحاجة لتعبئة استبانة من عدد من الممرضين العاملين في اقسام العناية المركزة في المستشفيات الحكومية(مجمع الشفاء الطبي – مجمع ناصر الطبي – مستشفى غزه الأوربي – مستشفى الاندونيسي – مستشفى شهداء الاقصى ، بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي، ودون تحمل الوزارة أي أعباء أو مسئولية. وتفضلوا بقبول التحية والتقدير,,,
ملاحظة /
البحث المذكور حاصل على موافقة لجنة اخلاقيات البحث الصحي (لجنة هلسنكي)
تسهيل المهمة الخاص بالدراسة أعلاه صالح لمدة 3 اشهر من تاريخه.

محمد ابراهيم السرساوي
مدير دائرة/الإدارة العامة لتنمية القوى البشرية

التحويلات

■ محمد ابراهيم محمد السرساوي(مدير دائرة)	⟵ رامي عيد سليمان العبادله(مدير عام بالوزارة)	إجراءاتكم بالخصوص(16/06/2021)

ملاحظات التأشير :: يرجى ارسال الكتاب لمدير عام المستشفيات و نسخة لمدير عام الرقابة الداخلية ومدير عام التمريض ورئيس لجنة البحث الصحي التمريضي

■ رامي عيد سليمان العبادله(مدير عام بالوزارة)	⟵ عبد السلام محمد عبد صباح(مدير عام بالوزارة)	إجراءاتكم بالخصوص(16/06/2021)

ملاحظات التأشير ::

■ عبد السلام محمد عبد صباح(مدير عام بالوزارة)	⟵ محمد خليل محمد زقوت(مدير)	إجراءاتكم بالخصوص(16/06/2021)

ملاحظات التأشير ::

■ عبد السلام محمد عبد صباح(مدير عام بالوزارة)	⟵ شوقي ابراهيم عبد القادر سالم(مدير مستشفى)	إجراءاتكم بالخصوص(16/06/2021)

Gaza   Tel. (+970) 8-2846949
         Fax. (+970) 8-2826295

غزة   تلفون. (+970) 8-2846949
      فاكس. (+970) 8-2826295

■ محمد خليل محمد زقوت(مدير)	← أحمد عودة عطا الله الصوفي(طبيب بشري عام)	للإفادة(16/06/2021)
:: ملاحظات التأشير		
■ كمال عواد محمد خطاب(مدير مستشفى)	← أحمد سليمان محمد احمد(مدير دائرة التمريض)	إجراءاتكم بالخصوص(17/06/2021)
:: ملاحظات التأشير		
■ كامل محمد علي محفوظ(مدير)	← بركة سليمان موسى ابو معنيه(إداري جامعي)	للعلم(17/06/2021)
:: ملاحظات التأشير		
■ شوقي إبراهيم عبد القادر سالم(مدير مستشفى)	← علاء بدران علي عبد ربه(صيدلي قانوني / رئيس قسم)	لعمل اللازم حسب الأصول(20/06/2021)
:: ملاحظات التأشير		
■ شوقي إبراهيم عبد القادر سالم(مدير مستشفى)	← علاء بدران علي عبد ربه(صيدلي قانوني / رئيس قسم)	لعمل اللازم حسب الأصول(20/06/2021)
:: ملاحظات التأشير		
■ شوقي إبراهيم عبد القادر سالم(مدير مستشفى)	← مروان عبد الكريم محمد السبع(طبيب بشري أخصائي)	لعمل اللازم حسب الأصول(20/06/2021)
:: ملاحظات التأشير		
■ شوقي إبراهيم عبد القادر سالم(مدير مستشفى)	← عصام سعدي عبد نبهان(مدير دائرة التمريض)	لعمل اللازم حسب الأصول(20/06/2021)
:: ملاحظات التأشير		
■ شوقي إبراهيم عبد القادر سالم(مدير مستشفى)	← كايد أحمد عارف احمد(مدير)	لعمل اللازم حسب الأصول(20/06/2021)
:: ملاحظات التأشير		
■ شوقي إبراهيم عبد القادر سالم(مدير مستشفى)	← محمد عبد الهادي محمد ابو ندى(طبيب بشري أخصائي)	لعمل اللازم حسب الأصول(20/06/2021)
:: ملاحظات التأشير		
■ شوقي إبراهيم عبد القادر سالم(مدير مستشفى)	← كمال محمد سعيد كامل النونو(مدير اداري)	لعمل اللازم حسب الأصول(20/06/2021)
:: ملاحظات التأشير		
■ شوقي إبراهيم عبد القادر سالم(مدير مستشفى)	← شريف خليل مصطفى حمش(فني علاج طبيعي / جامعي)	لعمل اللازم حسب الأصول(20/06/2021)
:: ملاحظات التأشير		
■ شوقي إبراهيم عبد القادر سالم(مدير مستشفى)	← معين فريح ديب المصري(حكيم جامعي)	لعمل اللازم حسب الأصول(20/06/2021)
:: ملاحظات التأشير		
■ كمال محمد سعيد كامل النونو(مدير اداري)	← مها صبري محمد زايد(سكرتاريا طبية)	لعمل اللازم(21/06/2021)
:: ملاحظات التأشير		