Deanship of Graduate Studies
Al-Quds University

Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain: A survey of Health Care Providers in Gaza Governorates

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MSc Thesis

Jerusalem – Palestine

1440 / 2018

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A Thesis Submitted in Partial Fulfillment of Requirements for the Degree of Master of Maternal and Child Health (MCH)
Nursing Faculty of Health Professions - Al-Quds University

1440 / 2018

Al-Quds University

Deanship of Graduate Studies

MCH Program / Nursing Department

Thesis Approval

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Dedication

To the sake of Allah, my creator and my lord.

To my teacher, leader, intercessor, and beloved prophet Muhammed (peace and blessings be upon him).

To my beloved family: parents, sisters, and brothers, whose affection, love, encouragement and prays of day and night make me able to get such success and honor.

To my gorgeous husband Samer, my shining source of hope and goodness.

To my daughters, with hope for a bright future.

To my magnificent uncle Mohammed and my cousin Fatoom, for their support, care, and endless love.

To my friends, who encourage and support me.

Fatma Kamaleldeen Jaber Elmghary

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed

Fatma Kamaleldeen Jaber Elmghary

Date: / / 2018

Acknowledgment

At the very outset, all my prayers and thankfulness are to Allah the almighty for facilitating this work and for granting me the opportunity to be surrounded by great and helpful people.

I would like to express my everlasting gratitude to my supervisor, Dr. Ahmed Najim for his valuable encouragement, guidance and monitoring, I would like to thank him for pushing me to the limits on this thesis, for spending valuable time on my drafts and for ceaselessly providing me with feedback and discussion. Without which this work would not have reached the point of fruition, so I ask Allah to reward him on my behalf.

To my father, who encouraged me to be the best I can be, to have high expectations and to fight hard for what I believe. The man to whom I will be grateful, for the rest of my life.

To my mother; my source of inspiration for the whole of my life. I would never forget her continuous prayer for the sake of my success.

To my husband and soul mate Samer, thanks for being tender and supportive.

To my daughters, Rafeef, Alma, and Sham for being such a great kids always cheering me up.

A special thanks to my family. Words cannot express how grateful I am to my sisters, Yasmine and Iman, to my brothers Jabr, Mohamed, Anas, Yaseen, Abdullah, Abullrahman, and Rayyan.Thank you for supporting me for everything, and especially I can't thank you enough for encouraging me throughout this experience.

To my beloved Uncle Mohammed, I would like to express my thanks for being such a great person.

To my cousin Eng. Fatoom for being always supportive, and for helping me to complete this work.

Finally, my appreciation goes to all colleagues and friends for their suggestions and encouragement during the writing of this thesis.

Fatma Kamaleldeen Jaber Elmghary

December, 2018

Abstract

Every patient with pain has the right to be treated with dignity, respect, and high quality pain management. This study aimed to investigate the level of knowledge and attitudes of health care providers (HCPs) regarding medicating pregnant women with chronic pain at the governmental Hospitals in the Gaza Strip. Observational descriptive cross-sectional study design was used. A simple random sampling technique was used, by Epi Infer version 7, 144 HCPs were selected from target population 340 HCPs who were working at the obstetric departments 136 HCPs out of 144 HCPs with a response rate 94.4%. A validated questionnaire as a study tool was used. Different statistical procedures operated by SPSS version 20 were used for data analysis including percentages, mean, independent sample t test, and One-way ANOVA. The study results revealed that the mean percentage of knowledge of HCPs to medicate pregnant women with chronic pain is 55.14%, mean of their attitude is 36.33%. The results revealed that there were no statistically significant differences in the level of HCPs' knowledge and attitudes with regard to their gender, educational levels, job titles, years of experience, and places of work. While there were significant differences in the mean level of HCPs' knowledge with regard to their age groups in favor of those who are more than 40 years. Also, there were statistically significant differences in the mean level of HCPs' knowledge among their different years of experience in favor of those who have more than 15 years of experience. Moreover, there were statistically significant differences in the mean level of HCPs' knowledge among their different places of work in favor of those who are working at Al Aqsa Hospital. The study concluded that HCPs in the obstetrical departments in the Gaza Strip have adequate knowledge and attitude regarding medicating pregnant women with chronic pain. The researcher recommends conducting periodic educational sessions for all types of HCPs to receive more important information about chronic pain management especially for pregnant women.

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List of Abbreviations

CDC	Centers for Disease Control and Prevention
CPD	Cephalopelvic Disproportion
CS	Caesarean Section
FDA	Food and drug Administration
GS	Gaza Strip
HCPs	Health Care Providers
IoM	Institute of Medicine
MoH	Ministry of Health
NAS	Neonatal Abstinence Syndrome
NGO s	Non-governmental Organizations
NICE	National Institute for Health and Clinical Excellence
NMC	Naser Medical Complex
PCBS	Palestinian Central Bureau of Statistics
US	United States
VAS	Visual Analog Scale
WB	West Bank
WHO	World Health Organization

Chapter 1: Introduction

1.1 Background

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage (International Association for the Study of Pain, 2011). The American Pain Society (2010) supports efforts to improve pain management for patients in all healthcare settings. The Joint commission implemented standards in 2000 requiring healthcare professionals to recognize the right of patients to have appropriate assessment and management of pain. All patients must be screened for pain on admission and re-assessed as clinically required throughout the hospital stay (The Joint Commission, 2015).

Thus for effective pain management HCPs must be well-educated and knowledgeable about pain. This begins with a thorough and accurate assessment of patient's pain (Nuseir et al., 2016). Nurses and other health care providers play a pivotal role in the assessment, relief, and evaluation of pain. Pregnant women experience moderate to severe pain related to some causes during pregnancy. This pain if managed ineffectively, can lead to negative physiological and psychological ramifications including the development of chronic pain syndromes (D'Arcy, 2011). Optimal pain relief is reliant on health care providers' knowledge and understanding; systematic and consistent assessment; and regular documentation of pain (Francis & Fitzpatrick, 2013).

However, there are some barriers in chronic pain management among nurses, including knowledge deficits regarding pain assessment and management principles, failure to assess and acknowledge the existence of pain, and communication difficulties between the patient and the nurse (Pasero, 2009).

A thorough pain assessment is vital in the management of pain and should be priority in the care and treatment. The Joint Commission developed pain management standards that

require providers to recognize the rights of patients by appropriately assessing and managing their pain. Patients are to be screened for pain during their initial assessment, when clinically required, and during ongoing reassessments. In addition, patients are to receive education about pain management (The Joint Commission, 2012).

1.2 Research problem

Non-obstetrical causes of pain during pregnancy are very common and can be incapacitating if not treated appropriately. A recent study, with a cohort of more than 500,000 pregnant women in the United States, found that 14% of women filled a prescription for an opioid at least once during the antepartum period and 6% of women received opioids throughout all trimesters (Bateman et al., 2014), unfortunately; data from Palestine are not available. Additionally, Desai et al. (2014) found that more than one million pregnant women found that prescription opioids were dispensed to approximately one out of five women during pregnancy. Pain continues to be inadequately treated by healthcare providers due to a combination of inadequate knowledge about pain, negative attitudes, poor ability to assess pain, fear of patient addiction, and restrictive regulation of controlled substances (Zuccaro et al., 2012).

Chronic pain has significant problems to the pregnant woman, in which it triggers the woman's body's stress response which causes the release of catecholamine and cortisol. Also, it makes an increase in the heart rate and respiration, blood is shunted away from non-vital organs and makes depression in the immune system as well (Mellin, 2016). Moreover, chronic pain attached with pregnant woman can cause reduced mobility, anxiety and depression, loss of muscle strength, impaired sleep, increased susceptibility to disease, and potential dependence on medication, thus the overall health of the fetus will be in danger (Brennan, et al., 2007).

Moreover, if the pregnant woman has chronic pain during pregnancy, it can lead to changes in the function of the nervous system which lead to decrease inhibition of pain sensation (Grieve & Schultewolter, 2014). This may lead to multiple mechanisms of pain which will require multiple medications. If all the components of pain are not treated adequately, the pain will persist (Grieve and Schultewolter, 2014).

The concept of pain management in the Gaza Strip (GS), especially among pregnant women; is not adequately practiced. However, the HCPs are dedicated to the provision of comfort and alleviation of suffering, the HCPs' role in chronic pain management in general and among pregnant women still vague in Palestine, this is may be caused by some factors including lack of knowledge regarding this issue and the presence of barriers which hamper the application of this concept.

1.3 Justification of the study

Globally, it has been reported that there is a high incidence rate of pain syndromes during pregnancy, and it was noted that there was increasing in the use of narcotics for pain management through the antepartum period (Shah et al., 2015). Also, since the death from opioid pain relievers has increased fivefold since 2010; it is important to study the knowledge of the health care providers (HCPs) toward chronic pain management at the governmental hospitals in the GS to reveal if the pregnant women are adequately medicated or not. Since there are no available data in Palestine regarding chronic pain management especially among pregnant women, and up to the researcher's knowledge this the first study to investigate the knowledge of HCPs regarding chronic pain management; the results of this study may generate information which can be used for evidence based practice in future for effective pain management.

The results which will be obtained from this study might reveal some important facts regarding testing the knowledge about the lack of chronic pain management among HCPs; the issue which may alter their management process and might affect the general status of pregnant women with chronic pain. This study provided evidence about HCPs' attitudes toward pain management for pregnant women. Also, the investigation of the level of HCPs' knowledge and attitude regarding chronic pain management at the governmental hospitals in the GS, may help give solutions and suggestions for policy makers at the ministry of health (MoH) to work seriously to raise the knowledge level in pain management among HCPs..

1.4 Main aim of the study

The main aim of this study is to investigate the level of knowledge and attitudes of health care providers regarding medicating pregnant women with chronic pain at the governmental hospitals in the Gaza Strip.

1.5 Specific objectives of the study

1. To identify the level of health care providers' knowledge of medicating pregnant women with chronic pain at the governmental hospitals in the Gaza Strip.
2. To identify the level of health care providers' attitudes of medicating pregnant women with chronic pain at the governmental hospitals in the Gaza Strip.
3. To explore the differences in the health care providers' knowledge and attitudes of medicating pregnant women with chronic pain with regard to their demographic factors.
4. To set specific recommendations for policy makers at the ministry of health in order to improve the knowledge of health care providers regarding medicating pregnant women with chronic pain.

1.6 Research questions

1. What is the level of health care providers' knowledge and attitudes of medicating pregnant women with chronic pain at the governmental hospitals in the Gaza Strip?
2. What is the level of health care providers' attitudes of medicating pregnant women with chronic pain?
3. Is there significant difference in the knowledge and attitudes of medicating pregnant women with chronic pain between male and female health care providers?
4. Is there significant difference in the knowledge and attitudes of medicating pregnant women with chronic pain among different age groups of health care providers?
5. Is there significant difference in the knowledge and attitudes of medicating pregnant women with chronic pain among different job titles of health care providers?
6. Is there significant difference in the knowledge and attitudes of medicating pregnant women with chronic pain among different years of experience of health care providers?
7. Is there significant difference in the knowledge and attitudes of medicating pregnant women with chronic pain among different working settings of health care providers?
8. Is there significant difference in the knowledge and attitudes of medicating pregnant women with chronic pain among different educational qualifications of health care providers?

1.7 Operational definitions of terms

1.7.1 Knowledge of medicating pregnant woman chronic pain

The researcher defined knowledge as the "knowledge score of the health care providers about the information regarding pregnant women with chronic pain based on the scale that will be provided in this study. Health care providers will be granted a score of "one" for a correct answer on the questionnaire.

1.7.2Attitude of medicating pregnant woman chronic pain

The researcher defined attitude in this study as the degree to which the health care providers have a favorable or unfavorable evaluation of the pregnant woman with chronic pain. A score of "one" for a correct answer will be identified as positive attitude.

1.7.3 Pregnant women

The researcher defined "pregnant women" in this study as whom who are attending the governmental hospitals in the Gaza Strip.

1.7.4 Health care providers

The researcher defined health care providers as health care professional such as physicians, nurses, and pharmacists who are engaged in the process of health care of the pregnant women.

1.8 Demography and population

1.8.1 Gaza Strip

The Gaza Strip is a highly crowded area, where approximately 2 million residents live on 365 km^2. According to MoH annual report 2013, the total number of Palestinian people estimate was 4.485.459 of which, 2.278.562 were males and 2.206897 were females. Gaza Strip has a population of 2,000,000 people. The age and sex distribution of population in Palestine showed that 43.3% of Palestinian people were less than 15 years old. The age group (0-4 years) was 16.6%, while ages over 65 years constituted only 2.2%, so Palestinian society is described as a young population (Palestinian central Bureau of Statistics "PCBS", 2016).

1.8.2 Palestinian health care system

The health care system in Palestine is complex and unique and strongly influenced under the so-called Israeli occupation. The consequences of the closures and separation imposed a great challenge for the ministry of health by creating obstacles regarding the accessibility to health care services and affected the unity of the health care system in all Palestinian governorates. There are five main health care providers: the ministry of health, united nations relief and work agency for Palestine refugees in the near east (UNRWA), non-governmental organizations (NGOs), Palestinian military medical services and the private sector 2013 (MoH, 2015).

1.8.2.1 Ministry of health

Ministry of health bears the heaviest burden as it has the responsibility for ensuring equitable and affordable access to quality health services for all Palestinians. There are 54 primary health care centers in Gaza Strip and 404 centers in West Bank. The hospital services are operated by the government and non-government sectors. According to the MoH in 2012 there were 81 hospitals in Palestine; 51 in West Bank and 30 in the Gaza

Strip with a total number of 2399 beds in government hospitals (1.4 bed / inhabitant); 58.4% in WB and 51.6% in GS (MoH, 2016).

Nasser Medical Complex (NMC), contain two hospitals: Nasser (medical and surgery) and Altahreer hospital (obstetrics and women, and children), the clinical capacity is a total of 258 beds. Altahreer hospital has two pediatric departments with capacity of 50 beds. The complex is situated in the western area of Khan Younis, which was built in 1958 on an area of 50000 m2, and serves the area of Khan Younis, with a population of 270,979 inhabitants (MoH, 2016).

Al Aqsa Martyrs Hospital provides medical, surgical, pediatric, and gyna and obstetrics services, the clinical capacity is about 103 bed, located in the middle governorate of Deir Al-Balah, it has been built in 2001 on an area of 4000 m^2, serves the segment of the population living in the central Gaza governorate with a population of 205,535. The hospital has a paediatric department with a capacity of 40 beds (MoH, 2016).

Al Shifa is a medical complex includes three hospitals: the surgery hospital, medical, obstetrics and Gyna hospital, the clinical capacity is a total of 500 beds. It is located in the central west of Gaza City, it was built in 1946 on an area of 42000 m^2, and serves the area of coverage of the Gaza province with a population of 496,411 people in particular, and the Gaza Strip in general, has ten operating rooms. Obstetrics and Gyna hospital in Al Shifa medical complex has 14 delivery rooms, there are a total of 1500 deliveries in this hospital (400 CS and 1100 normal vaginal delivery). Al Emaraty Crescent hospital is a specialized hospital of gynecology and obstetrics services, the clinical capacity of about 40 beds, located in the Tel Sultan-Rafah, built in the year 2000 on an area of 4000 m^2, and serves the segment of the population living in the Rafah governorate with a population of 173,372 (MoH, 2016).

Chapter 2: Conceptual Framework and Literature Review

2.1 Introduction

Every patient with pain has the right to be treated with dignity, respect, and high quality pain management (Olivier, et al., 2012). The nursing profession is dedicated to the provision of comfort and alleviation of suffering (Todd, et al., 2007). The American Pain Society (2010) supports efforts to improve pain management for patients in all healthcare settings. The Joint Commission implemented standards in 2000 requiring healthcare professionals to recognize the right of patients to have appropriate assessment and management of pain. All patients must be screened for pain on admission and re-assessed as clinically required throughout the hospital stay (The Joint Commission, 2015). The following section illustrates the conceptual framework of the study.

2.2 Conceptual Framework

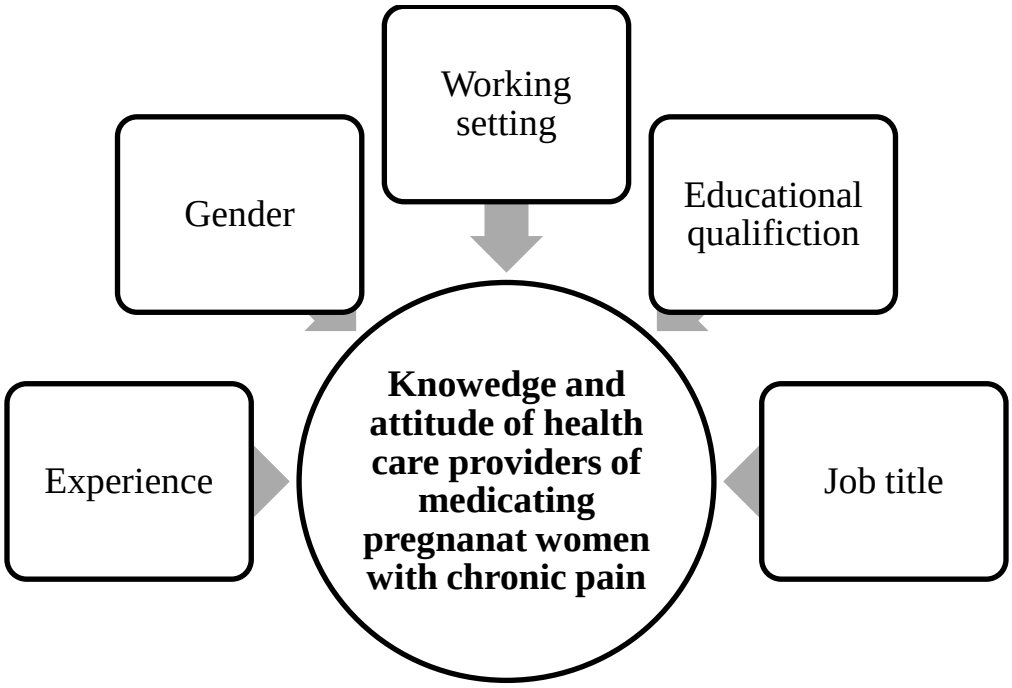

Figure 2.1: Conceptual Framework of the Study (developed by the researcher)

Figure 2.1 illustrates the conceptual framework for this study. The figure shows that there are six domains in the framework. The upper five domains are considered as the independent variables for this study, they are the factors which affect the knowledge and attitude of HCPs of medicating pregnant women with chronic pain, these domains include demographic factors such as: HCPs' gender, HCPs' ages, experience, titles, educational qualifications and working settings. The second domain is considered as dependent variable which is the knowledge and attitude of HCPs of medicating pregnant women with chronic pain.

2.2 Literature Review

2.2.1 Epidemiology of Chronic Pain

Pain is responsible for 14% of Medicare/ Medicaid expenditures. Zuccaro et al. (2012) state that 61% of the United States (US) population report experiencing chronic or recurrent pain. The report of Institute of Medicine (IoM) revealed in 2011 also that 100 million adults in the United States suffer from significant and chronic pain. The care and treatment of this pain costs in excess of 635 billion dollars annually (Gaskin and Richard, 2012). Chronic pain can be nociceptive, neuropathic or mixed. Chronic pain can lead to pathologic changes in the nervous system that cause an increased sensitivity to pain and a reduced response to analgesics (Zuccaro et al., 2012).

Shah et al. (2015) state that physiologic pregnancy changes can precipitate or exacerbate painful conditions. Chronic pain in pregnancy may be caused by musculoskeletal pain, pelvic, abdominal, organ pain, and headaches (Shah et al., 2015). Seventy-one percent of pregnant women report significant chronic pain during pregnancy related to lumbar and pelvic girdle instability. Only 25% of these women reported receiving any treatment for pain. Many of these women reported that they were told that nothing could be done to help

(Pierce et al., 2012). A retrospective cohort study by Brown and Johnston (2013) which looked at pain in 580 women found that 14% reported significant chronic pain during pregnancy. The study also found that 50% of women reported pain related to musculoskeletal changes in pregnancy. In Palestine, however there are no studies available for the epidemiology of chronic pain, one study showed that chronic pain is prevalent among cancer patients and among the women with breast cancer (Abu Farha et al., 2017).

2.3 Chronic pain during pregnancy

Worldwide, chronic pain impacts over 100 million and is the most common cause of long-lasting disability (Webmed, 2017). Conspicuously, women are more impacted by chronic pain disorders than men. Health care providers are frequently faced with the difficulties of managing chronic pain conditions that were present prior to, during, or after pregnancy. Pain thresholds in healthy women without chronic pain have been shown to increase throughout pregnancy peaking just prior to delivery (Ray-Griffith et al., 2018). Animal models have shown that naltrexone, an opioid antagonist, can block these findings. It is unclear how these findings may translate to women with chronic pain or opioid exposure as such individuals often have hyperanalgesia, allodynia, and/or decreased pain thresholds at baseline (Ray-Griffith et al., 2018).

Health care providers caring for obstetrical patients have inadequate training and limited time to manage patients with chronic pain. Pain management teams and clinics often discharge or decline to manage women during pregnancy, and transition of care is often referred to the obstetrical team. The lack of evidence-based treatment guidelines and limited formal training and expertise in the management of chronic pain places pregnant women at risk to receive suboptimal care. The majority of published reviews have focused on the pharmacological or non-pharmacological approaches, rather than on a broader scope of how to approach chronic pain during pregnancy (Dorheim et al., 2012).

2.4 Management of Chronic Pain in Pregnancy

Pregnant women with chronic pain diagnoses present a unique challenge for obstetric care providers. Some present for prenatal care with pain related to prior injuries, surgeries, or other causes, and they are already taking opioid analgesics for episodic or continuous treatment. Others have pain issues that develop during pregnancy or are exacerbated by pregnancy and need to take opioid analgesics while pregnant to manage their conditions (Kellogg et al., 2011; Kennedy, 2011). Failure to adequately treat pain can have a negative effect on maternal health, resulting in depression, anxiety, and physical manifestations such as hypertension (Babb et al., 2010; Kennedy, 2011). As the use of analgesics and other medications for pain becomes more common and acceptable in pregnancy, it is necessary for obstetric care providers to be knowledgeable as to their safe use to manage maternal pain with the lowest risk for harmful effects on the mother, fetus, and neonate (Kellogg et al., 2011).

There are different pain management techniques. Suggested pain management techniques included prevention of pain through exercise, positioning and physical therapy. If these techniques were not effective to prevent or manage pain, non-pharmacologic complementary and alternative treatments such as acupuncture, manipulation, and transcutaneous nerve stimulation were suggested. Acetaminophen was suggested as the drug of choice for severe pain (Shah et al., 2015). Non-steroidal anti-inflammatory agents such as ibuprofen and naproxen have been associated with premature closure of the fetal ductus arteriosus and vasoconstriction of maternal uterine arteries (Shah et al., 2015). The most commonly prescribed opiate analgesics in pregnancy are codeine, fentanyl, hydrocodone، morphine, oxycodone, oxycontin, and tramadol (Broussard et al., 2011). Total daily opioid dose to achieve adequate pain control may increase as pregnancy progresses and, therefore, pain moderators may be helpful. Adjunctive therapy with

amitriptyline 50mg to 100 mg at night, gabapentin 300 mg every 8 hours, and physical therapy to maintain and improve mobility are useful in individual cases, Ideally، women would be advised to wean to the lowest effective dose in the final weeks of pregnancy that will likely reduce the occurrence of NAS. (Nocon, 2013).

For this reason, the uses of non-steroidal anti-inflammatory medications are contraindicated for chronic pain management during pregnancy. Previous studies posit that opioids should be used only in cases of severe and unrelenting pain but must be measured against the potential harm to the fetus. The authors expressed concern that the use of opioids could increase the risk of birth defects and that chronic use of opioids could lead to neonatal abstinence syndrome or newborn withdrawal (Shah et al., 2015).

Pritham and McKay (2014) state in their review article on the management of chronic pain in pregnancy that failure to treat pain can have a negative impact on maternal health including hypertension, depression, and anxiety. The authors point out that the lack of a well-designed medication study is related to the ethical difficulties of conducting research in the pregnant population.

A study of Ray-Griffith et al. (2018) was conducted to identify evidence-based clinical research for the evaluation and management of preexisting chronic pain in pregnancy, chronic pain associated with pregnancy, and chronic pain in relation to mode of delivery. The researchers searched a literature using search engines PubMed, CINAHL, EBSCOhost, and Web of Science.

The study results revealed that the basis of this review was the 144 articles that met inclusion criteria for this review. Based on their review of the current literature, the researchers recommend 7 guidelines for chronic pain management during and after pregnancy: 1) complete history and physical examination; 2) monitor patients for alcohol, nicotine, and substance use; 3)

collaborate with patient to set treatment goals; 4) develop a management plan; 5) for opioids, use lowest effective dose; 6) formulate a pain management plan for labor and delivery; and 7) discuss reproductive health with women with chronic pain.

Ray-Griffith et al. (2018) concluded that the management of chronic pain associated with pregnancy is not adequately studied. Some general guidelines are provided for those health care providers until more information is available.

Persson et al. (2013) conducted a qualitative study of nine women experiencing severe chronic pain during pregnancy. The first theme was grasping the incomprehensible idea that severe and chronic pelvic girdle pain could be experienced related to a normal event such as pregnancy. The study participants were shocked to find that pain could lead to such significant life changes including a negative impact on sexual function and ability to sleep. The second theme focused on balancing support and dependence. Each of the study participants was unable to work and was placed on full time disability. The study participants had to request and accept assistance for normal activities of daily living. Study participants identified that they were unable to care for their existing children because of the pain they were experiencing. Elden et al. (2013) also conducted a qualitative study of 27 women experiencing chronic pain in pregnancy. This study found that 20 – 23% of pregnant women had to take sick leave during pregnancy due to chronic pain. Themes identified in this study included the impact of pain on social life, partner relationships, inability to cope with activities of daily life and motherhood.

Edmonds et al. (2017) conducted a self-administered survey to describe obstetrical providers' management of a hypothetical case on chronic pain in pregnancy and determine whether practices differ based on patient race. Seventy-six obstetrician-gynecologists and one nurse practitioner were surveyed. A case-vignette described a pregnant patient presenting with worsening chronic lower back pain, requesting an opioid refill and

increased dosage. Health care providers indicated their likelihood of prescribing opioids, drug testing, and referring on a 0 (definitely would not) to 10 (definitely would) scale; rated their suspicions/ concerns about the patient on a 0–10 VAS scale; and ranked those concerns in order of importance. The study results revealed that health care providers were not inclined to refill the opioid prescription or increase the dose. They were more likely to conduct urine drug tests on white than black patients and more likely to suspect that white patients would divert the medication. For white patients, providers' highest-ranked concern was the patient's risk of abuse/addiction, whereas, for black patients, it was harm to the fetus. Suspicion about symptom exaggeration was more closely related to decisions about refilling the opioid prescriptions and increasing the dose for black patients, whereas these decisions were more closely correlated with concerns about overdose for white patients. The study concluded that health care provider suspicion and concerns may differ by patient race, which may relate to differences in pain treatment and testing.

2.4.1 Use of Analgesics in Pregnancy

Kennedy (2011) estimated that as many as 85% of pregnant women use some type of medication during pregnancy, and that analgesics are the most commonly ingested after vitamins and supplements. The exact prevalence of recommended or prescribed analgesics in pregnancy is difficult to determine, but from available reports their worldwide use appears to be steadily increasing even though many are classified as pregnancy category B or C by the U.S. Food and Drug Administration (FDA) (Briggs et al., 2011). In the United States, 20% of pregnant women reported first-trimester opioid use in 2009. Among Tennessee Medicaid insured pregnant women, use of opioid analgesics increased nearly 2 fold from 1995 to 2009 (Epstein et al., 2013). Furthermore, in a population based cohort study of 194,937 singleton pregnancies in Norway between March 2004 and January 2009, about 6% of the women were dispensed opioid analgesics before, during, or after

pregnancy. Most of the women were prescribed a weak short-acting opioid such as codeine in combination with paracetamol (acetaminophen) and less was dispensed after pregnancy was diagnosed. A small group of women took codeine throughout their pregnancies (Handal et al., 2011).

2.4.2 Opioid Analgesics

Opioid analgesics are becoming more commonly prescribed as awareness of chronic pain in pregnancy increases and as retrospective studies begin to demonstrate safety profiles (Hadi et al., 2006). One of the biggest risks of chronic opioid that was used during and outside of pregnancy is dependence, which often leads to misuse and abuse (Babb et al., 2010). As these medications are more widely available, abuse potential is higher. For example, Kelly et al. (2011) reported an increase in oxycodone consumption from 8.4% to 17.2% over an 18-month period during which their study of narcotic abuse in pregnancy was being conducted. For many years, the opiate class of drugs appeared to have a relatively low-risk profile for the neonate with little evidence for increased prevalence of major congenital anomalies and reassuring studies of neuro-developmental characteristics of exposed children after the initial newborn period (Babb et al., 2010; Malek and Mattison, 2011).

However, more recent researchers have found an association between opiate use prior to conception and in the first trimester and birth defects (Broussard et al., 2011); therefore, use in women at risk of becoming pregnant or in early pregnancy should be undertaken cautiously (Brennan and Rayburn, 2012). The prevalence of neural tube defects in offspring of mothers who used opioids was estimated to be six per 10,000 live births (Yazdy et al., 2013). Women who are considering pregnancy while taking opiates will need to be advised to take at least 1 mg of folic acid daily to reduce the risk of fetal neural tube defects and to continue with folic acid supplementation while pregnant (Yazdy et al.,

2013). Another risk of maternal use of opioids for chronic pain during pregnancy is that the exposed fetus is likely to experience neonatal abstinence syndrome (NAS), with an estimated overall rate of 5.6% (Kellogg et al., 2011).

To minimize the adverse risks of opioid use in pregnancy and provide adequate maternal pain control, many factors must be considered when initiating or adjusting dosing of opioid analgesics in pregnancy. Genetic factors can affect metabolism and either decrease efficacy or increase the rate of conversion to active metabolites (Madadi et al., 2012). Drug absorption may be affected by decreased gastrointestinal motility, emesis, and gastroesophageal reflux (Wunsch et al., 2003). Additionally, there is an increase in cutaneous blood flow, an alteration of distribution in the maternal compartment, and the possibility of effects on drug absorption due to placental and fetal factors (Kennedy, 2011). Opioid receptors also play a part in the dosing of opioid analgesics in pregnancy. Most agents are lipophilic and bind to mu receptors as agonists; therefore, they cross the placenta rapidly and are readily available. For this reason, extended-release agents may not be as effective in pregnancy and have the potential to accumulate in the placental or fetal compartments (Malek & Mattison, 2011).

2.4.3 Atypical narcotic-like analgesics

Tramadol is reported in several individual case studies and one small prospective study. There appeared to be an increase in the incidence of spontaneous abortion with the use of tramadol, but no increase in congenital anomalies (Bloor et al., 2012). All of the case studies demonstrated an association with neonatal abstinence syndrome (in tramadol users (Bloor et al., 2012; Hartenstein et al., 2010; Willaschek et al., 2009).

2.5 Health care providers' knowledge and attitude toward pain management

Pregnant women are often denied adequate pain management because the care giver's belief system says that the pregnant woman's pain is not as important as the potential harm to the fetus (Vermani et al., 2009; Lupton, 2011; Lupton, 2012). Chronic opioid use in pregnancy is associated with birth defects such as spinal cord defects and cardiac defects (Broussard et al., 2011) and newborn withdrawal also known as Neonatal Abstinence Syndrome (Kellogg et al., 2011). Because of fear about use of drugs during pregnancy. Pregnant women are at risk of under treatment, or no treatment, for painful conditions (Babb et al., 2010). Shah et al. (2015) suggest that education, exercise and complementary medicine should be used prior to any medication for pain in pregnancy, and that women should "understand that complete relief may not be possible until after delivery.

Research studies indicated that pain continues to be inadequately treated by healthcare providers due to a combination of inadequate knowledge about pain, negative attitudes, poor ability to assess pain, fear of patient addiction, and restrictive regulation of controlled substances (Zuccaro et al, 2012). Research has identified that healthcare providers report inadequate education and a lack of experience with pain and pain management (Barry, et al., 2010). Grieves and Schultewolter (2014) state that pain has not been addressed in medical education and 52.0% of respondents in a National Pain Audit Report admitted to having difficulty understanding chronic pain.

The Trust for America's Health (2015) has recommended that all health care providers should be educated to understand the risks and signs of opioid misuse. Healthcare providers have expressed frustration at the absence of objective or physiological measures of pain (Zuccaro et al., 2012). Physicians have been found to underestimate pain for female patients (Anderson, et al., 2000). Eagan and Cornally (2013) found that healthcare

providers had difficulty believing patient reports of pain when it did not match the observed non-verbal behavior. The IoM (2011) has identified provider attitude as an impediment to high quality pain care. Physicians have expressed concern about the potential for addiction, misuse and the legal ramifications of prescribing long term opioid medications (Zuccaro et al., 2012). Nurses have also expressed fear that administration of opioids for pain might encourage addiction (Morgan, 2014). The chronic use of opioids for pain has been increasing for the past two decades (Zuccaro et al., 2012).

The attitude of the health care provider toward a patient with a history of opioid use is one of the factors that influence the administration of pain medication (Morgan, 2014). Health care professionals have been found to have negative attitudes toward patients with substance use disorders in all areas of medical care. These patients are less likely to receive adequate pain management (Morgan, 2006).

A study conducted by Mellin (2016) to determine if perinatal nurses' intent to medicate pregnant women with chronic pain was affected by knowledge of pain, attitude, or demographics. The researcher explored the theoretical application of Ajzen's theory of planned behavior which suggests that attitude correlates with intention to act. The study adopted a quantitative, cross-sectional correlation using a survey to measure knowledge about pain, attitudes, and intent to medicate pregnant women with chronic pain. One hundred perinatal nurses who worked in labor and delivery, mother baby, or the neonatal intensive care unit from four hospitals in northern New Jersey participated in the study. Each hospital provided a different level of perinatal care from community basic, to intermediate, intensive, and regional perinatal center. The study results revealed that increased levels of education positively impact perinatal nurses' knowledge of pain, attitude of medicating pregnant women with chronic pain. The perinatal nurse's intent to medicate was not statistically correlated to age, years of nursing experience, or level of

perinatal care. Also, the perinatal nurse's intent to medicate a pregnant woman with chronic pain is positively correlated to increased knowledge of pain. Moreover, the attitude scores were positively correlated with an increased intent to medicate a pregnant woman with chronic pain.

2.6 Ethical implications of untreated pain

Faria da Cunha (2015) discussed the ethical implications of untreated pain in her article, "Ethics and under treatment of pain in patients with a history of drug abuse." Faria da Cunha points out those patients taking chronic opioids for pain will develop opioid dependence which should not be confused with addiction. The author posits that "unrelieved pain is a form of suffering,". Faria da Cunha states that not treating pain violates the ethical principle of non-malficence which requires nurses to do no harm. It is further stated that the ethical principle of beneficence requires that nurses prevent harm and provide benefit. The adequate management of pain would be required by the principle of beneficence. Untreated and undertreated pain violates the ethical principle of autonomy because patients in pain are unable to make adequate judgments about care. The ethical principle of justice requires that all patients be treated fairly and equally. To deny adequate pain management to a patient based on the fact that she is pregnant or has a history of substance abuse violates the principle of justice (Faria da Cunha, 2015).

Chapter 3: Materials and Methods

3.1 Introduction

The chapter of materials and methods illustrates the issues related to materials, methods, and procedures which are supposed to be conducted in this study.

3.2 Study design

The design of this study was observational descriptive cross-sectional. This type of design was chosen because it's suitable in terms of people, resources and it is relatively practical and manageable.

3.3 Study setting

This study was carried out at governmental hospitals in the Gaza Strip which have obstetric departments, they are: NMC, Al Aqsa Hospital, Al Shifa Medical Complex, and Al Emaraty Hospital.

3.4 Study population

The target population of this study consisted of HCPs such as physicians, nurses, midwives, and pharmacists who are working in the obstetric departments of the above-mentioned hospitals. The total number of HCPs is 340 (MoH, 2017).

3.5 Study period

The study took months to be conducted as it started on March 2018 completed by October 2018.

3.6 Sample and sampling Process

A simple random sample design was used in the current study, to select the study population. Sample calculated using Epi info version 7 based on the total number of above mentioned population. The calculated sample was 144 HCPs.

3.7 Response rate

In the current study, 136 HCPs out of 144 agreed to participate to fill up the questionnaire (response rate is 94.4%).

3.8 Eligibility criteria

3.8.1 Inclusion criteria

- The HCPs such as physicians, nurses, midwives, and pharmacists who are working in the obstetric departments
- Willing to participate in this study.

3.8.2 Exclusion criteria

- Volunteer HCPs.
- Working for less than 6 months.

3.9 Instrument of the study

The researcher used an adapted self-administered survey in this study (Annex 3). This survey measures attitude, knowledge of HCPs of medicating pregnant women with chronic pain. This survey was adapted after come modifications from Ferrell and McCaffery (2014). This survey consists of combinations of case presentation of a pregnant woman

with a history of chronic pain. The survey tool has 31 items which includes a combination of true - false and multiple-choice questions, in addition to the demographic factors of the about HCPs including age, years of experience, and educational qualification. The first 17 questions represent knowledge of pain; the following 14 questions represent attitudes of the HCPs toward pain. The questionnaire answers' were obtained from the original author. Each participant has had a knowledge score, and an attitude score. Each question was given a score of "1" for the correct answer, and a positive attitude. On the other hand, a score of "0" was given to incorrect answer, and negative attitude. Higher scores of HCPs indicated increased knowledge of chronic pain. The higher the attitude score, the more positive a HCPs attitude toward the medicating pregnant woman. (Annex 3).

3.10 Data collection

After obtaining MoH, Helsinki and university approval and the participating hospitals approval see annex (1).

The researcher requested permission from the hospitals managers to meet with targeted HCPs on the identified departments each HCP was signed consent form. Participation was voluntary. The result will be added to knowledge regarding HCPs attitude toward pregnant women with chronic pain. The questionnaire took approximately 15 minutes to complete were no anticipated risk to participate in the study.

3.11 Pilot study

Pilot study was conducted done a sample of 10 HCPs. Content validity has been established by the review of panel of experts. Construct validity was established by comparing scores of nurses at numerous expertise levels, such as students, new graduates, graduate students, and senior pain experts. Test-retest reliability was established ($r>.80$) by repeat testing in a continuing education class involving 10 HCPs. Internal consistency reliability was established as measured by Cronbach's alpha (alpha $r > 0.70$).

3.12 Scientific rigor

3.12.1 Validity

3.12.1.1 Face validity

Self-administered questionnaire was organized in order to allow smooth data collection.

3.12.1.1 Content validity

Concerning the content validity, adequate reviewing of related topics in the literature about medicating pregnant women by HCPs. To assess the relevant of the questionnaire aspects conducted evaluation process and comment were taken in consideration. In addition, a pilot study was conducted and slight modifications were done to make it well understood. This would increase the validity of the questionnaire.

3.12.2 Reliability

The following steps were done to assure instrument reliability:

- Standardization of filling the questionnaire.
- Data entry was done in the same of data collection to permit intervention to assure data quality and to refill the questionnaire when it is required.
- Cronbach's alpha coefficient to check the reliability for each domain.
- Test-retest reliability was established ($r > 0.80$).
- Internal consistency reliability was established as measured by Cronbach's alpha coefficient (alpha $r > 0.70$).

3.13 Data entry and Statistical analysis

The researcher used the statistical package for Social Science (SPSS) version 22. For statistical procedures and methods. Statistical tests included descriptive statistics such as frequencies and percentages, and inferential statistics such as independent sample *t* test, and One-Way ANOVA.

3.14 Ethical and administrative consideration

Administrative approval was obtained from Al-Quds University. Ethical approval was obtained from Helsinki committee (Annex 1), ministry of health (Annex 2). Informed consent was obtained from all of the HCPs to participate in the study.

Chapter 4 Results and Discussion

4.1 Introduction

This chapter illustrates the results of statistical analysis of data, including descriptive analysis that presents the socio - demographic characteristics of the study sample and answers to the study questions. The researcher used simple statistics including frequencies, means and percentages, also independent sample *t* test, and One-way ANOVA.

4.2 Socio-demographic characteristics of the sample

4.2.1 Sample distribution according to the participants' gender, place of work, and their job titles

Table 4.1: Sample distribution according to the participants' gender, place of work, and their job titles (n=136)

Variables		Number	Percentage (%)
Gender	Male	31	22.8
	Female	105	77.2
Place of work	Nasser Medical Complex	30	22.1
	Al Aqsa Hospital	24	17.6
	Al Shifa Medical Complex	65	47.8
	Al Emaraty Hospital	17	12.5
Job title	Nurse	9	6.6
	Midwife	55	40.4
	Physician	54	39.7
	Pharmacists	18	13.2
	Total	136	100.0

Table (4.1) shows the distribution of study participants' according to the participants' gender, place of work, and their job title. The table shows that the majority (77.2%) of the study participants are females, while 22.8% are males. The table also shows that 65 (47.8%) of the study participants are working at Al Shifa Medical Complex, 30 (22.1%) are working at NMC, 24 (17.6%) are working at Al Aqsa Hospital.

Moreover, the table shows that 55 (40.4%) of the study participants are midwives, 5 (39.7%) are physicians, 9 (6.6%) are nurses, while the pharmacists (13.2%).

4.2.2 Sample distribution according to the educational level of participants

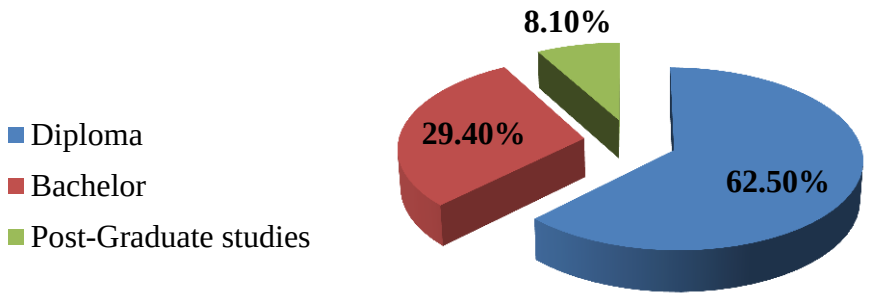

Figure 4.1: Sample distribution according to the participants' educational level

Figure (4.1) shows that 85 (62.5%) of the study participants have diploma education, 40 (29.4%) have bachelor degree, and only 11 (8.1%) have post-graduate degrees such as master, Board, and Doctor of Philosophy.

4.2.3 Sample distribution according to the participants' age groups

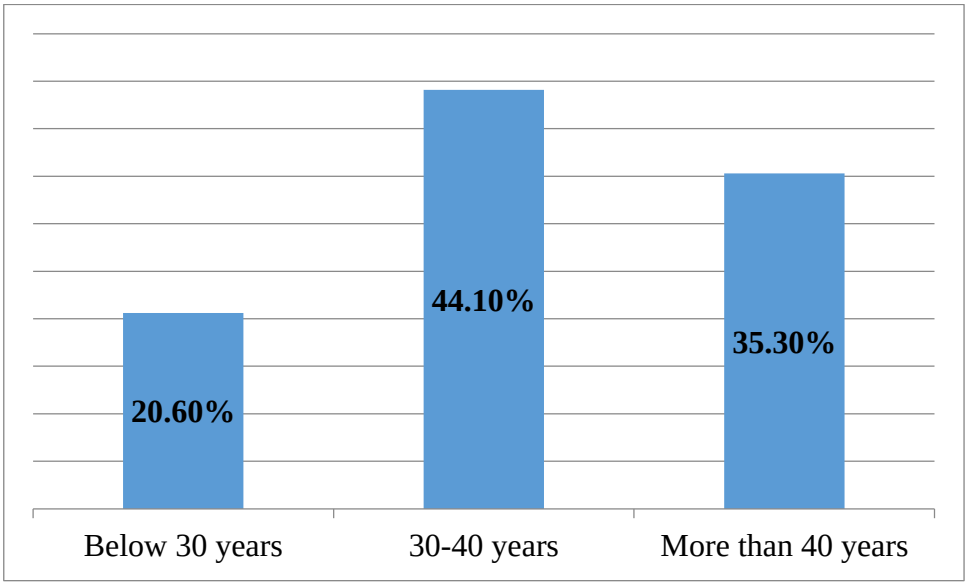

Figure 4.2: Sample distribution according to the participants' age groups

Figure (4.2) shows that 44.1% of the study participants are belonging to the age group 30 – 40 years, 35.3% of them are more than 40 years, while 20.6% are below 30 years old

4.2.4 Sample distribution according to the participants' years of experience

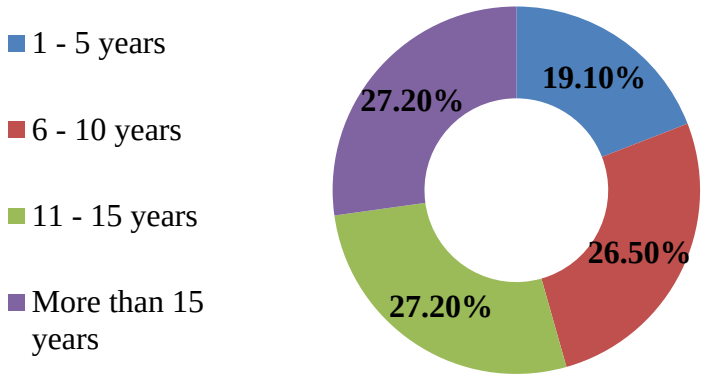

Figure 4.3: Sample distribution according to the participants' years of experience

Figure(4.3) shows that 27.2% of the study participants have more than 5 years of experience with the same percentage have 11 – 15 years of experience, 26.5% of them have 6 – 10 years of experience, and 19.1% have 1 – 5 years of experience.

4.3 Knowledge and Attitudes of the HCPs of Medicating Pregnant Women with Chronic Pain

Table 4.2: Mean and Mean Percentage of Knowledge and Attitudes (n = 136)

	Maximum Mean Score	Mean (SD)	Mean Percentage
Knowledge and Attitude	31.0	14.88	48.0
Knowledge	19	10.47 (2.18)	55.14
Attitude	12	4.36 (1.68)	36.33

Table (4.2) shows that the mean and mean percentage of knowledge and attitudes of HCPs to medicate pregnant women with chronic pain. The maximum score of knowledge and attitude is 31.0 (100.0%). The maximum score of knowledge is 19.0 (100.0%), and the maximum score of attitudes is 12.0 (100.0%). The table shows that the mean of knowledge of HCPs is 10.47 out of 19 (55.14%), mean of their attitude is 4.36 out of 12 (36.33%), the total mean of knowledge and attitude is 14.88 out of 31.0 (48.0%).

These results are not consistent with the results of Mellin (2016), which showed that the mean percentage of knowledge of HCPs regarding medicating pregnant women with chronic pain is 73.32%, and the mean of their attitude is 74.21%. The differences in the results between the current study and the study of Mellin could be attributed to the type of sample that have been recruited by Mellin, also it could be attributed to the main differences in the culture of HCPs in Palestine and European culture in terms of the issue of medicating pregnant women with chronic pain. In Palestine, most of HCPs are not

allowed to medicate any patient, and they are not allowed to prescribe any medication. Moreover, the nature of the questions that was introduced for the HCPs in the hospitals are not easy, require the HCP to study and make a revision for his/her information to very specific topics.

4.4 Classifications of Knowledge and Attitudes of the HCPs of Medicating Pregnant Women with Chronic Pain

Table 4.3: Classifications of Knowledge and Attitudes of the HCPs (n = 136)

	Frequency	**%**
Knowledge and Attitude		
Negative Scores (<48.38[1]%)	57	41.9
Positive Scores (≥48.38%)	79	58.1
Knowledge		
Inadequate (<57.89%)	64	47.1
Adequate (≥57.89%)	72	52.9
Attitude		
Negative Scores (<33.33%)	45	33.1
Positive Scores (≥33.33%)	91	66.9
Total	**136**	**100.0**

Table (4.3) shows classifications of knowledge and attitudes of the HCPs of medicating pregnant women with chronic pain. More than half of HCPs have positive scores in knowledge, attitude, and knowledge and attitude. If we have a look on the above table, we would see that the positive scores for all three dimensions are more than the negative ones, meaning that the HCPs are thinking positively toward the management process.

[1] The median score of knowledge and attitude

The study of Mellin (2016) showed that only 25.0% of the study participants have had positive scores in the knowledge of medicating women with chronic pain, while there was 31.0% of them have had positive attitude regarding medicating pregnant women with chronic pain. This could be attributed to the differences in the classifications system between the current study and the study of Mellin. Moreover, low level of knowledge regarding chronic pain management among pregnant women could be attributed to the lack of evidence-based treatment guidelines and limited formal training and expertise in the management of chronic pain which places pregnant women at risk to receive suboptimal care (Dorheim et al., 2012). On the other hand, these results are consistent with what have been introduced by Barry et al. (2010), in which their study revealed that research has identified that HCPs report inadequate education and a lack of experience with pain and pain management (Barry et al., 2010). Additionally, Grieves and Schultewolter (2014) stated that chronic pain has not been addressed in medical education and 52.0% of respondents in a National Pain Audit Report admitted to having difficulty understanding chronic pain.

4.5 Differences in the Knowledge and Attitudes of HCPs of Medicating Pregnant Women with Chronic Pain with Regard to their Demographic Factors

Table 4.4: Differences in the Knowledge and Attitudes of HCPs of Medicating Pregnant Women with Chronic Pain with Regard to their Demographic Factors (n = 136)

Variable	Mean (SD)		*t* statistics (df)	*p* value*
	Males	Females		
Knowledge and Attitudes	15.16 (3.76)	14.80 (2.44)	0.615 (134)	0.539
Knowledge	10.45 (2.44)	10.48 (2.11)	-0.076 (134)	0.940
Attitudes	4.64 (2.25)	4.27 (1.47)	0.857 (37.88)	0.397

*Independent sample *t* test

Table (4.4) shows that there are no statistically significant differences in the level of HCPs' knowledge and attitudes, HCPs 'knowledge, and HCPs 'attitudes between males and females ($p > 0.05$). Based on what was revealed in this study about the level of HCPs knowledge and attitude about chronic pain; this low level is cumulative since many years. Since the medical, nursing, and other health related colleges in the GS are not interested to conduct specific education about medicating chronic pain, thus the level of knowledge and attitude of them will not differ between males and females because they have unified curriculum either in medical, nursing, or any related field.

4.6 Differences in the Knowledge and Attitudes of HCPs of Medicating Pregnant Women with Chronic Pain among Different Age Groups

Table 4.5 Differences in the Mean Knowledge and Attitudes of HCPs of Medicating Pregnant Women with Chronic Pain among Different Age Groups (n = 136)

Variable	N	Mean (SD)	F (df)	*P* value*
Knowledge and Attitudes				
Below 30 years	28	15.07 (2.95)	0.513 (2, 133)	0.600
30 – 40 years	60	14.61 (2.64)		
More than 40 years	48	15.12 (2.89)		
Knowledge				
Below 30 years	28	10.14 (2.46)	4.923 (2, 133)	0.009
30 – 40 years	60	10.01 (2.12)		
More than 40 years	48	11.25 (1.90)		
Attitudes				
Below 30 years	28	4.96 (1.95)	2.408 (2, 133)	0.094
30 – 40 years	60	4.26 (1.53)		
More than 40 years	48	4.12 (1.64)		

*One way ANOVA

Table (4.5) shows that there are no statistically significant differences in the level of HCPs' knowledge and attitudes, and HCPs' attitudes among their different age groups ($p>0.05$). On the other hand, the table shows that there is a statistically significant difference in the level of HCPs' knowledge among their different age groups ($p<0.05$). Post hoc analysis was done using Scheffe test and shows that the difference is statistically significant among the age group (30 – 40 years) and the age group (more than 40 years) in favor of HCPs who are more than 40 years. This result is consistent with the result of Mellin (2016) which showed that there was a correlation between nurses' age and their knowledge of medicating chronic pain.

In the current study, age played an important role in determining the HCPs' knowledge of medicating pregnant women with chronic pain, those who have more than 40 years; have

more knowledge score. This result could be attributed to the fact that age plays an important role in generating more experience especially in pain management among HCPs, however this was not revealed in the attitude level, and this could generate some fact about this results, in which knowledge and attitude are not totally closed together, it is not necessary to be correlated together.

Absence of statistical significant difference in the attitude level among diferent age groups of HCPs could be attributed to the fact that pain has been studied among the studied sample, thus their attitude has been specified, and this what has been supported by Grieves and Schultewolter (2014) in which they proved state that pain has not been addressed in medical education and 52.0% of respondents in their study a admitted to having difficulty understanding chronic pain.

4.7 Differences in the Knowledge and Attitudes of medicating Pregnant Women with Chronic Pain among Different Educational Levels

Table 4.6: Differences in the Mean Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain among Different Educational Levels (n = 136)

Variable	N	Mean (SD)	F (df)	*P* value*
Knowledge and Attitudes				
Diploma	85	14.81 (2.59)	1.025 (2, 133)	0.362
Bachelor	40	15.30 (3.25)		
Post-graduate Studies	11	14.00 (2.36)		
Knowledge				
Diploma	85	10.42 (2.20)	0.894 (2, 133)	0.411
Bachelor	40	10.77 (2.14)		
Post-graduate Studies	11	9.81 (2.27)		
Attitudes				
Diploma	85	4.50 (1.59)	1.069 (2, 133)	0.346
Bachelor	40	4.20 (1.93)		
Post-graduate Studies	11	3.81 (1.32)		

*One way ANOVA

Table (4.6) shows that there are no statistically significant differences in the level of HCPs' knowledge and attitudes, HCPs' knowledge, and HCPs' attitudes among their different educational levels ($p > 0.05$). The results revealed no statistically significant differences among educational level of HCPs, this could be attributed and support the above-mentioned results in which Grieves and Schultewolter (2014) stated that chronic pain has not been addressed in medical education and 52.0% of respondents in a national pain audit report admitted to having difficulty understanding chronic pain. So, because it was not addressed within Gaza Universities, there will be no differences with regard to educational level of HCPs.

On the other hand, these results are not consistent with the results of Mellin (2016) which revealed that increased levels of education positively impact perinatal nurses' knowledge of pain, attitude of medicating pregnant women with chronic pain.

Also, to the best or researcher's knowledge, all of health care providers understand pain as a medical problem, it is not affected by their educational level, and this issue is a matter of humanity, not merely a medical or professional one.

4.8 Differences in the Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain among Job Titles

Table 4.7: Differences in the Mean Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain among Job Titles (n = 136)

Variable	N	Mean (SD)	F (df)	*P* value*
Knowledge and Attitudes				
Nurse	9	15.33 (2.00)	1.106 (3, 132)	0.349
Midwife	55	14.38 (2.81)		
Physician	54	15.31 (2.98)		
Pharmacists	18	14.94 (2.31)		
Knowledge				
Nurse	9	11.66 (1.50)	2.019 (3, 132)	0.114
Midwife	55	10.01 (2.24)		
Physician	54	10.61 (2.21)		
Pharmacists	18	10.88 (1.99)		
Attitudes				
Nurse	9	3.66 (1.00)	1.190 (3, 132)	0.316
Midwife	55	4.25 (1.37)		
Physician	54	4.64 (1.98)		
Pharmacists	18	4.16 (1.79)		

*One way ANOVA

Table (4.7) shows that there are no statistically significant differences in the level of HCPs' knowledge and attitudes, HCPs' knowledge, and HCPs' attitudes among their different job titles ($p > 0.05$). This result could be attributed to the number of studied sample, in which

nearly half of participants are nurses and midwives, and the issue of prescribing pain medications is not from the responsibilities of nurses and midwives in the ministry of health in the GS. So, to specify the attitude of health care providers, they have to engage in this experience; thus the nurses and midwives did not engage in that experience and work, and this what has been supported by Zuccaro et al. (2012) in which their study revealed that the physicians have expressed concern about the potential for addiction, misuse and the legal ramifications of prescribing long term opioid medications, but Morgan (2014) revealed that the nurses have expressed fear that administration of opioids for pain might encourage addiction.

4.9 Differences in the Mean of Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain among Different Years of Experience

Table 4.8: Differences in the Mean of Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain among Different Years of Experience (n = 136)

Variable	N	Mean (SD)	F (df)	*P* value*
Knowledge and Attitudes				
1 – 5 years	26	15.46 (2.65)	1.416 (3, 132)	0.241
6 – 10 years	36	14.11 (2.57)		
11 – 15 years	37	15.10 (3.54)		
More than 15 years	37	15.02 (2.08)		
Knowledge				
1 – 5 years	26	10.15 (2.36)	4.094 (3, 132)	0.008
6 – 10 years	36	10.00 (2.07)		
11 – 15 years	37	10.13 (2.50)		
More than 15 years	37	11.51 (1.44)		
Attitudes				
1 – 5 years	26	5.19 (1.81)	4.426 (3, 132)	0.005
6 – 10 years	36	4.05 (1.67)		
11 – 15 years	37	4.62 (1.76)		
More than 15 years	37	3.81 (1.24)		

*One way ANOVA

Table (4.8) shows that there are no statistically significant differences in the level of HCPs' knowledge and attitudes among their different years of experience ($p > 0.05$). On the other hand, the table shows that there is a statistically significant difference in the level of HCPs' knowledge among their different years of experience ($p < 0.05$). Post hoc analysis was done using Scheffe test and shows that the difference was statistically significant among HCPs with 6 – 10 years of experience and who have more than 15 years of experience in favor of HCPs who have more than 15 years of experience.

Additionally, there is a statistically significant difference in the level of HCPs' attitudes among their different years of experience ($p < 0.05$). Post hoc analysis was done using Scheffe test and showed that the difference is statistically significant among HCPs with 1 –

5 years of experience and who have more than 15 years of experience in favor of HCPs who have 1 – 5 years of experience.

These results are supported by the results obtained in the same chapter, in which HCPs have different mean knowledge score with regard to their ages, this could be attributed to the fact that the advancement in age; yield an advancement in experience. Moreover, these results are not consistent with the results of Mellin (2016) which revealed that perinatal nurses' intent to medicate was not statistically correlated to their years of nursing experience.

4.10 Differences in the Mean of Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain among Different Places of Work

Table 4.9: Differences in the Mean of Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain among Different Places of Work (n = 136)

Variable	N	Mean (SD)	F (df)	*P* value*
Knowledge and Attitudes				
Nasser Medical Complex	30	14.53 (2.65)	0.901 (3, 132)	0.443
Al Aqsa Hospital	24	15.70 (2.57)		
Al Shifa Medical Complex	65	14.75 (3.54)		
Al Emaraty Hospital	17	14.88 (2.08)		
Knowledge				
Nasser Medical Complex	30	9.10 (2.33)	5.716 (3, 132)	<0.001
Al Aqsa Hospital	24	10.83(1.52)		
Al Shifa Medical Complex	65	10.93 (2.06)		
Al Emaraty Hospital	17	10.64 (2.31)		
Attitudes				
Nasser Medical Complex	30	5.50 (2.25)	8.387 (3, 132)	<0.001
Al Aqsa Hospital	24	4.54 (1.41)		
Al Shifa Medical Complex	65	3.78 (1.17)		
Al Emaraty Hospital	17	4.29 (1.57)		

*One way ANOVA

Table (4.9) shows that there are no statistically significant differences in the level HCPs' knowledge and attitudes among their different places of work ($p > 0.05$). On the other hand, the table shows that there is a statistically significant difference in the level of HCPs' knowledge among their different places of work ($p < 0.05$). Post hoc analysis was done using Scheffe test and shows that the difference is significant among HCPs who are working at NMC and who are working at Al Aqsa hospital in favor of those who are working at Al Aqsa hospital. Also, the difference is statistically significant among HCPs who are working at NMC and who are working at Al Shifa medical complex in favor of those who are working at Al Shifa medical complex.

Additionally, there is a statistically significant difference in the level of HCPs' attitudes among their different places of work ($p < 0.05$). Post hoc analysis was done using Scheffe test and shows that the difference is statistically significant among HCPs who are working at NMC and who are working at Al Shifa medical complex in favor of those who are working at NMC.

Chapter 5 Conclusion and Recommendations

5.1 Introduction

In the following paragraphs, a brief conclusion which was drawn from the study results will be illustrated. Also, based on these conclusions, specific recommendations were made.

5.2 Conclusion

The main aim of this study was to investigate the level of knowledge and attitudes of HCPs regarding medicating pregnant women with chronic pain in the GS. The design of this study was observational descriptive cross-sectional. This study was carried out at governmental hospitals in the Gaza Strip which have obstetric departments, such as NMC, Al Aqsa Hospital, Al Shifa Medical Complex, and Al Emaraty Hospital. A simple random sample was used in the current study, in which all of HCPs who are working in the obstetric departments on the above-mentioned hospitals were selected to participate in the study. The researcher used self-administered survey in this study which was adopted after some modifications from Ferrell and McCaffery (2014).

The study results showed that the mean of knowledge of HCPs is 10.47 out of 19 (55.14%), mean of their attitude is 4.36 out of 12 (36.33%), and the total mean of knowledge and attitude is 14.88 out of 31.0 (84.0%). The study results also showed that the positive scores for all three dimensions are more than the negative ones, meaning that the HCPs are thinking positively toward the pain management process. Also, there is a statistically significant difference in the level of HCPs' knowledge among their different age groups in favor of the age group (30 – 40 years) and the age group (more than 40 years) in favor of HCPs who are more than 40 years.

On the other hand, the results showed that there is a statistically significant difference in the level of HCPs' knowledge among their different years of experience. Additionally, there is a significant difference in the level of HCPs' attitudes among their different years of experience in favor of HCPs who have 1 – 5 years of experience.

5.3 Implications for Practice

Pregnant women with chronic pain have a right to effective pain management. The overall low knowledge and attitude scores reported by HCPs indicate that many pregnant women with chronic pain may not be receiving adequate pain management in the GS. The HCPs' attitude is likely to affect the women to obtain adequate pain relief. This project has revealed increased knowledge of pain is related to a more positive attitude toward pregnant women with chronic pain. More than 30.0% of HCPs did not have a positive attitude score toward pregnant women with chronic pain.

The large percentage of HCPs who did not have a positive knowledge and / or attitude toward pregnant women with chronic pain may indicate similar concerns. These findings indicate a HCPs' knowledge about medicating pregnant women is influenced by the hospitals. Educational preparation is also associated with increased knowledge, and attitude scores. Educational programs designed to increase the knowledge of all HCPs regarding chronic pain may improve HCPs' knowledge and attitudes to medicate pregnant women with chronic pain. The development of health care practice guidelines in the care of pregnant women with chronic pain is also indicated.

5.4 Recommendations

Based on the study results the researcher has the chance to make number of recommendations for improving the HCPs knowledge and attitude toward medicating pregnant women with chronic pain. These recommendations might help the HCPs' managers and policy maker to set priorities.

5.4.1 Recommendations for policy makers

Conducting periodic educational sessions for all types of HCPs to receive more important information about chronic pain management especially for pregnant women. Moreover, incorporating chronic pain management within medical, nursing, and other allied health sciences curriculum is considered cornerstone to start solving the current problem. Additionally, continuing assessment of HCPs is needed to facilitate organizing future sessions regarding providing in-service education and on-the job training chronic pain management.

5.4.2 Recommendations for HCPs

- Further studies are required in other departments and other types of patients.
- This study should be replicated in other settings such as primary health care centers.
- This study should be replicated on specific type of HCPs such as nurses or physicians.
- Additional research is needed to confirm that an education program regarding pain and treatment of pain will increase HCPs' knowledge of pain, increase their attitude score to medicate a pregnant woman with chronic pain.

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Annexes

Annex 1: Helsinki approval

المجلس الفلسطيني للبحث الصحي

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: 05/02/2018 **Number:** PHRC/HC/330/18

Name: FATMA K. ALMGHARY الاسم:

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 and Attitudes of Medicating Pregnant Women with Chronic Pain: A Survey of Health Care Providers in Gaza Governorates

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/330/18 in its meeting on 05/02/2018

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

Signature

Member **Member**

Chairman

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 2: Approval from MoH

State of Palestine
Ministry of Health

دولة فلسطين
وزارة الصحة

السيد : وامي عيد سليمان العباوله المحترم

التاريخ:08/05/2018
رقم المراسلة 215324

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

السلام عليكم،،،

الموضوع/ تسهيل مهمة الباحثة// فاطمة المغاري

التفاصيل //
يتعرض المرفوم أعلاه، يرجى تسهيل مهمة الباحثة/ فاطمة كمال المغاري
الملتحقة ببرنامج ماجستير التمريض - تخصص صحة الأم والطفل – جامعة القدس أبوديس في إجراء بحث بعنوان:-
"Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain: A Survey of Health Care Providers in Gaza Governorates"
حيث الباحثة بحاجة لتعبئة استبانة من مقدمي الخدمات الصحية للنساء الحوامل المترددات على المستشفيات التي تقدم خدمات صحية للحوامل، بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي، ودون تحميل الوزارة أي أعباء أو مسئولية.
وتفضلوا بقبول التحية والتقدير،
ملاحظة/ البحث حصل على موافقة لجنة اخلاقيات البحث الصحي
ملاحظة / تسهيل المهمة الخاص بالدراسة أعلاه، صالح لمدة 3 شهر من تاريخه.

محمد ابراهيم محمد السرساوي
مدير دائرة/الإدارة العامة لتنمية القوى البشرية -

التحويلات

- محمد ابراهيم محمد السرساوي(مدير دائرة) ← وامي عيد سليمان العباوله(مدير عام بالوزارة) إجراءاتكم بالخصوص(08/05/2018)
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• محمد خليل محمد إقويت(مدير)	← عمر عبد الله حسين الاسطل(مدير دائرة)	للعلم(09/05/2015)
• محمد خليل محمد إقويت(مدير)	← ريان مصباح هاشم المرايب(مدير صيدلية)	للعلم(09/05/2015)
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• محمد خليل محمد إقويت(مدير)	← وليد عبد احمد ابوحطب(طبيب مسجل مساعد / ممارس عام)	للعلم(09/05/2015)
• محمد خليل محمد إقويت(مدير)	← ايمن خالد عثمان الكرد(طبيب مقيم)	للعلم(09/05/2015)
• محمد خليل محمد إقويت(مدير)	← صبحي محمد إبتسام القشطة(مدير)	للعلم(09/05/2015)
• محمد خليل محمد إقويت(مدير)	← صوفيا السحده محمود (كاتب)(مدير)	للعلم(09/05/2015)
• محمد خليل محمد إقويت(مدير)	← وئام ابراهيم اسماعيل فاريس(رئيس قسم اداري)	للعلم(09/05/2015)
• محمد خليل محمد إقويت(مدير)	← عطا عبدالغني خميس الجزار(حكيم جاسي)	للعلم(09/05/2015)
• محمد خليل محمد إقويت(مدير)	← خالد سليمان عبد ابو مصطفى(طبيب باطني أخصائي)	للعلم(09/05/2015)
• نجدي عبدالرازق عبدالله البابا(مدير دائرة)	← محمد عبد الله محمود ابو رحمه(محاسب)	للمتابعة(09/05/2015)
• نجدي عبدالرازق عبدالله البابا(مدير دائرة)	← عمر ابراهيم عليان عيد(امين مخزن)	للمتابعة(09/05/2015)
• نجدي عبدالرازق عبدالله البابا(مدير دائرة)	← زايد داود عوده ابوهيادة(رئيس قسم اداري)	للمتابعة(09/05/2015)
• عطا عبدالغني خميس الجزار(حكيم جاسي)	← خيرية عبدالكريم خليل المدهون(حكيم جاسي)	لعمل اللازم(09/05/2015)
• عطا عبدالغني خميس الجزار(حكيم جاسي)	← فادي سليمان عبدالله حالوب(مدير)	لعمل اللازم(09/05/2015)
• عطا عبدالغني خميس الجزار(حكيم جاسي)	← وائل عبد المجيد عبد الرحيم عبد الهادي(مدير)	لعمل اللازم(09/05/2015)
• عمر عبد الله حسين الاسطل(مدير دائرة)	← سناء يوسف اسماعيل ابو اسماعيل(كاتب جاسي)	لعمل اللازم(09/05/2015)
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• وائل عبد الهادي محمد ابو سلوت(مدير اداري)	← يوسف محمد حسين عبدالجواد(رئيس قسم اداري)	للعلم(10/05/2015)

Annex 3: Consent form and Questionnaire

- **Consent form**

بسم الله الرحمن الرحيم

Dear colleagues:

Peace, mercy and blessings of God

I have a special questionnaire for Master degree of Maternal and Child Health Program - Faculty of Health Professions, Al-Quds University, which I am currently conducting a thesis entitled:

Knowledge and Attitudes of Medicating Pregnant Women with Chronic Pain: A Survey of Health Care Providers in Gaza Governorates

Please answer all questionnaires paragraphs as honestly as possible; your answer expresses your own opinion. The collected information will be used for research purposes only in order to ensure that all information will remain confidential, please do not include your name.

Researcher
Fatima Kamal El Din El Maghary
Mobile / 0598663313

- **Questionnaire**

Knowledge and Attitude of Medicating Pregnant Women with Chronic Pain

Serial number ……
Section (1): Socio demographic data of health care providers

- **Age of health care provider** -------Years
- **Gender** □ Male □ Female
- **Years of experience** …… years
- **Educational qualification** □ Diploma □ Bachelor □ Master □ PhD
  □ University □ Higher studies
- **Title** □ Nurse □ Midwife □ Physician
  □ Others, specify ……..
- **Hospital name** ……..
- **Governorate** ……..

Part (2): Assessment of health care providers' knowledge and attitudes toward chronic pain

Put True Or False in front of the following sentences			
1.	Vital signs are always a reliable indicator of the intensity of a patient's pain.	T	F
2.	Patients who can be distracted from pain usually do not have severe pain.	T	F
3.	Patients may sleep in spite of severe pain.	T	F
4.	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months	T	F
5.	Combining analgesics that work by different mechanisms (e.g., combining NSAID with an opioid) may result in better pain control than using a single analgesic agent.	T	F

6.	The usual duration of analgesia of 1 -2 mg of morphine is 4 -5 hours.	T	F
7.	Patients should be encouraged to endure as much pain as possible before using an opioid.	T	F
8.	Patients' spiritual beliefs may lead them to think pain and suffering are necessary.	T	F
9.	After the initial dose of opioid analgesic is given, subsequent doses should adjusted in accordance with the individual patient's response.	T	F
10.	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real	T	F
11.	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
12.	Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose	T	F
13.	Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment.	T	F
14.	Narcotic/opioid addiction is defined as a chronic neurobiological 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
15.	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
16.	Sedation assessment is recommended during opioid pain management because sedation precedes opioid-induced respiratory depression.	T	F

17. The recommended route of administration of opioid analgesics for patients with persistent pain is:

a. Intravenous b. Intramuscular c. Subcutaneous d. Oral e. Rectal

18. The recommended route of administration of opioid analgesics for patients with brief severe pain of chronic onset vs chronic pain:

a. Intravenous b. Intramuscular c. Subcutaneous d. Oral e. Rectal

19. Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain?

a. Codeine b. Morphine c. Meperidine d. Tramadol

20. A 30 mg dose of oral morphine is approximately equivalent to:

a. Morphine 5 mg IV
b. Morphine 10 mg IV
c. Morphine 30 mg IV
d. Morphine 60 mg IV

21. Analgesics for post-operative pain should initially be given:

a. Around the clock on a fixed schedule
b. Only when the patient asks for medication
c. Only when the nurse determines that the patient has moderate or greater discomfort

22. A patient with persistent pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving 200 mg/ hour intravenously. Today she has been receiving 250 mg hour intravenously. The likelihood of the patient clinically significant respiratory depression in the absences of a new comorbidity is:

a. Less than 1%
b. 1 -10%
c. 11-20%
d. 21 – 40%
e. > 41%

23. The most likely reason a patient with pain would request an increase dose of pain medication is:

a. The patient is experiencing increased pain.
b. The patient is experiencing anxiety or depression.
c. The patient is requesting more staff attention.
d. The patient's requests are related to addiction.

24. The most accurate judge 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.

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

a. Less than 1%
b. 5 – 15 %
c. 25-50%
d. 75-100%

26. The time to peak effect for morphine given IV is:

a. 15 minutes
b. 45 minutes
c. 1 hour
d. 2 hours

27. The time to peak effect for morphine given orally is:

a. 5 minutes
b. 30 minutes
c. 1 – 2 hours
d. 3 hours

28. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:

a. Sweating, yawning, diarrhea, and agitation.
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

29. 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.

30. Patient A: Andrea is 25 years old, 25 weeks pregnant, and this is her first day after ureteral stent placement for chronic kidney stones. As you enter her room, she smiles at you and continues talking and joking with her visitor. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 – 10 (0 = no pain, 10 = worst pain) she rates her pain as an 8. On the patients record you mark her pain on the scale below. Circle the number that represents your assessment of Andrea's pain.

0 (no pain)	1	2	3	4	5	6	7	8	9	10 (Worst pain)

The pain assessment above is made two hours after she received morphine 2 mg IV. Thirty minute pain ratings following the injection range from 6 – 8 and she has had no respiratory depression, sedation, or other untoward side effects. Andrea has identified that 2/10 as an acceptable level of pain relief. The physician's orders for analgesia allow you to administer morphine IV 1 mg every 1 hour PRN mild pain relief, morphine IV 2 mg every 1 hour PRN moderate pain relief, or morphine IV 3 mg every 1 hour PRN severe pain relief. Circle the action that you will take at this time.

a. Administer no morphine at this time. b. Administer morphine 1 mg IV now.
c. Administer morphine 2 mg IV now. d. Administer morphine 3 mg IV now.

Patient B: Rachel is 25 years old, 25 weeks pregnant, and this is her first day after ureteral stent placement for chronic kidney stones. As you enter her room, she is lying quietly and grimaces as she turns in bed. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 – 10 (0 = no pain, 10 = worst pain) she rates her pain as an 8.

On the patients record you circle her pain on the scale below. Circle the number that represents your assessment of Rachel's pain.

0 (no pain)	1	2	3	4	5	6	7	8	9	10 (Worst pain)

The pain assessment above is made two hours after she received morphine 2 mg IV. Thirty minute pain ratings following the injection range from 6 – 8 and she has had no respiratory depression, sedation, or other untoward side effects. Rachel has identified that 2/10 as an acceptable level of pain relief. The physician's orders for analgesia allow you to administer morphine IV 1 mg every 1 hour PRN mild pain relief, morphine IV 2 mg every 1 hour PRN moderate pain relief, or morphine IV 3 mg every 1 hour PRN severe pain relief. Circle the action that you will take at this time.

a. Administer no morphine at this time. b. Administer morphine 1 mg IV now.
c. Administer morphine 2 mg IV now. d. Administer morphine 3 mg IV now.

Annex4: Control panel

No	Name	Workplace
1	Dr. Emad Fashafsha	American University – Jenin
2	Dr. Suha Baalousha	Ministry of Health
3	Mr. Adham ahmad	KYTC – UNRWA
4.	Dr. Mohammad Tabash	AlAzhar University

عنوان الدراسة: المعرفة والاتجاهات حول علاج الألم المزمن للسيدات الحوامل

إعداد: فاطمة كمال الدين جبر المغاري.

إشراف: د. أحمد نجم.

ملخص:

لكل مريض يعاني من الألم الحق في أن يعامل بكرامة واحترام وأن يتم علاج الألم الخاص به/ا على مستوى عالي من الجودة، وقد حظيت مهنة التمريض باهتمام عالي على مستوى توفير الراحة والتخفيف من المعاناة للمرضى الذين يعانون من الألم المزمن، لقد هدفت هذه الدراسة إلى تقييم معرفة واتجاهات مقدمي الرعاية الصحية فيما يتعلق بعلاج الألم للنساء الحوامل اللواتي يعانين من ألم مزمن في مستشفيات قطاع غزة الحكومية، حيث اتبعت الباحثة منهج الملاحظة الوصفي لتحقيق أهداف الدراسة، وقد تكون مجتمع الدراسة من عينة عشوائية باستخدام برنامج إحصائي ل 144 واشتقت هذه العينة من أصل 340 من مقدمي الرعاية الصحية الذين يعملون في أقسام الولادة في مستشفيات قطاع غزة الحكومية وقد استجاب منهم 136 للإجابة على أداة الدراسة بنسبة 94.4%، وقد استخدمت الباحثة الاستبانة كأداة لجمع البيانات، وقد تم استخدام الأساليب الإحصائية مثل النسب المئوية والمتوسط الحسابي، واختبارات لعينتين مستقلتين، واختبار التباين الأحادي.

لقد أظهرت نتائج الدراسة أن متوسط نسبة المعرفة بين مقدمي الرعاية الصحية الخاصة فيما يخص علاج الألم للنساء الحوامل اللواتي يعانين من ألم مزمن هو 55.14%، وأن متوسط نسبة الاتجاهات هي 36.33%، من ناحية أخرى، فقد كشفت النتائج أنه لا توجد فروق ذات دلالة إحصائية في مستوى المعرفة والاتجاهات والمواقف لمقدمي الرعاية الصحية فيما يتعلق بالمتغيرات (الجنس، المستويات التعليمية، اللقب الوظيفي، سنوات الخبرة، وأماكن العمل). في حين كانت هناك فروقات ذات دلالة إحصائية في متوسط المعرفة لمقدمي الرعاية الصحية فيما يتعلق بفئاتهم العمرية لصالح من هم أكثر من 40 عامًا، أيضاً فقد كانت هناك فروقات ذات دلالة إحصائية في متوسط المعرفة لمقدمي الرعاية الصحية فيما يتعلق بسنوات خبرتهم المختلفة لصالح أولئك الذين لديهم أكثر من 15 سنة من الخبرة، وعلاوة على ذلك، فقد كانت هناك فروقات ذات دلالة إحصائية في متوسط المعرفة لمقدمي الرعاية الصحية فيما يتعلق بأماكن عملهم المختلفة لصالح أولئك الذين يعملون في مستشفى الأقصى.

خلصت نتائج الدراسة إلى أن هناك معرفة محدودة لدى مقدمي الرعاية الصحية فيما يخص علاج الألم المزمن للنساء الحوامل اللواتي يعانين من ألم مزمن، وقد أوصت الباحثة بضرورة عقد برامج تعليمية لمقدمي الرعاية الصحية فيما يخص علاج الألم المزمن للنساء الحوامل في قطاع غزة.