JIMMA UNIVERSITY

INSTITUTE OF HEALTH SCIENCES

FACULTY OF MEDICINE

DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE PAIN MANAGEMENT PRACTICE AND ASSOCIATED FACTORS AMONG NURSES WORKING AT JIMMA UNIVERSITY MEDICAL CENTER, JIMMA, ETHIOPIA, 2022

BY: MAEREG WONDIMNEW SITOTAW(MD)

RESEARCH PROPOSAL SUBMITTED TO JIMMA UNIVERSITY DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF SPECIALITY IN THE DEGREE OF DOCTOR OF EMERGENCY MEDICINE AND CRITICAL CARE.

JIMMA, ETHIOPIA, 2022

PAIN MANAGEMENT PRACTICE AND ASSOCIATED FACTORS AMONG NURSES WORKING AT JIMMA UNIVERSITY MEDICAL CENTER, JIMMA, ETHIOPIA, 2022

BY: MAEREG WONDIMNEW SITOTAW (MD)

ADVISORS:

DR. ABRIHAM (MD, ECCM, ASST. PROFESSOR)

Mr. KITESA BIRESA (MPH IN EPIDEMIOLOGY)

DECEMBER, 2022

JIMMA, ETHIOPIA

Summary

Introduction: *A multidisciplinary team approach, incorporating non-pharmacological and pharmacological pain management strategies, using procedural sedation before carrying out extremely painful procedures, using pain medications during painful procedures, and observing the side effects of pain medications are all part of appropriate pain management practice, which is the cornerstone for the management of pain. Staff-related hurdles and healthcare system barriers are some of the linked factors or impediments that might directly or indirectly affect adequate pain management practice.*

Objective: *To assess pain management practice and associated factors among nurses working at Jimma University Medical Center, Jimma, Ethiopia, 2022.*

Methods: *Institution-based Cross-sectional study design was conducted at Jimma University Medical Center from July 20_ to Dec 30. A total of 241 selected Nurses were included. The participants were selected using systematic random sampling after determining the sampling interval (K) by dividing the number of units in the population by the desired sample size and the (K) value becomes 2. The random start number was 3 for each cluster and collected samples every 2 intervals from each unit until the desired sample was collected. Data was collected using a pretested questionnaire. Descriptive statistics were computed to present the data and describe the study participants. Logistic regression analysis was done to identify factors associated with the outcome.*

Results: *A total of 241 nurses participated in the study, giving a response rate of 100%. Less than two-thirds (61.60%) of the study nurses reported that they have practiced about pain management. The respondents had a mean of 6.54 years (3.41 SD) of work experience with a minimum and maximum of 1 and 20years, respectively. The Pain scoring techniques (AOR=0.040, 95%CI=0.017, 0.096), inadequate assess the pain due to lack of time (AOR=0.299, 95%CI=0.102, 0.774), and educate Patient about pain management (AOR=0.099, 95%CI=0.032, 0.304) were statistically significant with pain management practice.*

Conclusion: *The overall pain management practice of the nurses in the study area was poor. Pain scoring techniques, inadequate assess the pain due to lack of time, and educate the patient about pain management were statistically associated with pain management practice.*

Key words: *pain management, practice, Jimma University Medical Center*

TABLE OF CONTENT

Contents

LIST OF FIGURE

List of table

LIST OF ACRONYMS AND ABBREVIATIONS

ANC----------Antenatal care

ART----------Antiretroviral therapy

CA ---------- Cancer

DC ---------- Data collector

ED ---------- Emergency department

ERC ---------- Ethical review committee

ICU ---------- Intensive care unit

JUMC---------- Jimma university medical collage

MICU ---------- Medical intensive care unit

NICU---------- Neonatal intensive care unite

OPD---------- Outpatient department

OR ---------- Operation room

PEOPD---------- Pediatrics emergency outpatient department

PI ---------- Principal Investigator

PICU---------- Pediatrics intensive care unite

QoL---------- quality of life

\

Acknowledgment

I would like to acknowledge JUMC as well as the department of emergency medicine and critical care providing for the facilitation and the arrangements made to complete this research proposal.

I would like to acknowledge my advisers Dr. Abreham of the JUMC department of emergency medicine and critical care and Mr.Kitesa Biresa for their supportive supervision, guidance, and inspiration towards the preparation, and completion of this proposal.

I also express my deepest gratitude and appreciation to JUMC clinical staff and nurses for their genuine support and the necessary information to prepare this research proposal.

CHAPTER ONE: INTRODUCTION

1.1. Background

Satisfaction with hospital care often depends on the techniques and timeliness of analgesia as well as the discharge plans for pain relief and a growing body of evidence supports the importance of pain management as a central aspect of disease treatment. Unrelieved pain is associated with a variety of potentially negative physiologic outcomes, including; increases in sympathetic outflow, peripheral vascular resistance, myocardial oxygen consumption, and the production of carbon (1). Other adverse effects of unrelieved pain appear to include hypercoagulability, decreases in gastric motility, and immune function impairment. Pain during serial medical procedures may increase if successful analgesia was not provided during initial procedures. It is also likely that a patient's experience of pain increases the ability to perceive pain from similar stimuli in the future (2).

In addition to this, inadequate pain management practice has many consequences for the patient, family, health professionals, and society. Patients may have emotional reactions related to pain such as sleeplessness, anxiety hopelessness, prolonged hospital stay, delayed recovery, and the development of chronic and persistent pain. It is also known that poor analgesia leads to immobility and might also increase cardiovascular, respiratory, and gastrointestinal complications. These reactions can be followed by unusual behaviors expressed by the patient in response to the unpleasant life experience. In families, healthcare professionals and society may affect in many ways economically, socially, and politically(2).

The associated factors or barriers that can influence appropriate pain management practice both directly and indirectly include Staff-related barriers include inadequate knowledge and skills, lack of teamwork, false concerns about addiction and overdosing, insufficient physician orders, heavy workload, and lack of time as well as health care system barriers include a lack of clearly defined standards and pain management protocols and limited access to pain specialists and analgesics. Regular audits on pain assessment and management. In an emergency setting, overwhelming attention is usually given to acute serious conditions placing pain management as a lower priority (3,4).

1.2 Statement of the problem

According to different literature viewed, the majority of patients come to the hospital due to their pain complaints. Of those, all burn patients, 75-80% of ED patients, 60- 90% of CA patients, 80% of patients after surgery, and 80% of ICU patients have different intensity pain. In pediatrics and child health Previous studies in general or family practice across several countries

used pain as the visit reason to estimate prevalence between 5.1 and 36%. Within school-based surveys of varying age ranges, pain prevalence has been reported between 4.8 and 27.1% (5–7).

Appropriate pain management practice is the cornerstone for the management of pain which includes implementation of Pain as the 5th Vital Sign, patient education and involvement in their pain management, multidisciplinary team approach in pain management, and incorporating the non-pharmacological and pharmacological approach into pain management practices. Using procedural sedation before carrying out very painful procedures, using pain medications during painful procedures, observing the side effects of pain medications after they had been given, and using a different type of pain scoring technique is the best pain management system (1,3).

In addition to Pain scoring tools, there is also a different method of pain management guidelines like WHO pain management guideline, hospital pain-free initiative manuals, policies, standard textbooks, and training manuals are also used to manage pain. In Africa counting Ethiopia, utilize the WHO pain management rule and attempt to create their rule like Ruanda (1,3,8,9).

Currently, as rule Pain estimations, from both provider and patient-derived scales, should be obtained and recorded for patients as frequently as a fifth vital sign or patient indicator but in our hospital, it is not practical. (4,10,11)

Even though from my 3-year work experience observations, pain is the most common complaint in both outpatients and patients, all most all of the JUMC hospital staff undermine and undertreat pain. Some of the factors for this may be inappropriate pain management practice and associated factors such as; underestimation of pain by staff as well as hospital systems.

To the knowledge of the investigator, there is no clear epidemiological data regarding the practice of pain management and its associated factors specifically in the study area. Thus this institutional-based cross-sectional study aims to assess pain management practice and its associated factors working at JUMC.

1.3 Significance of the study

Pain is a distressing feeling often caused by intense or damaging stimuli & this feeling hurts the community, family, health care system, and patient itself both directly and indirectly. Even though pain scoring is counted as the fifth vital sign and patients have the right of being pain-free, still, in our hospital, they suffer from it and are discharged with it. This research will be conducted to develop good pain management practices and to break barriers as well as to see pain-free inpatients and outpatients. There has been an inadequate study on pain management practice. Therefore this study will fill the gaps in the pain management practice. In addition to

this, it will inspire the hospital administration to develop guidelines, and policies and to audit the hospital pain management practice. It may be used as an initial point for the next researcher.

CHAPTER TWO: LITERATURE REVIEW

2.1. The Overview of pain

Pain is the most common presenting symptom for patients coming to the ED, with 75% to 80% of all patients having pain as their primary complaint. A range of epidemiological studies in several countries and practice settings suggests that pain is present in about one-third of patients receiving cancer treatment and in 60% to 90% of patients with advanced illness(12–15). Although it is expected that surgical treatment results in some degree of patient discomfort, acute post-surgical pain has been widely undertreated. (16).

In pediatric patients across several countries pain as the visit reason to estimate prevalence between 5.1 and 36% but within school-based surveys of varying age ranges, point prevalence's have been reported between 4.8 and 27.1%. Pain is a common and distressing symptom in ICU patients and represents a major clinical, social, and economic problem. It has been reported that almost 80% of patients experience different intensities of pain during their intensive care unit stay and identify it as one of the greatest sources of stress (13,17).

The study conducted on pain prevalence in hospitalized patients at a tertiary academic medical center from a total of 1,034 patients female/ male,497/537 respectively, 719 patients(69.5%) develop moderate to severe pain at the level being 27.3% &43% respectively during their hospitalization. while 312 (30.2%) complain of severe pain (NRS 7–10). 73.2% of young adults (age < 39 years old), and 57.1% of the elderly (age > 80 years old) experience pain. Some studies also showed a decreasing trend with each 10-year increment of age (12,13).

2.2 Pain management practice

A multi-modal pain management approach from different clinical disciplines is involved in an overall treatment plan. Because this helps to address the pain condition (mild, moderate, severe or acute, and/or chronic), often enabling a synergistic approach that addresses the different aspects of the pain condition, including functionality. This approach addresses different aspects of chronic pain conditions including the biopsychosocial effects of the medical condition on the patient. The effect of such a coordinated and integrated approach has been documented to reduce pain severity, improve mood and overall QOL, patient satisfaction, and increase function (10).

Pain management practice is the cornerstone for the management of pain and it includes; implementing Pain as the 5th Vital Sign, patient education and involvement in their pain management, incorporating non-pharmacological and pharmacological approaches, using procedural sedation before carrying out very painful procedures, using pain medications during painful procedures, observed the side effects of pain medications after they had given it to the patient and using a different type of pain scoring technique (1,3).

In pain management, a critical part of providing comprehensive care is a thorough initial evaluation, including an assessment of both the medical and the probable bio-psychosocial factors causing or contributing to a pain condition. A second critical step is to develop a

treatment plan to address the causes of pain and to manage pain that persists despite treatment. Despite increasing research and information about pain management, oligo analgesia, or the under-treatment of pain, persists. Specific measures to treat pain should occur *in* addition to, at the same time treatment of the underlying illness or injury. It is not possible to generalize the extent and quality of pain control needed for a specific patient (12).

A wide variety of options are available for the treatment of pain. Despite the availability of effective treatments for both acute and chronic pain therapy, the treatment of pain can be difficult and is often one of the most challenging and frustrating aspects of the practice of emergency medicine inpatient care. Patients' perceptions of their hospital care are highly influenced by pain treatment. Satisfaction with hospital care often depends on the techniques and timeliness of analgesia as well as the discharge plans for pain relief. In every interaction with a patient in pain, a balance should be achieved between the relief of the patient's suffering and the diagnosis and treatment of the underlying medical condition.

2.3 Factors associated with pain management practice

2.3.1 Socio-demographic factors affecting pain management practice among nurses

Nurses are in a unique position to help patients who complain of pain. They play a vital role in providing pain assessment and management. To effectively manage pain, they must accurately measure the patient's experience of pain. In addition to this, they must use a consistent and methodical approach to pain exploration. Furthermore, they should consider pain assessment principles while using assessment techniques and instruments. In many clinical contexts, pain is not assessed in a standardized manner. In the previous review, nurses Being male, having low work experience, a lower educational level, lack training in pain management, lack of organizational support, and absence of pain management guidelines were associated with nurses' poor pain assessment practice (18)(19).

2.3.2 Healthcare professional barriers

Currently, quality improvement programs recommended incorporating objective pain assessment tools such as the behavioral pain scale (BPS) Numerical Rating Scales (NRS), Verbal Rating Scales (VRS), Visual Analog Scales (VAS), and the Faces Pain Scale-Revised (FPS-R), the critical care pain observation tool (CPOT) into everyday nursing practice. Furthermore, clinical

and theoretical pain assessment training should be included in nursing courses as well as ongoing education to help nurses understand the value of early pain detection and management (20). Even though hospital staffs are responsible for effective pain assessing, scoring, and management, there are staff-related barriers that are associated with poor pain management practice.

Nursing includes pain management, and nurses are responsible for efficiently managing patients' pain. The ability to handle pain effectively requires knowledge, dedication, perseverance, and inventiveness. Untreated and undertreated Pain has debilitating effects and significantly interferes with the patient's physical, emotional and spiritual well-being thus can alter the patient's quality of life. Lack of information continues to be a significant obstacle to attaining good pain treatment, despite years of study and scientific improvement in this area. Knowledge and attitude of nurses towards pain management influence how pain is managed. Negativity and knowledge deficit can be a barrier to effective pain management. Since pain is a universal phenomenon, good pain treatment by nurses ought to be a standard response. They must be highly competent and knowledgeable and possess positive attitudes toward pain management so that patients receive high-quality pain management practices to facilitate optimal patient health outcomes. Therefore the present study was conducted to assess the knowledge and attitude of staff nurses regarding pain management (11)(21,22)

Clinical algorithm development and implementation typically involve the collaboration of several specialists. The results of such work incorporate best practices and provide a document that enables the practitioner to better accurately diagnose and treat pain. The ability of the many experts to communicate effectively is one of the main obstacles to efficient pain treatment. (23)(3)

When opioids and other controlled medications are administered in adequate dosages over time, tolerance, withdrawal, and physiological dependence are predictable reactions, and they do not, by themselves, indicate addictions(24). Up to 40% of people with chronic pain exhibit hazardous drug-taking habits, but significantly fewer appear to genuinely have a substance use disorder, according to research on the relationship between addiction and chronic pain. Only 2-5% of those people showed signs of addiction condition, whereas 20% of them exhibited behaviors that were thought to be related to drug misuse(24).

To effectively control pain, pharmaceutical therapies, particularly opioids, must be administered properly. (25). But one of the hardest obstacles to overcome in successful pain treatment is the distinction between the management styles of expert and inexperienced doctors. In the study by Elcigil et al., the two most common physician-related obstacles were inadequate physician orders (54%) and a lack of routine and consistent pain evaluation by doctors (63%). Lewis et alstudy .'s in Great Britain revealed that, despite governmental recommendations on the care of pain problems, practicing doctors did not adhere to them to the fullest extent(4,26).

The main issue with pain treatment overseen by nurses is that there are many obstacles to achieving adequate pain control, including heavy nurse workloads and high nurse-patient ratios (25). They don't employ non-pharmacological pain treatment techniques because they don't have the time to teach patients about pain. Non-pharmacological pain management techniques are still an underutilized treatment approach. (4,26)

Opiophobia appears to be prominent among HCPs and this seems to be reinforced through inadequate training on opioid analgesics. Their poor preparation to appropriately manage opioids in the clinical setting often leads to improper use, leaving the patient in unnecessary suffering Nurses are afraid of the drug storage cabinets, are surprised by the pain doctor’s instructions, and react to prescribing opioids, which forces physicians not to: and nurses are not comfortable with giving high doses of drugs and are afraid of the frequent doses that might lead to life-threatening complications(27)(28).

2.3.3 System-related barriers

Fundamental obstacles exist in many nations' healthcare systems that prevent appropriate pain treatment. There are no clearly defined standards and pain management is not considered a priority. some of system related barriers are(26); Globally, there is a huge problem with pain. Globally, it is estimated that 20% of individuals experience some form of pain, and 10% of those cases are given a new chronic pain diagnosis each year. However, the issue of pain has mostly been viewed as a medical issue and has received little attention from the area of policymakers(10) (26). Hospital officials mentioned that Ethiopia’s health policy should pay as much attention to postoperative pain as it does to microbial infections and other infectious diseases(29). The nurses identified the more prevalent system-related barrier as being the lack of access to professionals who practice specialized pain treatment methods (66%), the absence of

guidelines for pain management (66%), and difficulty contacting or communicating with physicians to discuss treatment of pain (61%). Sixty-six percent of the nurses cited the absence of defined clinical standards for treating pain as a hindrance. According to reports, nurses' attitudes and knowledge of pain are influenced by pain treatment recommendations. If clinical practice guidelines are customized to the unique kind of institution and the resources available within a given location, more effective pain management practices may be obtained(4,20,28).

CONCEPTUAL FRAMEWORK

This conceptual framework was developed after a systematic and careful review of different kinds of literature that are related to pain management practice. There was a stated association between pain management practice-related factors (Socio-demographic characteristics, System-Related barriers, and health care professional-related barriers(3,19,21,22,26–29).

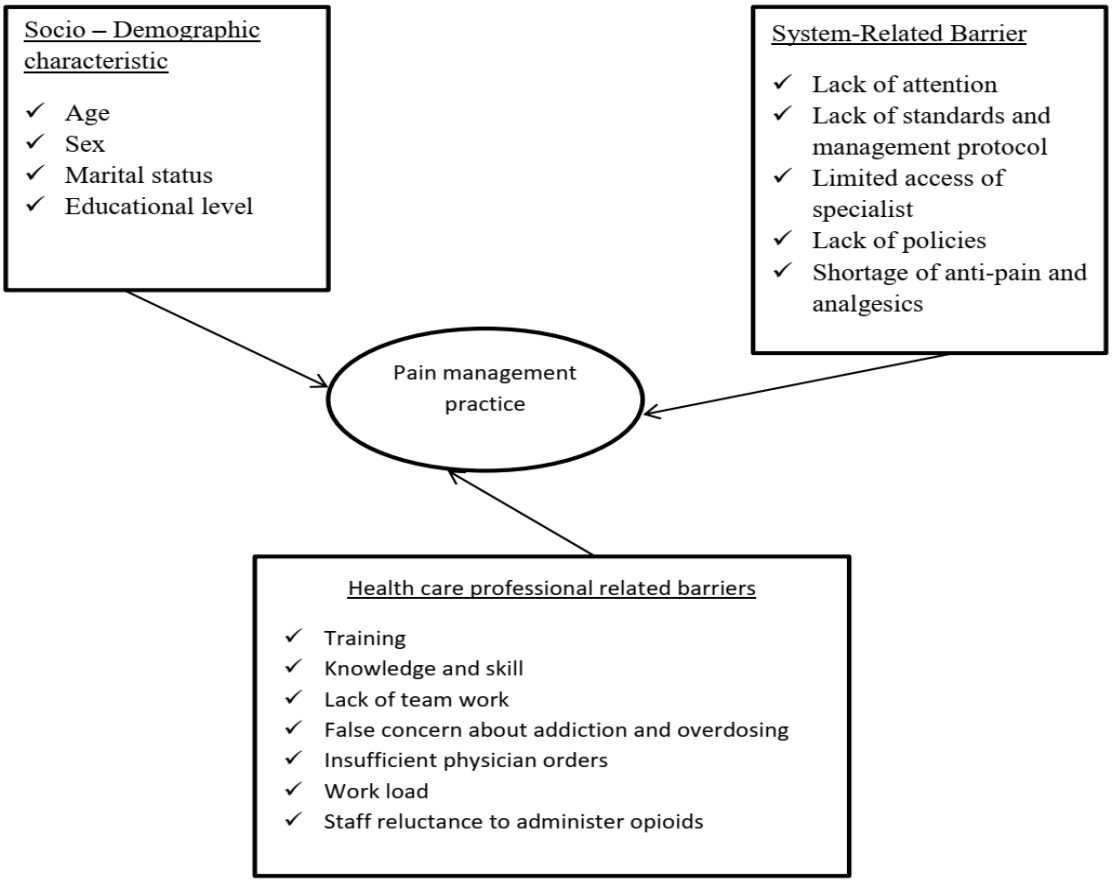

Figure 1: Conceptual framework related to pain management practice and associated factors.

CHAPTER THREE: OBJECTIVES

3.1 General Objective

- To assess pain management practice and associated factors among nurses working at Jimma University Medical Center, Jimma, Ethiopia, 2022

3.2. Specific objectives

- To determine the pain management practice among nurses working at Jimma University Medical Center.
- To identify factors associated with pain management practice among nurses working at Jimma University Medical Center.

CHAPTER FOUR: METHODS AND MATERIALS

4.1 Study area

Jimma University Medical Centre (JUMC) is one of the oldest public hospitals in the country and was established in 1930 E.C. by Italian invaders for the service of their soldiers. Geographically, it is located in Jimma city an evergreen and cash crop area of Ethiopia, 352 km Southwest of Addis Ababa. After the withdrawal of the colonial occupants, it has been governed under the Ethiopian government by the name of "Ras Desta Damtew Hospital" and later "Jimma Hospital "during the Dergue regime and currently at Jimma University Medical Centre. After the transfer of its ownership to Jimma University, the university has made relentless efforts in extensive renovation and expansion work to make the hospital conducive for service, teaching, and research. Currently, it is the only teaching and referral hospital in the southwestern part of the country, providing services for approximately 18289 inpatients on 800 beds, 232,000 outpatient attendants, 79,000 emergency cases, and 6500 deliveries in a year coming to the hospital from the catchment area. Population in the catchment area is estimated to be around 15,000,000 – 20,000, 000. The total number of nurses working at JMUC is 630 but out of these 47 nurses are on long-term training and are not included in this study (30).

4.2 Study design and Period

An institutional-based cross-sectional study was conducted from July 28 to November 8/ 2022 by developing a constrictive questionnaire and interviews.

4.3 Population

4.3.1 Source population

The source populations of this study were all nurses working at JUMC

4.3.2 Study population

The study populations of this survey were all randomly selected nurses at JUMC

4.4 eligibility criterions

4.4.1. Inclusion criteria

All nurses working at JUMC.

4.4.2. Exclusion criteria

- Nurses who had work experience below six months
- Nurses who are critically ill and unable to communicate during the data collection

4.5 Sample size and sampling techniques/procedure

4.5.1 Sample size

The sample size was determined by using confidence level = 95% and p = 50%, and a marginal error of 5% (=0.05) because the investigator couldn't find the published/unpublished article to the level of the effort of search he did. Thus the total sample size will be calculated using the formula ($n = Z^2 p (1-p) / w^2$) which is equal to 384 as follow.

$n = Z^2 p (1-p) / w^2$

$= 1.96^2[0.5(1-0.5)/(0.05)^2 = 3.8416 (0.25/0.0025)$

$= 3.8416 (100)$

$= \sim 384$

Where: n = Sample size, $Z_{\alpha/2}$ = Confidence level at 95% = 1.96, P = 50%, d = margin of error of 5%.

But since the total population is <10,000 that is **583** and due to the short time left over to complete the research, the final correction formula to determine the final sample size was used.
$n_f = n /(1+ (n/N))$;

Where, n_f = desired sample size (with population <10,000), n = desired sample size (when population >10,000), N = the estimate of the population size, $n_f = 384/(1+(384/583)) =$ **231**.

Therefore, by substituting the above formula yields n= 231, then 5% contingency was added total sample size was 241 participants in the study.

4.6 Sampling technique/procedures

To avoid sample selection bias and to make it more representative the research area was classified into 7 main strata having nearly the same working practice. Such as; Internal Medicine (different units, chronic illness, and cold OPD) ART, TB clinic, psychiatric, dermatology, palliative care, endoscopy, dialysis, burn unit, and oncology. (Total population 128),Pediatrics (ward, PEOPD, and Pediatric cold OPD.(Total population 81),Emergency department, and minor OR (Total population 58), Surgical, major OR, orthopedics, dentistry, and maxilla-facial.(Total population 147),Ophthalmology(OPD, ward, OR). (Total population 32),NICU, PICU, MICU, and surgical ICU. (Total population 64),Gynecology and obstetrics(ANC, ward, maternity, Labor, and OR). (Total population 69), Then by using the Proportional allocation formula to select 242 samples from each work unit;

$N_j = (n/N)*n_j$

- Where;- N_j = is sample size of the j_{th} strata, $n_{j=}$ is population size of the j_{th} strata, $n = n_{j1} + n_{j2} + ...+ n_k$ is the total sample size = 242, $N = N_{j1} + N_{j2} + ...+ N_k$ is the total population size = 583, $E_gN_j = (242/583)*128 = 53.13$

NB The decimal number greater than 0.5 is approximately one and the decimal number less than 0.5 is approximately 0 then the calculated sample is 242.

After calculating and determining the sample from each stratum, the source population list will be taken from metron and rearranged their name by the English alphabet. Finally by using systematic random sampling and determining the sampling interval (**K**) by dividing the number of each strata population by the desired sample size and the (**K**) value becomes ~2, randomly the start number will be 3 of each stratum and collect samples every 2 intervals from each until the desired sample will be collected.

eg. strata one; k = 128/53 = 2.41 ~ 2 and for all strata "K" value becomes ~2,

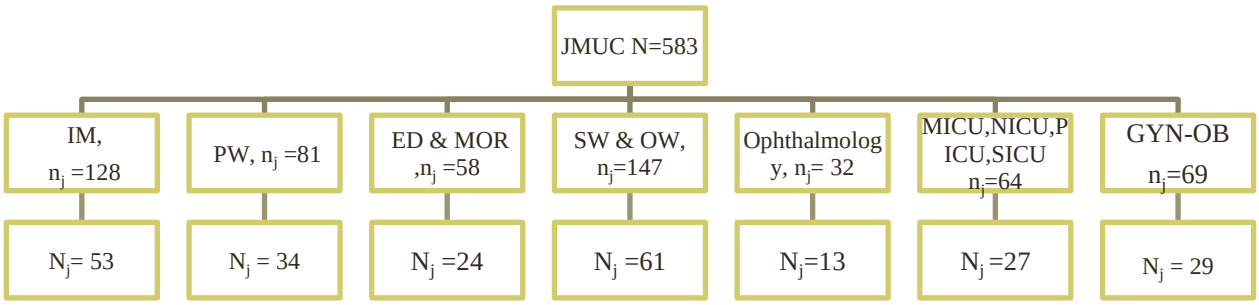

Figure 2: shows the summary of the sampling technique

ED (emergency department), GYN_OBS(Gynecology and obstetrics, I'm (internal medicine)), MICU (medical intensive care unit), MOR (minor OR),n_j= The total population size of the j^{th} cluster, N_j = is the sample size of the j^{th} cluster, NICU(neonatal intensive care units), OW (orthopedics ward), PICU(pediatric intensive care unit), PW (pediatrics ward), SICU(surgical intensive care unit), SW (surgical ward)

4.7 Data collection procedures

Structured questionnaires were developed from guidelines and standard books for data collection regarding nurses' pain management practices and associated factors. The questionnaire was made up of only closed-ended questions. The tool was carefully designed, taking note of pertinent literature available and the study objectives. The tool was structured into Socio-demographic characteristics of nurses, health care professionals related factors, health care system-related factors, and questionnaires to measure the level of pain management practice.

Before the date of data collection, training was given to both data collectors and supervisors. The team was formed by three data collectors and two supervisors from nurses working at Jimma medical center. The questionnaires were given to nurses after informed consent was obtained verbally as well as the trained data collector was clarified to avoid bias. The completed questionnaires were checked for completeness and consistency of the responses. Each

questionnaire was coded with an identification number before giving it to the respondents for easy identification.

The outcome of the study was analyzed by using different methods. After once the data is collected it was rechecked by a supervisor, and then coded, inter into the Epidata version 4.7, and then transported to SPSS version 21 finally it was presented using table figures and charts.

4.8 Study variables

4.8.1 Dependent variables

- Pain management practice.

4.8.2 Independent variables

- Socio-demographic characteristics of nurses
- Health care professionals' associated factors (barriers).
- Healthcare system-associated factors (barriers).

4.9 Operational definitions

1. Pain Management; The staff's practice of assessing, diagnosing, planning, intervening in, and evaluating patients' pain in the hospitals(1,3,6,9).
2. Pain Management practice; is defined in terms of implementing Pain as the 5th Vital Sign, using pain scoring technique to assess and score pain, involving and educating patients in their pain management, applying a multidisciplinary team approach, incorporating non-pharmacological and pharmacological pain management approach, using procedural sedation or pain medications before carrying out painful procedures, Observing the side effects of pain medications after you had given it to the patient(20).
3. Good pain management practice; if 70% of the respondents answered each of six and more questions from a total of eight questions appropriately by definition of JUMC nurse staff have good practice concerning pain management, but if not poor(20).

4.10. Data quality management

The adopted questionnaire was pretested at Shenen Gibe hospital among 12 nurses using the same inclusion and exclusion criteria to measure accuracy and consistency and training was given to data collectors. Finally to increase the data quality the trained data collectors have a responsibility to avoid bias by sharing information during data collection.

4.11 Data processing and analysis

Collected data was checked, coded manually, entered into Epi data version 4.7, and exported to SPSS version 21 for windows for cleaning and analysis. A descriptive analysis was carried out for each of the independent variables. The frequency and percentage of descriptive variables were presented using tables and figures. A candidate variable with a p-value of less than 0.25 on bivariate analysis was entered into multivariable logistic regression. Multivariable logistic regression was used to identify the independent predictors of pain management practice. Adjusted Odds ratio with a 95% confidence interval and the p-value was computed to assess the presence and degree of association and statistical significance between the dependent and independent variables. The variables which showed statistically significant association with a p-value less than 0.05 in the multivariable logistic regression analysis were considered statistically significant for pain management practice.

4.12 Ethical considerations

Approval was secured first from the Ethical Review Board (IRB) of the Institute of Health, Jimma University. Then, a written letter from the College of health science, school of Medicine, and Department of Emergency Medicine and Critical Care and submitted to Jimma University Medical Center. A similar letter was written by Jimma University Medical Center to each department of Jimma University Medical Center. Informed verbal consent was obtained from each respondent, they would have the right to give up the interview at any time they wish and their response to any of the questions was not be given to anyone else.

3.13 Dissemination of the study

The result of the study will be submitted to Jimma University, College of health science, school of Medicine, and Department of Emergency Medicine and Critical Care. It will also be

disseminated to JUMC, Jimma Zone Health Office, and other concerned and interested organizations. Finally, the result will be published on Peer reviewed journals for public use.

CHAPTER FIVE: RESULT

5.1 Socio-demographic characteristics

A total of 241 clients participated in the study giving a response rate of 100%. The mean age of the respondents was 29.92 years with ±4.994year standard deviation. The respondents had a mean of 6.54 years (3.41 SD) of work experience with a minimum and maximum of 1 and 20 years, respectively. The majority of the participants 121(50.2.4%) were females. About three fourth (75.5%) of them were married followed by single 54 (24.5%). Regarding the level of education, the majority of the respondents 196 (81.3%) have a degree (B.Sc.) followed by a Diploma level of 30(12.4%) (Table 1).

Table 1: Socio-demographic characteristics of the Nurses in JUMC, Jimma, South West Oromia, Ethiopia, 2022 (n=241).

Variable	Category	Frequency	Percentage
Sex	Male	120	49.8
	Female	121	50.2
Marital status	Marriage	182	75.5
	Single	59	24.5
	Divorced	0	0
	Widowed	0	0
Educational level	Diploma	30	12.4
	Degree	196	81.3
	Master	15	6.2

5.2 Pain management practice

More than 153 (63.50%) of the study participants practiced pain management, and the majority of them, 176 (73%) took Pain as the 5th Vital Sign and documented it on the patient chart. Concerning pain scoring, about 159(66.0%) use pain-scoring techniques to assess and score pain. Less than three-fourths 163(67.6%) of the respondents involve and educate patients in their pain

management, and of these about 149 (61.8%) follow a multidisciplinary team approach. Regarding the pain side effects, the majority of them 148 (61.4%) not observe the side effects of pain medications after they had given them to the patient (Table 2).

Table 2: pain management practice of the Nurses in JUMC, Jimma, South West Oromia, Ethiopia, 2022 (n=241).

Variable	Category	Frequency	Percentage
Pain management practice	Yes	153	63.5
	No	88	36.5
Take Pain as the 5th Vital Sign and documented it on the patient chart	Yes	176	73.0
	No	65	27.0
You use pain-scoring techniques to assess and score pain	Yes	159	66.0
	No	82	34.0
Involve and educate patients in their pain management	Yes	163	67.6
	No	78	32.4
Follow a multidisciplinary team approach	Yes	149	61.8
	No	92	38.2
Incorporate non-pharmacological and pharmacological pain management approaches	Yes	155	64.3
	No	86	35.7
Use procedural sedation or pain medications before carrying out painful procedures	Yes	103	42.7
	No	138	57.3
Observe the side effects of pain medications after you had given them to the patient	Yes	93	38.6
	No	148	61.4

5.3 Health care profession related pain management barrier

The majority of the respondents, 161(66.8%) had not been trained in pain management. Of those trained, most of them 68(28.2%) trained 1 year back followed by 6 months back 7(2.9%). Concerning knowledge and skills, about 105(43.6%) had adequate knowledge and skills in pain scoring and management. Despite pain assessment, about 92(38.2%) of the respondents assess and manage pain inadequately because they faced a heavy workload while 74(30.7%) of them are due to lack of time (Table 2).

Table 3: Healthcare profession-related barriers towards pain management in JUMC, Jimma, South West Oromia, Ethiopia, 2022 (n=241).

Variable	Category	Frequency	Percentage
Trained in pain management	Yes	79	32.8
	No	161	66.8
	I can't remember	1	.4
Duration of trained	3 months back	4	1.7
	6 months back	7	2.9
	1 year back	68	28.2
Having adequate knowledge and skills in pain scoring and managing	Yes	105	43.6
	No	130	53.9
	I am not sure	6	2.5
Assess and manage pain inadequately because	Yes	92	38.2

you faced a heavy workload	No	147	61.0
	I am not sure	2	.8
Assess and manage pain inadequately because of a lack of time	Yes	74	30.7
	No	166	68.9
	I am not sure	1	.4
Did not give anti-pain because of concerned about addiction and overdosing	Yes	101	41.9
	No	135	56.0
	I am not sure	5	2.1
Encounter complications in work experiences	Yes	98	40.7
	No	137	56.8
	I am not sure	6	2.5
The physician assesses and orders anti-pain sufficiently	**Yes**	162	67.2
	No	73	30.3
	I am not sure	6	2.5

5.4 Healthcare System-related barriers

About one hundred (41.5%) of the respondents responded that there were defined standards and pain management protocols, and more than one-third (35.7%) responded that there is a defined policy regarding pain assessment and management. The majority of them, 175 (72.6%) showed that there are no pain and analgesics specialists, while 187(77.6%) of them showed that there are no well-secured anti-pain and analgesics in the hospital (Table 4).

Table 4: Health care System-related barriers towards pain management in JUMC, Jimma, South West Oromia, Ethiopia, 2022 (n=241)

Variables	Category	**Frequency**	**percentage**
There are clearly defined standards and pain management protocols	Yes	100	41.5
	No	130	53.9
	I am not sure	11	4.6
There are clearly defined policies regarding pain assessment and management	Yes	86	35.7
	No	145	60.2
	I am not sure	10	4.1
There is pain and analgesics specialists	Yes	44	18.3
	No	175	72.6
	I am not sure	22	9.1
Anti-pain and analgesics are well-secured in the hospital	Yes	44	18.3
	No	187	77.6
	I am not sure	10	4.1

The overall pain management practice among JUMC Nurses was 61.60% (Figure 3).

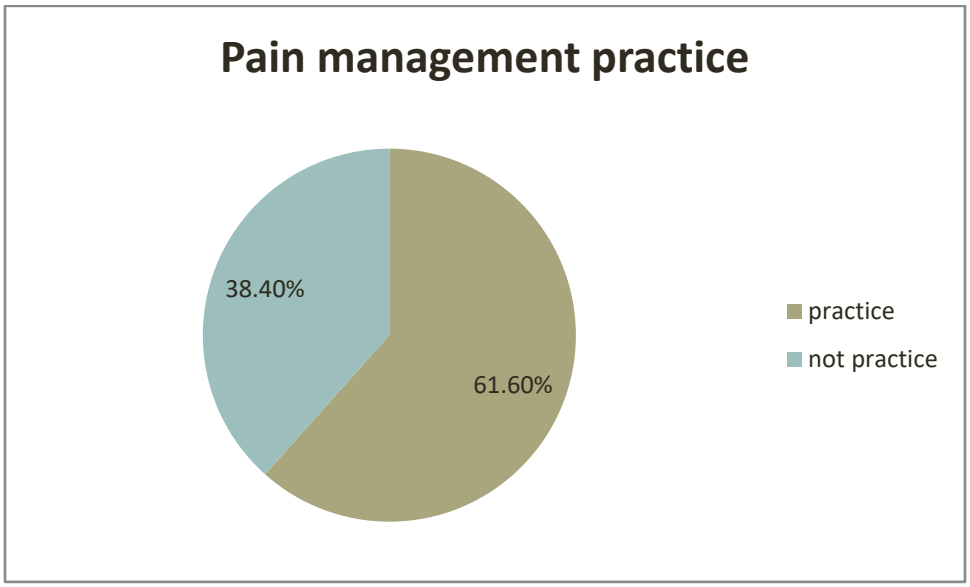

Figure 3: The overall pain management practice of JUMC Nurses

5.5 Bivariate logistic regression analysis

From the candidate, variables entered to simple logistic regression, Pain scoring techniques, Patient education, Knowledge and skills related to pain management, Pain management policy, Pain management protocol, and inadequate assessment of the pain due to lack of time were candidate variables for multivariate logistic regression by criteria of p<0.25(Table 5).

Table 5: Client-related (independent factors/predictors) factors of pain management practice among nurses of Jimma medical center, Jimma, Oromia, Ethiopia, 2022(241).

Characteristics	Categories	Frequency	COR	95% CI	P-value
Pain scoring techniques	Yes	159	0.032	015, 0.069	0.000
	No	82	1	.1	
Patient Education	Yes	163	0.059	.026, 0.135	0.000
	No	78	1	1	
Knowledge and skills	Yes	105	0.628	0.349. 1.131	.121

	No	130	1	1	
	I can't	6	1.365	0.244, 7.637	0.723
Inadequate assess the pain due to lack of time	Yes	74	0.595	0.309, 1.147	0.121
	No	166	1	1	
	I can't	1	0.000	0.000, 0.	1.000
Pain management protocol	Yes	100	0.643	0.355, 1.164	0.145
	No	130	1	1	
	I can't	11	2.361	0.695, 8.020	0.168
Pain management policy	Yes	86	.815	.446, 1.490	.506
	No	145	1	1	
	I can't	10	2.850	.797, 10.189	.107

5.6 Multivariable logistic regression

All predictors of pain management practice with p-value < 0.25 were entered into a multiple logistic regression analysis and the final predictors of the pain management practice score were identified. As the study finding showed, there was an association between pain management practice at Jimma university medical center, and those who use Pain scoring techniques were 0.040 times (AOR=0.040, 95%CI=0.017,0.096) higher compared to those not used Pain scoring techniques, Inadequate assess the pain due to lack of time was 0.299times (AOR=0.299, 95%CI=0.102,0.774) higher compared those not, and those who educate Patient about pain management was 0.099 times (AOR=0.099, 95%CI=0.032,0.304) higher compared to those who did not educate the patient about pain management(Table 6).

Table 6: Multi-variable logistic regression of the predictor variable of pain management practice at Jimma Medical Center among nurses (241).

Characteristics	Categories	AOR	95% CI for EXP(B)	P-value
Pain scoring techniques	Yes	0.040	0.017,0.096	0.000
	No	1	1	
Patient Education	Yes	0.099	0.032,0.304	0.000
	No	1	1	
Inadequate assess the pain due to lack of time	Yes	0.299	0.102,0.774	0.014
	No	1	1	

CHAPTER SIX: DISCUSSION

The overall pain management practice of the nurses in this study was 61.60%. The result was poor that less than 70% of the respondents practice pain management(20). Moreover, this result may be due to Pain scoring techniques (AOR=0.040, 95%CI=0.017, 0.096), inadequate assess the pain due to lack of time (AOR=0.299, 95%CI=0.102, 0.774), and educate Patient about pain management (AOR=0.099, 95%CI=0.032, 0.304) that significantly associated with pain management practice in the study area. The mean age of the respondents was 29.92 years with ±4.994year standard deviation. The respondents had a mean of 6.54 years (3.41 SD) of work experience with a minimum and maximum of 1 and 20 years, respectively. This finding is higher than the study conducted in Southern Ethiopia, Wolayita zone, 2021, which showed that the mean age of the respondents was 28.7 (3.74 SD), with a minimum and maximum age of 22 and 42 years, respectively, the respondents had a mean of 5.4 years (2.9 SD) of work experience with a minimum and maximum of 1 and 16 years, respectively(19).

Concerning knowledge and skills, about 105(43.6%) had adequate knowledge and skills in pain scoring and management, and the majority of them, 176 (73%) took Pain as the 5th Vital Sign and documented it on the patient chart. Concerning pain scoring, about 159(66.0%) use pain-scoring techniques to assess and score pain. Less than three-fourths 163(67.6%) of the respondents involve and educate patients in their pain management, and of these about 149 (61.8%) follow a multidisciplinary team approach. Regarding the pain side effects, the majority of them 148(61.4%) not observe the side effects of pain medications after they had given them to the patient. This finding is lower than the study conducted at federal hospitals of Addis Ababa, Ethiopia,2020 showed that the knowledge of participant nurses on pain management; most of them (134, (64.9%)) have adequate knowledge of pain management. The majority of participants (89.1%) had documented outcomes after assessing the patient's pain and also 91.6% of nurses had given opioid analgesics to patients with severe pain of abrupt onset. About 87 (45.1%) of nurses had used pain assessment tools to assess patient status whenever necessary and 27 (14%) of nurses had used pain assessment tools(31).

The majority of the respondents, 161(66.8%) had not been trained in pain management. Of those trained, most of them 68(28.2%) trained 1 year back followed by 6 months back 7(2.9%). Despite pain assessment, about 92(38.2%) of the respondents assess and manage pain inadequately because they faced a heavy workload while 74(30.7%) of them due to lack of time. About one hundred (41.5%) of the respondents responded that there were defined standards and pain management protocols, and more than one-third (35.7%) responded that there is a defined policy regarding pain assessment and management. This result is lower than the study conducted at federal hospitals of Addis Ababa, Ethiopia, in 2020 showed that around 148 (76.7%) nurses have pain management protocols/guidelines in their hospital and 145 (75.1%) had pain assessment tools while 93 (48.2%) have not yet used either of the two. From the participants; 161 (83.4%) of participant nurses believe that a patient's inability to communicate can affect pain assessment. The majority 116 (61.7%) of nurses didn't get training but only 74 (38.3%) of nurses had got formal training related to pain assessment and management, and to in public hospitals in Wolaita zone (19,31).

CHAPTER 7: CONCLUSION AND RECOMMENDATION

7.1: Conclusion

The overall pain management practice of the nurses in the study area was low/poor that less than 70% of the respondents practice pain management. Pain scoring techniques, inadequate assess the pain due to lack of time, and educate the patient about pain management were statistically associated with pain management practice.

7.2: Recommendation

7.2.1 Jimma university medical center

- ✓ Would be better to improve the knowledge of healthcare personnel regarding pain management by providing adequate training that could enhance the nurse‘s knowledge in the area of pain management.
- ✓ Would give training for nurses on vital signs, severe pain, reliable potentiation of opioid analgesics, and dose ceiling effects.
- ✓ Hospitals had better arrange long-term training (formal education) for nurses that may help to improve their knowledge of pain management.
- ✓ The hospital should have set/prepare clearly defined standards and pain management protocols.
- ✓ The hospital should have to set/prepare defined policies regarding pain assessment and management.
- ✓ The hospital should have assigned pain and analgesics specialists.
- ✓ Hospitals had better assign enough nurses to professional tasks to reduce heavy workloads to assess and manage pain adequately.

7.2.2 Health Care Providers/Nurses

- ✓ Nurses had better to read guidelines and standard protocols about pain and pain management.
- ✓ They should use pain assessment tools before pain management.
- ✓ Hospitals and administrative staffs should avail those materials for nurse’s consumption.

REFERENCE

1. Benzon HT, of Anesthesiology P, Rathmell JP, of Anesthesia P, Wu CL, Turk DC, et al. PRACTICAL MANAGEMENT OF PAIN [Internet]. 2014. Available from: www.elsevier.com/permissions.

2. Katz N. The impact of pain management on quality of life. J Pain Symptom Manage. 2002;24(1 SUPPL. 1):38–47.

3. Muhamad Zin F. Pain Free Program Manual 2018: 2 nd Edition [Internet]. 2018. Available from: www.moh.gov.my

4. Akbar N, Teo SP, Artini Hj-Abdul-Rahman HN, Hj-Husaini HA, Venkatasalu MR. Barriers and Solutions for Improving Pain Management Practices in Acute Hospital Settings: Perspectives of Healthcare Practitioners for a Pain-Free Hospital Initiative. Ann Geriatr Med Res. 2019 Dec 31;23(4):190–6.

5. Schank RC. This page intentionally left blank. In: Acute Pain Management (Ginsberg, Brian, DeLeon-Cassasola, Oscar etc) (z-lib.org) Scrooge Meets Dick and Jane. 2021. p. 28–28.

6. Schug SA, Palmer GM, Scott DA, Alcock M, Halliwell R, Mott JF. Acute Pain Management: Scientific Evidence.

7. Grout RW, Thompson-Fleming R, Carroll AE, Downs SM. Prevalence of pain reports in pediatric primary care and association with demographics, body mass index, and exam findings: A cross-sectional study. BMC Pediatr. 2018 Nov 21;18(1).

8. Kumar N. WHO Normative Guidelines on Pain Management Report of a Delphi Study to determine the need for guidelines that should be developed by WHO. World Heal Organ [Internet]. 2007;(June):1–50. Available from: www.who.int/medicines/areas/quality_safety/delphi_study_pain_guidelines.pdf

9. Williams J. Beating pain. Nurs Stand. 2000;14(43):25.

10. Watch HR. Global State of Pain Treatment: Access to Medicines and Palliative Care [Internet]. Middle East. 2011. 1–131 p. Available from: http://www.hrw.org/sites/default/files/reports/hhr0511W.pdf

11. Kaur K. Knowledge and Attitude Regarding Pain Management among Staff Nurses. Nurs Care Open Access J. 2017 Jan 10;2(1).

12. McMahon. ACCESS it on any Internet-ready device. 2013.

13. Wu CL, Hung YL, Wang YR, Huang HM, Chang CH, Wu CC, et al. Pain prevalence in hospitalized patients at a tertiary academic medical center: Exploring severe persistent pain. PLoS One. 2020 Dec 1;15(12 December).

14. Prof S, Prof P. Rosens (2018) emergency medicine concepts and clinical practice. Ninth edition. Elsevier, Inc. Philadelphia, p55.

15. Patel. Tintinalli emergency medicine a comprehensive study guide.ninth edition . McGraw-Hill Education.New York Chicago San Francisco Athens London Madrid Mexico City Milan New Delhi Singapore Sydney Toronto.p229. 2019. 9–25 p.

16. Apfelbaum JL, Chen C, Mehta SS, Gan TJ. Postoperative pain experience: Results from a national survey suggest postoperative pain continues to be undermanaged. Anesth Analg. 2003;97(2):534–40.

17. Mengistu ND, Obsa MS, Gemeda LA. Burn Pain Management at Burn Unit of Yekatit 12 Hospitals, Addis Ababa. Pain Res Treat. 2018;2018.

18. Mondol S, Muhammad F, Chowdhury ABMA. Nurses' knowledge and practices related to pain assessment in critically ill patients in a selected private hospital in Bangladesh. Int J Community Med Public Heal. 2018;5(10):4219.

19. Melile Mengesha B, Moga Lencha F, Ena Digesa L. Pain assessment practice and associated factors among nurses working at adult care units in public hospitals in Wolaita Zone, Southern Ethiopia, 2021. BMC Nurs [Internet]. 2022;21(1):1–7. Available from: https://doi.org/10.1186/s12912-022-00892-4

20. Ayenew T, Melaku B, Gedfew M, Amha H, Anteneh K. Nurses' knowledge, practice, and associated factors of pain assessment in critically ill adult patients at public hospitals, Addis Ababa, Ethiopia. Int J Africa Nurs Sci [Internet]. 2021;15(September):100361. Available from: https://doi.org/10.1016/j.ijans.2021.100361

21. Miftah R, Tilahun W, Fantahun A, Adulkadir S, Gebrekirstos K. Knowledge and factors associated with pain management for hospitalized children among nurses working in public hospitals in Mekelle City, North Ethiopia: cross sectional study. BMC Res Notes. 2017;10(1):2–7.

22. Samarkandi OA. Knowledge and attitudes of nurses toward pain management. Saudi J Anaesth. 2018;12(2):220–6.

23. Carr E. Barriers to effective pain management. J Perioper Pract. 2007;17(5).

24. Kinsella M, Monk C. 基因的改变NIH Public Access. 2012;23(1):1–7.

25. Rababa M, Al-sabbah S, Hayajneh AA. Nurses ' Perceived Barriers to and Facilitators of Pain Assessment and Management in Critical Care Patients : A Systematic Review. 2021;(August).

26. Mędrzycka-Dąbrowska W, Dąbrowski S, Basiński A. Problems and barriers in ensuring effective acute and post-operative pain management - An international perspective. Adv Clin Exp Med. 2015;24(5):905–10.

27. Charalambous A, Zorpas M, Cloconi C, Kading Y. Healthcare professionals' perceptions on the use of opioid analgesics for the treatment of cancer-related pain in Cyprus: A mixed-method study. SAGE Open Med. 2019;7:205031211984182.

28. Elcigil A, Maltepe H, Eşrefgil G, Mutafoglu K. Nurses' perceived barriers to assessment

and managementof pain in a university hospital. J Pediatr Hematol Oncol. 2011;33(SUPPL. 1).

29. Tesfaye M, Id E, Baeumler PI, Siebeck M, Tesfaye M, Wonde D, et al. The views of patients , healthcare professionals and hospital officials on barriers to and facilitators of quality pain management in Ethiopian hospitals : A qualitative study. 2019;1–20.

30. Diseases I, Medicine T. Increasing bacterial resistance against antibiotics.

31. Wondimagegn ZG, Hailemariam HA, Meshesha TA, Olijra S. Knowledge , Practice and Factors Associated with Pain Management for Adult Critical Ill Patients Among Nurses Working in Federal Hospitals of Addis Ababa Ethiopia 2020. 2021;9(2):28–39.

ANNEX I: QUESTIONNAIRE

Jimma university medical college Department of emergency medicine and critical care. Questionnaires for the assessment of pain management practice and its barrier in Jimma University Medical College among those nurses working at JMUC.

Consent form:

You have agreed to answer questions on the assessment of factors contributing to the assessment of pain management practice and its barrier. Before proceeding with answering questions, you are reminded that your participation is completely voluntary and your responses will be handled confidentially. Information given will not bear your name and so nobody will know that you are the one who answered these questions. When the study is completed and the data have been analyzed, these questions will be destroyed.

Generally, this research is conducted not to reproach anyone but to identify and fill any gap as much as possible then please answer this question about what you do but not what you know especially in pain management practice, and answer in other parts what you know.

If you agree start with your signature_____.

Code number _____

Work unit_____

work experience_____

PART ONE: - SOCIO - DEMOGRAPHY DATA

1. Age----------Years

2. Sex: a. Male b. Female

3. Marital status: a. Married b. Single c. Divorced d. windowed

4. . Your educational level: a. Diploma b. Degree c. Master

PART TWO: Pain Management Practice

No	Pain management practice	Answer	
		Yes	**No**
1	Have you practice a pain management?		
2	In your practice do you take Pain as the 5th Vital Sign and documented it on the patient chart?		
3	In your practice do you use pain-scoring techniques to assess and score pain?		
4	In your practice do you involve and educate patients in their pain management?		
5	In your practice do you follow a multidisciplinary team approach?		
6	In your practice do you incorporate non-pharmacological and pharmacological pain management approaches?		
7	In your practice do use procedural sedation or pain medications before carrying out painful procedures?		
8	In your practice do you observe the side effects of pain medications after you had given them to the patient?		

PART THREE: Pain Management Barriers

3.1. Healthcare professional barriers

No	Barriers to effective pain assessment and management	Answer		
		Yes	No	I can't remember

	Have you trained in pain management?			
	If yes of the above question, when do you train? If no, proceed to the next question.	a. 3 months back b. 6 months back c. 1 year back		
		Yes	No	I am not sure
1	Do you think that you have adequate knowledge and skills in pain scoring and managing??			
2	Do you think that you assess and manage pain inadequately because you faced a heavy workload??			
3	Do you think that you assess and manage pain inadequately because of a lack of time?			
4	Do you think that You did not give anti-pain because you were concerned about addiction and overdosing??			
5	If the answer is yes to the above question, do you encounter complications in your work experiences??			
6	On your observation, the physician assesses and orders anti-pain sufficiently			

3.2. Health care System-related barriers

No	Barriers to effective pain assessment and management	Answer		
		Yes	No	I am not sure
1	In your hospital are there clearly defined standards and pain management protocols??			
2	In your hospital is there clearly defined policies regarding pain assessment and management???			
3	Is there pain and analgesics specialists?			
4	Do you think that anti-pain and analgesics are well-secured in your			

	hospital?			

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university, and that all sources of materials used for the thesis have been fully acknowledged.

Name of student: DR. MAEREG WORUDIMRIEM

Signature: _____

Name of the institution: JIMMA UNIVERSITY

Date of submission: 12/05/2015

This thesis has been submitted for examination with my approval as university advisor name and signature of the internal examiner for approval.

Name _____

Date 12/05/15 signature _____

This thesis has been submitted for examination with my approval as a university advisor

Name of the first advisor: Dr. Abreham Nemrud Head of Emergency Department

Date 12/05/2015 Signature _____

Name of the second advisor: _____

Date _____ Signature _____