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BAHIR DAR UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

Knowledge and Practices of Pharmacological Pain Management among Nursing Staffs in Public Hospitals in Bahir Dar City

BY

MEKDES GOLLA

THESIS SUBMMITED TO COLLEGE OF MEDICINE AND HEALTH SCIENCES, BAHIR DAR UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIRMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH IN GENERAL PUBLIC HEALTH

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Nov, 2017

Bahir Dar, Ethiopia

I undersigned, declare that this is my original work and has never been presented for the degree in this or any other university and all the source materials used for this thesis have duly acknowledged.

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This thesis has been submitted with my approval as University advisor.

Academic Advisors:

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Date of submission: ----------

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Title of the research project	Knowledge and Practices of Pharmacological Pain Management among Nursing Staffs in Public hospitals in Bahir Dar city
Duration of the study	December 2016- march 2017
Study area	Bahir Dar city Public Hospitals
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Acronyms

AOR: Adjusted Odds Ratio

CI: Confidence Interval

COR: Crude Odd Ratio

FHRH: Felege Hiwot Referral Hospital

IASP: International Association for the Study of Pain

OPD: Out Patients Department

SPSS: Statistical Package of Social Sciences

WHO: World Health Organization

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ABSTRACT

Background *- Pain is a global public health issue and represents a major clinical, social, and economic problem. Pain left untreated or treated inadequately, can be harmful by slowing recovery and compromising quality of life. Poor Nurses knowledge and inappropriate practices are major contributing factors in improper management of pain.*

Objective: *The study was designed to assess the knowledge and pharmacological Pain management practices among nurses working in public hospitals in Bahir Dar City 2017.*

Methods: *An institutional based cross-sectional survey was conducted from February 25- march 30, 2017. A total of 302 nurses were the participants all inclusively. Data were collected using structured, self administered questionnaire. Descriptive statistics such as frequencies and percentages were used to measure level of knowledge and practices pharmacological pain management. Possible barriers were work overload and absence of guideline on pain management practices were reported as a barrier for pain management by 17.8% and 14% of the respondents respectively.*

Results: *A total of 302 responses were included in the analysis resulting response rate of (95 %). The respondents were drawn from Felege Hiwot Referral hospital and Addis Alem Hospitals. The overall level of knowledge and practices of nurses were 65% and 60% respectively.*

Conclusion and recommendations: *The finding of this study showed that nearly two out three of nurses were knowledgeable regarding pharmacological pain management. However, three-fifth of the respondents found to perform activities required to manage. The nurse should identifies patients in pain, assessing pain, offering treatment options, documentation, provide information on the possible side effect of analgesics and follow-up.*

1. Introduction

1.1. Background

The International Association for the Study of Pain (IASP) defines pain as an unpleasant sensation and feeling triggered by current or potential tissue damage. The individual sensation of pain varies a lot and is the result of the interaction between biological, psychological and social factors(1).

Pain that occur based on the two pathophysiological mechanisms of pain are nociceptive pain due to inflammation or tissue injury, as well as neuropathic pain from nerve compression or disruption, resulting from disease(2). Based on pain its duration, Pain classified as acute pain and chronic pain type. Acute pain is sudden onset is felt immediately following injury, is severe in intensity, but is usually short-lasting (3). Chronic pain often defined as pain lasting longer than three months or past the time of normal tissue healing, is extremely common. Chronic pain is a major cause of decreased quality of life and disability and is often refractory to treatment (4).

Pain may be described according to severity (mild, moderate, sever) and currently managed World Health Organization (WHO) 3-steps Analgesics Ladder. For mild pain, non opioid analgesics such as Paracitamol and non Steroidal anti-inflammatory are recommended with adjuvants added as required. For moderate pain, weak opioids such as codeine and tramadol are added to non opioid and/or adjuvants, as required. For moderate and sever pain, strong opioids are recommended with morphine(2).

Several international health authorities, including the World Health Organizations(WHO), and the international association of the study of pain (ISAP), have promoted the idea that adequate pain management is a fundamental human right , based on legal and bioethical rational(5). Adequate pain management is a compelling and universal requirement in health care(6).

Pain management is the alleviation of pain or a reduction in pain to a level that is acceptable to the client. It includes two basic types of nursing interventions: pharmacologic and non-pharmacologic(7). Pharmacological Intervention refers to the nurses' action to provide effective and therapeutic analgesics to alleviate a patients' pain.

These are opioid analgesics (morphine, fentanyl, pethidine , hydromorphone, meperidine , codeine, and methadone) non-opioid analgesics (acetaminophen , non-steroidal ant-inflammatory drugs : NSAIDs) and adjuvants (anticonvulsants , antidepressants , local anesthetics) (8).

Pain management is an important aspect of patient care and nurses play a significant role in the health care setting in providing pain assessment and treatment. In this regard, nurses' role includes patient and health care professionals' education, attending courses and research activities on pain management(9). The goal of pain management throughout the life cycle is the same to address the dimensions of pain and to provide maximum pain relief with minimal side effects (10)

Effective pain management requires a sound knowledge of pain and its treatment. The fact that pain management is one of the most important aspects of patient care and is most relevant to all nurses emphasize that the responsibility that rest on the shoulders of nurses for the comfort of patients far greater than that of other medical staffs (11).

Pain management practices are defined as a set of activities that should be provided by nurses to manage the patients' pain effectively and one of the core components of practice of health professionals particularly the nurses(12).These activities include assessing the patients' pain, providing appropriate nurse's interventions to relieve the patients pain and reassessing the patients pain after intervention(13).

In general, nurses are responsible and accountable to ensure that a patient receives appropriate evidence-based nursing assessment and intervention, which effectively treats the patient's pain and meets the recognized standard of care. The usual duty of nurses involves identifying patients in pain, assessing pain, offering treatment options, documentation and follow-up to discover if pain management strategies used are beneficial(12).

1.2. Statement of the problem

Pain is a global public health issue and represents a major clinical, social, and economic problem. Pain which is left untreated, or treated inadequately, can be harmful by slowing recovery and compromising quality of life(14). Moreover, global prevalence studies identify that over 80% of hospitalized patients experience pain(15). Result in many significant consequences such as psychological, physiological and financial consequences (21).

Pain is a multivalent, dynamic, and ambiguous phenomenon, it is notoriously difficult to quantify; therefore, caution is warranted in issuing broad statements regarding the global epidemiology of chronic pain. Nevertheless, it is estimated that at least 10% of the world's population, approximately 600 million people, endure chronic pain, regardless of age, sex, income, race/ethnicity, or geography(16).

Chronic pain is a significant health problem worldwide, with prevalence in the general population of approximately 40%. The early identification and treatment beneficial in preventing chronic pain and reducing the clinical and economic burdens of chronic pain (17).

Pain management is inadequate in most of the world according to the WHO, due to poor knowledge of health care professionals regarding the mechanisms and management of pain, the availability of opioid medication , inadequate policies regarding the management of pain, inadequate level of research and education as a health problem (2).

According to the Ethiopian public health institution baseline evaluation of pain management is not given a formal place in the medical curricula and inadequate attention during the training of medical students and practice pertaining to prescribing weak and strong opioids and anti-depressant was minimal, although they commonly treat patients with chronic illness. The commonest 44.3% cause of pain complaint was acute medical illness (18).

Evidence for action in global access to pain relief have shown the disparities in worldwide use opioids are shocking, with just four countries United States, Canada, United Kingdom and Australia using 68% of while low and middle-income countries together only account for 7% globally (19).

The pain management practices in any healthcare system were affected by personal factors (healthcare providers' factors) such as knowledge deficits, decision making and the use of evidence-based information in managing pain, poor consideration of pain (20) and environmental factors which include the healthcare system factors and patient related factors (4, 13).

As of 2010 international association for the study of pain, System barriers may include a lack of resources, outmoded financial incentives, or poor coordination of care. There may be problems with drug availability, training of health care workers, or gaps in policy development. However; there is a lack of public health focus on pain as a priority (21).

Lack of integration of current knowledge and practice of effective pain management by health care professionals into day to day care adversely affects patients (6). There are multiple barriers to adequate pain management and all patients are at risk for under treatment of pain. In addition, patients who speak a different language or who are from a cultural tradition different from that of the clinician pose a special challenge (10).

Lack of nurses' knowledge and in appropriate practices are major contributing factors in improper management of pain (6, 20) and it can significantly contribute to inaccurate pain assessment. Unfortunately, many nurses used patients' observable behavior as indicator of pain. This practice will be due to their reluctance to believe in what their patients have told them (8).

Despite the nurses are in the front line of the patients care including pain management starting from assessment of pain, administration of analgesics and follow up at the hospital level, there is no enough evidence on the nurse knowledge on pain and overall on pain management practices in our country particularly in the study area. Hence, it is timely to assess knowledge and practices of pharmacological pain management among nurses in public hospitals for evidence based intervention and program planning to avert the patients' problems.

Pain is most common in hospitalized patients and about 18% of them reported that their pain was inadequately controlled (22). Mild and severe pain is still common among hospitalized patients. Inadequate treatment has been mostly linked to health care workers' failure to assess patients' pain and to intervene appropriately (9).

1.3. Significance of the study

There are still people who continue to suffer with unrelieved pain. This situation causes a reduction in living quality, the functional situation of the patients and slowing recovery.

In Ethiopia, experiences showed that most patients who have complained of pain during their stay in the hospital and health centers did not get adequate treatment for pain rather mostly treated for underlying the disease. Moreover, there are no much studies available on the topic in our country particularly in Amhara region.

The role nurses involves identifying patients in pain, assessing pain, offering treatment options, documentation and follow-up but the nurses often waits the decision of the physicians to give medications for pain while the patients complain and focus on assigned tasks rather than on patient concern or problem.

This study was provided critical information to improve the knowledge and practices of pharmacological pain management among nurses, offer base line data for further development of research on issue related to the effective pharmacological pain management and guide nursing curriculum and training toward an appropriate body of knowledge and practice in pharmacological pain management

Therefore, this study may help by showing the knowledge and practices employed by nurses in pharmacological pain management and expected to provide base line information for policy makers, program managers to design intervention strategies to improve the quality of pain management for ill patients through capacity building of healthcare providers, development of evidence based locally applicable guidelines.

1.4. Literature Reviews

Nurses knowledge towards pain management

The study in Western Ethiopia indicated that percentage score obtained a survey was 49.8% knowledge deficits in numerous areas of basic pharmacological aspects of pain and its management(11).

According to survey done in Ethiopia, only 30.6 % of them were aware of important pain assessment scales and drug therapy was the most popular pain management modality mentioned by 98.8% of the participants. Only 27 % of these had correct knowledge of the contraindications of opioid drugs. Twenty eight percent of the participants were aware of the national pain management guideline while 23.5 % knew the WHO protocol for pain management (18).

A study conducted at Cairo University Hospitals among critical care Nurses' about Knowledge and Practices regarding Pain assessment and management revealed that 93.3 % had an unsatisfactory knowledge (20).

A study conducted at Mulango Hospital, Kampala in Uganda the majority of nurses (58.2 %) were knowledgeable about acute pain assessment principles (scores of 70 %), and Nurses knowledge about pain assessment during procedures result showed that the majority of nurses knowledge to be inadequate 73.5 % and only 26.5 % rated their knowledge as adequate (23).

Another study conducted in kingdom of Bahrain about the knowledge towards pain assessment and management showed that only 47.8 % were knowledgeable (24).

According to a survey conducted on pain management practices by nurses in Malaysia nurses have a moderate level of pain management knowledge (13).

The cross sectional descriptive comparative study conducted from two main medical centers in Jordan nurses showed that poor knowledge in the risk for addiction and the use of narcotics in pediatric patients (25).

Besides, the study conducted in Turkish among nurses' showed that the average correct answer rate for the entire knowledge on pain management practices was 39.65 % (9).

Moreover, a research conducted in Hong Kong among medical nursing staffs about pharmacological interventions, only 32 % knowledgeable that the recommended route of administration of opioids analgesics to Patients with prolonged pain is per orally (26).

Nurses practices towards pain management

A study conducted in Addis Ababa among 82 nurses from governmental and nongovernmental hospitals to assess nurse's practice towards pain management. The result showed more than half 65.9 % of nurses' had poor pain management practice**.** Majority, 50 (61%), of nurses included in the study did not use standard pain assessment tool to assess severity of pain for patients. similarly, seventy six (70.3%) of the respondents used pharmacological interventions for pain management. Additionally, this study identified 65(79.3%) of nurses said that they did not document their daily pain management activities (27).

Another study conducted among nurses knowledge and factors associated with pain management in Public Hospitals of Mekelle City out of 251 participants more than half (58.6%) of nurses had knowledge and practice 140 (55.8%)(28).

A study conducted in Cairo teaching hospital among nurses to assess pain management practice revealed that the majority of the studied sample 95% had an unsatisfactory practice level(20).

According to a study conducted among nurses in Malaysia University Utara Malaysia, Military Hospital show that the nurses have a moderate level of pain management practices (13) .

A study conducted at Bangladesh in two hospitals in Khulna, the overall, nurses had practiced in pain management for postoperative patients at a moderate level by which three-fourths of them indicated that they had practiced in pain management at the moderate 70-79.9% (37.9%), high 80-89.9%(21.8%), and very high level>90% (16.1%)(8)

Factors that affect nurse's knowledge and practices towards pain management

According to the study conducted among nurse in Addis Abeba governmental hospital and privet institution show that lack of courses related to pain in the under graduate classes, lack of continuing training, and work overload, role confusion, lack of motivation including salary were the main identified barriers which hinder adequate pain management (27).

Another study conducted among nurses knowledge and factors associated with pain management in Public Hospitals of Mekelle City usual shift of rotation, patient inability to communicate, lack of protocols, insufficient anesthesia, poor communication of pain assessment, poor documentation of pain assessment and management, sedation interfering, no designated area for charting pain, low priority of pain were identified barriers pain management (28).

The study conducted in critical care Nurses' Knowledge and Practices regarding Pain assessment and management at Cairo University Hospitals revealed that the factors like lack of education, Nursing workload, Patient instability, Lack of availability of pain management equipment and Patient inability to communicate which hinder pain management and assessment (20).

Another study in Bangladesh revealed that many factors contribute to nurses' poor knowledge towards pain , the basic nurse education where nurses have been trained to perform task oriented function and pay more focus on assigned tasks rather than on patient concern or problem, pain topic had never been include in the nursing curricula and there is no provision in providing in service education on pain topic as it may not be considered important compared to other topic (8).

According to the evidence from Sweden in central Ostrobothnia University show that number of factors affected on the nurses level of knowledge towards pain management. The factors included; working experience, reading of journals or articles on pain and its application to practice, occupational Status and lastly, their previous experience in pain management (29).

Conceptual framework

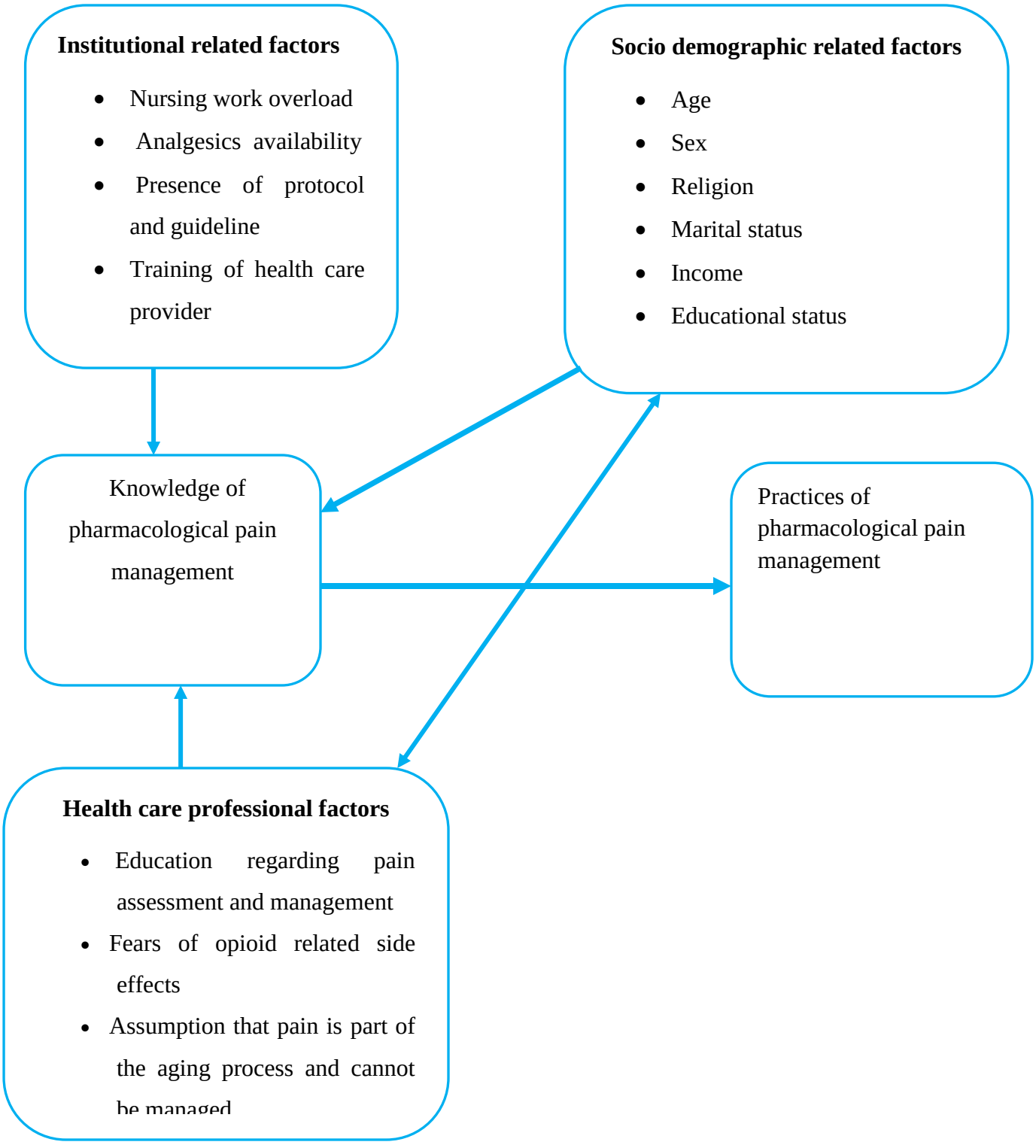

Figure 1: Conceptual framework of factors affecting pharmacological pain management.

2. Objective of the study

2.1. General objective

- To assess the knowledge and pharmacological pain management practices among nurses working in public hospitals in Bahir Dar City 2017

2.2. Specific objectives

- To measure the level of knowledge on pharmacological pain management among nurses working in public hospitals in Bahir Dar City
- To determine pharmacological pain management practices among nurses working in public hospitals in Bahir Dar City

3. Methods and materials

3.1. Study design

An institutional based cross sectional study has been chosen and employed using quantitative research method.

3.2. Study area and period

This study was conducted in Bahir Dar City, Felege Hiwot referral Hospital and Addis Alem Hospital from December 25 to March 30/2017. Bahir Dar is the capital city of Amhara region. The present capacity of Felege Hiwot referral Hospital has more than 405 beds and giving services for the western part of the region as a referral hospital, the number of nurse are 288 and Addis Alem Hospital has 35 beds and the numbers of nurses are 30 who serve the patient at this hospital.

3.3. Study population

All nurses who were working in Felege Hiwot referral and Addis Alem Hospital in Bahir Dar City.

3.4. Sample size determination

A total of 318 nurses were working in the two hospitals included in the study.

3.5. Inclusion and Exclusion criteria

Inclusion criteria

- All nurses who were working in public hospitals in Bahir Dar City for at least six months continuously

Exclusion criteria

- Those nurses who were not present during data collection period.

3.6. Variables of the study

Dependent variables

- Knowledge of pharmacological pain management
- Practices towards pharmacological pain management

Independent variables

- **Socio demographic factors:** Age **,**sex **,**religion **,**marital status**,** ethnicity, salary , educational status
- **Health professional related factors:** education regarding pain assessment and management, fears of opioid related side effects, assumption that pain is part of the aging process and pain related information.
- **Institutional related factors:** drug availability, and supplies of tool for pain assessment, guideline about pharmacological pain management, continuing training and nurses workload.

3.7. Operational definitions

Knowledge of pain managements: were measured based on questions on pain assessment, classification of analgesia: opioid, no opioid analgesia and adjuvants, side effect of analgesics drug therapy, and combination of analgesia

The scoring was done based on the following cut of points (30):

- < 70 % Poor knowledge
- ≥ 70 % Good knowledge

Pain management practices are defined as a set of activities that should be provided by nurses to manage the patients' pain effectively. These activities include providing therapies without a doctor order, use of pain assessment tool and assessing based on questions on documentation of daily activities of pain.

The scoring system uses the following scale(30):

- < 70 % Poor Practices
- ≥ 70 % Good Practices

Pain assessment: clinical judgment based on observation of the character, duration, intensity, and location of a patient pain, including its effects on his or her ability to function.

Pain assessment tools: are instruments designed to measure pain including asking patient in words to assess specific type of pain and duration of pain and by using scale to quantify intensity of a patient pain.

Pain management: an intervention encompasses pharmacological and non pharmacological approaches to prevent, reduce, or stop pain sensations.

Pharmacological pain management: referring to therapy that relies on drugs to relieve pain. There are two primary groups of pain medications: non opioids and opioids. A third group of drugs called adjuvant or co-analgesics..

3.8. Data collection procedures and Instruments

Data was collected using structured self-administered questionnaire that prepared by reviewing previously done studies and other materials related to the topic (31).The questionnaire was prepared in English. The data were collected by three Bsc nurses holder facilitators and supervised by one Master of Public Health. The Questionnaire had three major parts: the first is socio-demographic characteristics, the second part is knowledge of pharmacological pain management, and the third one is regarding practices of pharmacological pain management among nurse(32).

3.9. Data quality assurance

The data quality was assured by giving two days training to the data collectors and supervisors on how to approach study subjects, the study objectives and about data collection instrument and its administration by principal investigator; a pre-test was done 5% among a sample size that were not inside the study area prior to the actual data collection period to make them familiar with the questionnaires and the pre-test was not be included in the analysis. After pretest a certain words and sentences was modified. Strict supervision was made by supervisors.

3.10. Data analysis and interpretation

Data was edited, cleaned and checked for the consistency and completeness. Each completed questionnaire was assigned a unique code. The data was checked and entered to the Epi-Info version 3.5.4 and then exported to SPSS windows version 20 software package for analysis. Descriptive statistics such as frequencies and percentages were used.

3.11. Ethical consideration

Ethical clearance was obtained from ethical review committee of Bahir Dar University College of Medicine & Health Sciences and communicated with the Amhara regional health bureau, Felege Hiwot Hospital, and Addis Alem Hospitals to receive permission letters.

After obtaining permission letters participants were asked for their participation, the objective of the study was clearly explained for the study participants to get the consent. Confidentiality issue was ensured by avoiding personal identification on questionnaire and keeping the questionnaire forever. Participants were informed that their participations were voluntary that they were withdrawn from the study at any time if they wish to do so. All the information given by the participants was used for research purposes only. Harm or discomfort was not be made on the respondents during data collection period and respondents might be beneficial from the study results through making copy of the final paper available in library for easy access to use.

3.12. Dissemination of results

The result of the study will be presented in School of Public Health in Bahir dar University, the copy of the thesis will given to Amhara Regional Health Bureau, public hospital of Bahir Dar City and further attempt will made to publish it on national or international scientific journals.

4. Results

4.1. Socio-demographic characteristics of the study subjects

A total of 318 nurses who were working in the two hospitals during the study period; of which 302 filled the questionnaire fairly completed, making the response rate 95%. Majorities of respondents female nurses, Orthodox Christian followers and from Amhara ethnic group were189 (62.6%), 274(90.7%) and 278(92%) respectively. Half of the respondents 152(50.3 %) were belonged to the age group of 21-30 years old. About 197 (65.2%) respondents had a bachelor degree. One third of nurses working experiences ranges within 1 to 5 years 109 (36.1%). Finally, eighty four (27.8%) of the nurses mentioned that they had salary between 4765.6 - 7111 ETB (Table 1).

Table 1: Socio- demographic the characteristics of respondents in public hospitals in Bahir Dar city, 2017 (N=302)

Variable	Categories	Frequency(n)	Percentage (%)
Age	21-30	152	50.3
	31-40	121	40.1
	>40	29	9.6
Sex	Female	189	62.6
	Male	113	37.4
Religion	Orthodox	274	90.7
	Muslim	19	6.3
	Protestant	9	3
Marital status	Single	130	43
	Married	168	56
	Divorced	4	1
Ethnicity	Amhara	278	92
	Tigray	15	5
	Oromo	9	3
Work experience	1 to 5 years	109	36.1
	6 to 10 years	86	28.5
	11 to 16 years	17	5.6
	>16 years	90	29.8
Level of education	Diploma	95	31.5
	Degree	197	65.2
	Master of Degree	10	3.3
Monthly salary	<3911	76	25.2
	3911-4765.5	75	24.8
	4765.6 -7111	84	27.8
	>7111	67	22.2
Working area(Ward)	Gyn & MCH	98	32.5
	ICU & OR	57	18.9
	Surgical & Orthopedic	53	17.5
	OPD	45	14.9
	Medical, ART& Diayalisis	39	12.9
	Ophthalmic, Dental & psychiatric	10	3.3

4.2 Pain related characteristics of the study subjects

The majority of the respondents reported that they had received educational courses about pain management (88.7%). Similarly, most of the nurses 251(83.3%) mentioned that they had a pain experience in their life (table 2).

Table 2: Frequency distribution of pain related characteristics, Bahir Dar City, 2017

Variables	Categories	Frequency	%
Ever received education on pharmacological pain management	Yes	268	88.7
	No	34	11.3
Sources of pain management education (n=339)	College/University	230	67.8
	Self learning	66	19.5
	Workshop/Training	43	12.7
Willing to participate in continuing education on pain management	Yes	240	79.5
	No	62	20.5
Ever experienced pain	Yes	251	83.1
	No	51	16.9
Type of pain experienced (n= 460)	Head ache	222	48.3
	Back pain	115	25
	Stomach pain	72	15.7
	Surgical pain	51	11.1

Note: more than one answer was reported by one nurse

4.3 Frequency distributions of nurses knowledge and practices regarding pharmacological methods of pain Management

Among the 16 items of knowledge questions on pharmacological pain management, the overall knowledge level was 65%.The number and percentage of nurses responded for each item was presented in (Table 3).

Only 38.7% of respondents appreciated that vital signs are always reliable indicators of the intensity of a patient's pain. Besides, more than half of respondents still had misconception of elderly patients cannot tolerate opioids for pain relief, opioids should not be used in patients with a history of substance abuse and if the source of the patient's pain is unknown, opioids used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain (53.3%), (45%) and (23.2%) respectively.

Regarding activities performed by nurses to manage pain; 11 items of questions were assessed on pharmacological pain management and the overall practices level was 60%. Based on the finding, 132 (45.7%) of the respondents knew whether there is pain assessment tools in their institution. Most of participants (61.9%) did not use the assessment tool. Nearly half of respondents (55%) wait the decision of the physicians to give analgesics to their patients while they request.

Table 3: Knowledge of pharmacological pain management among nurses in Government Hospital Bahir Dar City, 2017 (N=302)

	Variables	Categories	Frequency	%
1	Vital signs are always reliable indicators intensity of a patient's pain.	Yes	117	38.7
		No	185	61.3
2	Respiratory depression rarely occurs receiving stable doses of opioids over a period of months.	Yes	93	30.8
		No	209	69.2
3	After an initial dose of opioid analgesic subsequent doses of adjustment with the individual patient's response.	Yes	266	88.1
		No	36	11.9
4	Combining analgesics control side effects better than using a single analgesic agent.	Yes	208	68.9
		No	94	31.1
5	Opioids should not be used in patients with a history of substance abuse.	Yes	136	45
		No	166	55
6	It is essential to encourage patients to tolerate pain before using an opioid.	Yes	80	26.5
		No	222	73.5
7	If source pain is unknown, opioids used during pain evaluation period, as this mask ability diagnoses cause of pain.	Yes	70	23.2
		No	232	76.8
8	Narcotic/opioid addiction is defined as a chronic neurobiological disease.	Yes	241	79.8
		No	61	20.2
9	Elderly patients don't tolerate opioids for pain relief	Yes	158	53.3
		No	144	47.7
10	Paracitamol indicate the non-narcotic analgesic & lacks an anti-inflammatory effect.	Yes	242	80.1
		No	60	19.9
11	Aggressive use of opioid analgesics causes addiction, Respiratory depression, sedation and tolerance	Yes	271	89.7
		No	31	10.3
12	Aspirin, non-steroidal anti-inflammatory agents are not effective painful bone metastases	Yes	141	66.7
		No	161	53.3
13	Amitriptyline treatment multiple types of pain syndromes.	Yes	244	80.8

		No	58	19.2
14	Benzodiazepines not effective pain relievers unless the pain muscle spasm.	Yes	197	65.2
		No	105	34.8
15	Accurate judgment of the intensity of the patient pain is the patient.	Yes	117	38.7
		No	185	61.3
16	Based on pain its duration, Pain classified as: Acute and chronic pain	Yes	267	88.4
		No	35	11.6

Table 4: Practices of pharmacological pain management among nurses in Government Hospital Bahir Dar City, 2017 (N=302)

17	Know whether the presence of pain assessment tool in your institution	Yes	132	45.7
		No	170	56.3
18	Use of pain assessment tool to assess severity of pain	Yes	115	38.1
		No	187	61.9
19	Do ongoing pain assessment & risk for adverse outcome of analgesics	Yes	227	75.2
		No	75	24.8
20	Provide education on drug side effects of analgesics	Yes	237	78.5
		No	65	21.5
21	Documentation daily activities pain	Yes	186	61.6
		No	116	38.4
22	Ever managed pain or ever treated patient pain	Yes	273	90.4
		No	29	9.6
23	Assessing history drug abuse or drug related behaviors	Yes	211	69.9
		No	91	30.1
24	Wait the decision of physicians to give analgesics	Yes	166	55
		No	136	45
25	Provide therapies without a doctors order	Diclofenac	110	36.4
		Paracitamol	104	34.4
		Tramadol	49	16.2
		Other	23	7.6
26	Use opioid analgesic	Yes	155	51.3
		No	147	48.7

4.4. Barriers that hinder using pharmacological pain management therapies among nurses in public hospital, Bahir Dar City, 2017

The most important barriers to use pharmacological pain management therapies among nurses in public hospitals were fear of side effect (36%), while 15.4% of participants were reported as inadequate drug availability, 17.65%, of them were because of no training, 17.8% of them due to workload and 14% did not have guideline.

5. Discussions

The aim of this study was to assess the knowledge and practices of pharmacological pain management activities and associated factors among nurses working in the hospitals. In this study the overall knowledge level and practices of pharmacological pain management among nurses was found to be 65% and 60% respectively.

Whereas, this finding is in line with other similar studies conducted Zimbabwe at Bindura Hospital where the level of knowledge on pharmacological pain management were 64.5% (33). However, the finding this study is much lower than a study conducted in Finland concerning the level of knowledge of nurses. where the knowledge means score of nurses on pharmacological pain management was 78% (29). The probable reason for the difference might be source of population and study area.

In this study, the level of practice was higher than a study conducted in Addis Abeba town Ethiopia, where the practices of pharmacological pain management was 33.3% (27). The probable reason for the difference might be sample size and study area.

Only 38.7% of nurses knew the most accurate judge of the intensity of the patient's pain is the patient. However, the finding is much lower than a study conducted in Jimma University 61.7% nurses were knew the most accurate judge of the intensity of the patient's pain is the patient(11).

In this study about 65.2% of respondents appreciated that Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm. This is supported by a study done hospital in Turkey knowledge about knew of Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm were 72%(9).

The current finding is also greater than the study conducted in Jordanian nurses , in Bangladesh, at two hospitals in Khulna and training and research hospital in Turkey where the knowledge of the nurses on pharmacological pain management was 59.05%, 41.84% and 39.65% respectively (8, 9, 25). Similarly, the finding is in accordance with a study conducted in Addis Abeba in which about 34.1% of the respondents found to have a good knowledge level towards pain management practice (27).

In present study show that the majority of nurses (88.7%) had received education related to pain management; of these 67.8%, 12.7%, 19.5% were obtained in college /university, workshop / training and self- learning respectively. However, the study conducted in Mulango Hospital in Uganda (87.3%) of the nurses had never had any formal training on pain assessment and management(23).

Moreover, in other study done by Cairo university Hospital revealed that (81.7%) of nurses reported that they didn't receive education about pain assessment & management during their professional progress (20).

Knowledge about knew the presence and utilization of pain assessment tools were major organizational factors that may affect the quality of pain management in the institutions. In this study, 45.7% of nurses knew the presence of pain assessment tool, more than half of (61.9%) of the nurses reported that they don't use pain assessment tools. Among (90.4%) nurses who managed pain, only 61.6% of the nurses reported that they documented their findings. The finding is in line with the study conducted in Addis Abeba, where most of the study participants reported not to use pain assessment tools and failed to document their daily pain management activates where the figures were 61%, and 79.3% respectively (27).

A considerable number of factors affect the nurse's level of knowledge towards pharmacological pain management. Possible barriers were identified in this study, work overload and absence of guideline on pain management practices were reported as a barrier for pain management by 17.8% and 14% of the respondents respectively. However, the finding is much lower than a study conducted Mulango Hospital in Uganda was the major barriers for pain management were 84.1% work overload and , 74.1% absence of guideline (23). This variation might be due to study population and sample size.

Moreover, 15.4% of nurses mentioned inadequate drug availability as one of the barrier for pain management practice. This obstacle as a problem for the prescription and medication process was observed in a study conducted in Ethiopia among pharmacies, where among 85.3% of the respondents, the most commonly mentioned reason for not dispensing the prescribed pain-relieving drugs was unavailability of the drugs (18).

6. Limitation of the study

The current study was done on knowledge and practices in relation to pharmacological pain management among nurses in the hospitals; however, the attitude of the nurses was not studied which might be the major influencing factor to practices pain management.

7. Conclusions and Recommendations

7.1 Conclusion

- ✓ The finding of this study showed that only less than two out of three nurses have had a good knowledge on pharmacological pain management. About three-fifth of the study participants have had a good pharmacological pain management practice level in the study area.
- ✓ The most frequent reported barriers by nurses were fear of side effect, nursing workload, absence of pain management guideline, no training and inadequate drug availability.
- ✓ Most of the nurses didn't use pain assessment tools; the drug prescription practices were more likely affected by fear of side effects of opioid analgesics.

7.2 Recommendation

Based on the finding of this study, the following recommendations are forwarded:

- ✓ The nurses need to read and update themselves regarding pain management and assessment to have up to date knowledge and provide better care for clients
- ✓ The nurses would better to use pain assessment tools and guideline for proper pain assessment and management.
- ✓ The nurse identifies patients in pain, assessing pain, offering treatment options, documentation, provide information on the possible side effect of analgesics and follow-up.
- ✓ The nurses provide information on the possible side effect of analgesics
- ✓ Finally, additional research should be done to assess the knowledge and practices of pharmacological pain management and barriers among nurse to improve inadequate pain management in Ethiopia particularly in Amhara region.

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9. Annexes

Bahir Dar University College of Medicine and Health Sciences Department of Public Health. Questionnaire developed to assess knowledge and practice towards pharmacological pain management among nursing staff who are working at FHRH hospital and Addis Alem Hospital.

Annex I: Consent form

Dear nurse,

A questionnaire is designed to assess staff nurses' knowledge and practice regarding pharmacological pain management who are working in FHRH hospital and Addis Alem Hospital. Thus, your suggestion will be considered very much for the completion of the study.

Thank you in advance

Introduction: My name is----------. I am working with a research entitled; assessment of staff nurse knowledge and practice regarding pharmacological pain management who are working in FHRH hospital and Addis Alem Hospital. I have received permission from school of public health. The objective of this study is to determine staff nurses knowledge and practice towards pharmacological pain management. You are selected for the study because you are in the study group with the hope that you will cooperate with me. Therefore, I am requesting you to fill this questionnaire by yourself. There are no rights or wrong answers. There are no known risks associated with this research. You do not need to write your name that means your response will be anonymous and kept strictly confidential. This means your response will not be linked to your name or identity. Only the principal investigators and the research assistants collecting the data will have access to the data. You are kindly requested to answer every question and you may stop filling the form at any time you want to. However, your genuine response to these questions will help us for better understanding of staff nurses' knowledge and practice towards pharmacological pain management in FHRH hospital and Addis Alem Hospital. I would greatly appreciate your help in responding to these questions. The survey will take about 15 minutes to fill this questionnaire. Would you be willing to participate? [Put''x''mark]

Yes----------

No----------

Having been well explained and informed of the intentions and benefits of the study,

I voluntarily consent to participate in the study.

Respondent sign date

---------- ----------

Person to contact

This research project will be reviewed and approved by the ethical committee of Bahir Dar University College of Medicine and Health Science. If you have any question, you can contact the following individual and you may ask at any time you want.

1. Mekdes Golla

   E-mail:Mekdesnatgolla@yahoo.com

   Tel:+251-918 78-04-61

2. Mr. Zelalem Alamirew: Bahir Dar University College of Medicine and Health Science

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3. Mr. Hordofa Gutema: Bahir Dar University College of Medicine and Health Science

   Tel:+251-911 79-17-75

Part I- questions related to participants Socio demographic information

S.N	Questions	Coding Categories
1	What is your age?	----------Year
2	What is your sex?	1.Male 2.female
3	What is your religion?	1.Orthodox Christian 2.Muslim 3.Protestant 4.Adventist 5.other specify----------
4	What is your marital status?	1.Single 2.Married 3.Divorced 4. widow
5	What is your ethnicity?	1.Amhara 2.Tigray 3.Oromo 4.SNNP 5.other----------
6	What is your clinical experience (in year)?	----------
7	What is your current level of education?	1.Diploma 2.Bachlor degree 3.Master degree and above
8	Current ward (office) in which you are working in	…….. ward/bureau
9	What is your Monthly salary?	---------- Ethiopian birr

Part II: Pain educations and other pain related questions

SN	Questions	Categories
1	Have you had learned about pharmacological pain management since graduation?	1.Yes 2. No
2	If you answer YES number 1, where did you attain pain management education? **(more than one answer is possible)**	1.As common course in college or university 2.Workshop training 3.Self-Learning (through reading) 4. Other, specify-----
3	Are you willing to participate in continuing education on pain management?	1. Yes 2. No
4	Have you ever got pain in your life?	1.Yes 2. NO
5	If your answer to question 6 is yes, what kind of pain you experienced? **(More than one answer is possible**)	Surgical pain Stomachache Back pain Headache Other, specify-----

Part llI: Knowledge related questions regarding pain management of nurses

(Please, indicate your response by encircle it)

S.N	Questions	Coding Categories	
1	Vital signs are always reliable indicators of the intensity of a patient's pain.	1. True	2. False
2	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.	1. True	2. False
3	After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.	1. True	2. False
4	Combining analgesics that work by different mechanisms (e.g., combining an opioid with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent.	1. True	2. False
5	Opioids should not be used in patients with a history of substance abuse.	1. True	2. False
6	Patients should be encouraged to tolerate as much pain as possible before using an opioid.	1. True	2. False
7	If the source of the patient's pain is unknown, opioids used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.	1. True	2. False
8	Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.	1. True	2. False
9	Elderly patients cannot tolerate opioids for pain relief.	1. True	2. False
10	Paracetamol indicate the non-narcotic analgesic, which lacks an anti-inflammatory effect	1. Yes	2. No
11	Aspirin and other non-steroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.	1.Yes	2..No

12	Amitriptyline is treatment for multiple type of pain syndromes.	1.Yes	2.No
13	Does aggressive use of opioid analgesics cause addiction, respiratory depression, sedation, and tolerance?	1.Yes	2.No
14	Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.	1.Yes	2..No
15	Based on pain its duration, Pain classified as: Acute and chronic pain	1.Yes	2.No
16	The most accurate judge of the intensity of the patients pain	a). The physician b).The nurse c). The patient d). Other, specify-----	

Part lV: Practice related questions regarding pain management of nurses

S. N	Questions	Coding Categories	
1	Is there any a pain assessment tool available for evaluating patient's pain on your unit?	1.Yes	2. No
2	If your answer yes to the question 1, Do you use the tool?	1.yes	2.No
3	Do you wait the decision of the physicians to give analgesics to the patients while they request?	1.Yes	2.No
4	If your answer no to the question 3, What are some pharmacological pain management therapies that you could use in hospital without a doctor order?	a) Paracitamol b) Diclofenac c) Tramadol d) Other, specify-----	
5	Are you assessing initial and ongoing assessment of the patient's pain and the level of risk for adverse outcome of analgesics drugs?	1.Yes	2.No
6	Do you provide education for patient and family about side effect of the analgesics drug?	1.Yes	2.No
7	Do you document your daily activities regarding pain management?	1.Yes	2.No
8	Do you assess history of drug abuse or drug related behaviors of patients?	1.Yes	2.No
9	Have you ever managed pain or ever treated a patient with pain?	1.Yes	2.No
10	Do you use opioid analgesic for pain management?	1.Yes	2.No
11	The most important barriers to use pharmacological pain management	a)Fear of drug side effect b)No guideline of pain mgt c)Inadequate drug availability d)No training e)workload	