ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF NURSING AND MIDWIFERY

KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING CANCER PAIN MANAGEMENT AMONG HEALTH CARE PROVIDERS WORKING AT SELECTED HOSPITALS OF ADDIS ABABA, ETHIOPIA, 2018

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ABBREVIATION AND ACRONYMS

AOR	Adjusted Odd Ratio
APS	American Pain Society
BSc	Bachelor of Science
CI	Confidence Interval
CME	Continuing Medical Education
COR	Crude Odd Ratio
CPM	Cancer Pain Management
GLOBOCAN	Global Cancer Incidence Mortality and Prevalence
HBM	Health Belief Model
HC	Health Center
HCP	Health Care Provider
IPC	International Pain Community
KAP	Knowledge Attitude and Practice
KAS	Knowledge and Attitude Survey
KASRP	Knowledge and Attitude Survey Regarding Pain
NRS	Numeric Rating Scale
SPHMMC	Saint Paul Hospital Millennium Medical College
TASH	Tikur Anbesa Specialized Hospital
VAS	Visual Analogue Scale

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ABSTRACT

Introduction:- Pain is one of the main symptoms involved in cancer patients receiving treatment or because of the disease itself. Approximately, 30% to 50% of cancer patients receiving treatment experience pain and 70% to 90% with advanced stages of cancer experienced moderate to severe pain. Pain experienced by cancer patients affects quality of life, physical functioning, social relationship, and mental health. For proper management of cancer pain, Health Care Providers' (HCPs) are expected to have full understanding of the nature of pain syndrome and good pain assessment skills. **Objective:-** To assess health care providers knowledge attitude and practice regarding cancer pain management A.A, Ethiopia, 2018. **Methodology:-** Institutional based cross sectional study was conducted among HCPs working in selected hospitals of Addis Ababa from March 1 to 30, 2018. Total sample size was 200 health care providers selected by using simple random sampling technique. The collected data was coded, cleaned and explored before analysis. Data was entered in to epi-data 4.2 version and export to SPSS version 23.0. Descriptive statistics such as mean, standard deviation and percentages were calculated to describe frequency and displayed in tables and graphs. Binary logistic regression was done to see the crude significant relation of each independent variable with dependent variables. Significant factors was identified based on AOR include in 95% confidence level at P-value less than 0.05. **Result:-** From the total of 191 respondents 109 (57.1%) were female and 135 (71.7%) were aged 23-29 years old. The mean age of the participants was 28.5 ± 4.3 years old. Only 40.2% of the study subjects have good knowledge and attitude whereas 31.9% had performed good practice regarding cancer pain management. Gender, monthly income, taking formal cancer pain management education in university and profession were significantly associated with cancer pain management knowledge and attitude. **Conclusion:-** Health Care Providers working in the current study have poor knowledge, attitude and practice regarding cancer Pain management. **Recommendation:-** In service training regarding cancer pain management should be given to nurses and physicians who are working in cancer centers. Cancer pain management should be incorporated in to nursing and other health related professions curriculums.

Key words; Knowledge and Attitude, Practice, Cancer pain management, Health care providers.

1. INTRODUCTION

1.1. Background

Cancer is leading cause of death worldwide, whereby more than 10 million people are diagnosed with cancer and 6 million deaths take place annually. It has been estimated that there will be 15 million new cases every year by 2020 (1). More than half are in developing countries(2).

According to FMOH estimated report there could be more than 150,000 cancer cases in Ethiopia each year though available data was limited. About 2013 adult cancer patients visited Tikur-Anbesa Specialized Hospital (TASH) in 2012. Cancer is an increasing public health burden and currently accounts for five percent of all deaths in Ethiopia (3). Eighty percent (80 %) of patients who came to the adult oncology department at Black Lion Hospital complained of pain related with cancer, of whom, 60% complained of moderate to severe pain where as 20% of them experienced of mild pain(4).

Cancer pain can be defined as a complex sensation that reflects both damage to the body and the body's response to the damage. Proper pain management is crucial in the overall care of patients. Cancer pain is usually linked with tumor growth and the pressure it exerts on the surrounding tissues and nerves. In addition, the cumulative effect of procedures undergone by cancer patients in the course of cancer management may result in pain (5, 6).

Pain is one of the main symptoms involved in cancer patients receiving treatment or because of the disease itself. Approximately, 30% to 50% of cancer patients receiving treatment experience pain and 70% to 90% with advanced stages of cancer experienced moderate to severe pain (5). Pain is the most feared symptom associated with cancer diseases and it is commonly experienced by over 70% of cancer patients (6,7).

During the last century, there has been a substantial increase in knowledge of how to manage cancer pain effectively and it is estimated that around 90% of cancer patients can achieve acceptable pain relief if they are offered adequate pain management. Cancer pain is still undertreated worldwide, highlighting the importance of implementation of evidence-based knowledge in cancer pain management (3,8–10).

For proper management of cancer pain in patients, health care providers are expected to have full understanding of the nature of pain syndrome and good pain assessment skills. Pain management is an integral part of healthcare professionals' practices, those dealing with pain on daily basis(11). Thus for effective pain management health care providers must be well-educated and knowledgeable about pain including thorough and accurate assessment of the patient. Screening for pain should be a part of a routine assessment, and this has led the American Pain Society (APS) to declare pain as the "fifth vital sign" (12).

A study in china stated that pain is a global health issue that requires the attention of the health community (13,14). Its management is complex and multifactorial; thus a deeper understanding of the health care providers knowledge, attitude and practice for proper and optimum pain management needs to be addressed in order to tackle the deficiencies among health care providers and improve patient care (13).

According to a study conducted in Ethiopia Gondar and India, there is high prevalence of inadequate pain management 91% and 77% respectively in patients with cancer (16,17). Furthermore the majority of participants were concerned about their pain, regardless of the cause, stage of disease, treatment modality, or prognosis.

The possible barriers to effective pain management among health care workers, were found difficult to identify. Yet some studies revealed that Misconceptions and myths about pain and pharmacological pain treatment, particularly fear of opioids addiction as well as serious adverse effects like respiratory depression, are blamed for pain under treatment (18–21).

To my knowledge in Ethiopia there is little known for what led to under treatment or even no treatment of cancer pain. For this reason, pain symptoms must be prevented, treated as priority, and considered an independent part of cancer management which in turn requires a knowledgeable health care providers with favorable attitude in practicing cancer pain management to meet cancer patient needs.

1.2. Statement of the problem

The World Health Organization (WHO) and international pain community have identified cancer pain as a global health concern. Pain prevalence is high in developing countries due to late diagnosis of disease and major impediments to opioid access. A systematic review about pain management of hospitalized cancer patients show that over 80% of the world's population is inadequately treated for moderate to severe pain (22–24).

The prevalence of pain in cancer is estimated at 25% for those newly diagnosed, 33% for those undergoing active treatment, and greater than 75% for those with advanced disease. Chronic pain in cancer survivors who have completed treatment is estimated to be approximately 33%. Early reports on the prevalence of pain in cancer patients draw attention to high figures that ranged from 52% to 77% (11,14,25–28).

More recent studies on the prevalence of pain in patients with cancer showed figures that ranged from 24% to 60% in patients on active anticancer treatment and 62%–86% in patients with advanced cancer (11,25–35). This shows that improvements' in cancer pain management are still insignificant though health care providers are increasing in number this time. The prevalence of cancer pain in Ethiopia can be considered as one of the highest. Study conducted in Gondar revealed 91% of cancer patients are suffering with pain (16).

For cancer victims, the pain is progressive in nature, it starts during the early diagnosis of their disease, which leads patients suffer from persistent severe pain, devastate them at their end of life. However, up to 95% of cancer pain can be treated successfully (31). Pain is persistent in patients with cancer, in this condition if the pain is undertreated, it leads to severe stress and other symptoms such as fatigue, dyspnea, nausea and vomiting, constipation, sleep disorders, depression, anxiety and mental confusion (36).

Effective pain management is the main issue of primary importance for both health care providers and patients. Relieving patients' pain and suffering is considered the primary responsibility of healthcare providers, specially nurses and physicians. Although pain can be effectively managed, the under treatment of pain continues to be a significant health problem in hospital settings (37). From all healthcare providers nurses and physicians are the most involved in management of patients pain with cancer. Their knowledge and attitudes are crucial to the achievement of pain

relief for patients in oncology units (38). It is argued that many of the frameworks, intervention protocols and assessment tools have not been effectively used by oncology staff to improve the care of patients experiencing pain (35).

To my knowledge there are no studies available that examine health care providers level of knowledge, attitude and practice towards pain management in oncology units of Addis Ababa hospitals currently. Therefore, it is worthwhile to address this gap. This will establish baseline information about health care providers' current knowledge, attitudes and practice regarding cancer pain management. Accordingly, it is a significant step in the process of improving pain management in oncology units. This in turn will positively reflect on improving the quality of life of patients with cancer and hopefully decrease hospital admission rates which in turn lead to decrease in medical costs. Therefore, the purpose of the present study will be to assess the level of knowledge attitude and practice regarding cancer pain management among health care providers working in selected governmental hospitals of Addis Ababa

1.3. Significance of the study

There are no researches done on the assessment of knowledge, attitude and practice towards cancer pain management among health care providers (HCPs) in our country. Therefore result of this study may contribute some importance for the hospital as well as the country in drawing the attention of the policy makers, health care mangers and health care professionals especially nurses and physicians so as to stimulate them to take appropriate measures to its management and pointing researchers to view it as one of the area of investigation. Further, the result of the study can be used as a baseline data for further related studies.

This study benefit to the policy makers by identifying the gaps of health care providers on cancer pain management (CPM) that helps to influence the higher education to revise nursing curriculum in order to incorporate cancer pain management content in nursing course. This will help for nurse's educators to give great emphasis on cancer pain management that improve cancer pain care services in the hospitals.

It can also benefit the community as good knowledge, positive attitude and good practice of health care providers can address for those patients of all ages with cancer that needs adequate pain treatment. Finally, it will benefit the health care workers to see themselves and respond accordingly, so that they can put their effort on updating their knowledge through reading or taking short term training. This benefit the individual patients by improving the quality of their life as health care providers' knowledge and attitude gaps identified and corrected.

2. LITERATURE REVIEW

In this literature review, cancer pain management is explored from health care workers perspectives to understand their knowledge, attitude and practice towards cancer pain management. The review is used purposefully in gathering data from previously done researches concerning the health care providers knowledge, attitude and practice towards cancer pain management. Literatures put under four sub headings.

2.1. Health care providers knowledge of cancer pain management

A comparative study done on knowledge and attitude about pain management on Jordanian nurses show that knowledge regarding pain management was weak as the correct answer response rate shows low at 42.7%. The study also revealed that there is no significant difference in the total mean score of the correct answers between oncology and non-oncology nurses (39).

A study conducted in Iran, Shahid Sadoughi Hospital on oncology nurses knowledge and attitude regarding cancer pain management showed that nurses' knowledge about pain management was far from optimal. The majority of the nurses in this study answered less than 80% of the questions correctly, indicating that nurses continued to lack sufficient knowledge regarding pain management**.** The correct answer rate for the entire scale on the NKAS survey in the study was 65.7% with a range of between 41.0%-84.6% (40).

A descriptive study of 98 nurse's knowledge and attitude toward cancer pain management in Iran AL Zahra hospital showed that inadequate knowledge in relation to cancer pain management practices. From the all knowledge questions administered the mean knowledge of correctly answered questions was 61.2 with arrange 30 -100(41).

Another study done in Turkey revealed that only 11.8% of nurses had taken a pain management course and 31.7% had read a book or journal on pain. The rate of correct responses to the ASRP scale was 39.65% while the mean number of correct answers to all questions was 15.86 ± 7.33 with a range of 0 to 37. It also showed that the nurses did not have adequate knowledge (42).

Another study conducted in turkey, Ankara university hospital on Doctors' opinions, knowledge and attitudes towards cancer pain management show that the majority of the doctors estimated abuse incidence following opioid use for cancer pain management as high as 73.3%. While 18.7%

of the doctors reported that they do not prescribe or order opioids, one third of them recognize "doctors' reluctance to prescribe opioids". Majority (85%) reported that they have adequate knowledge on the potent opioids (Morphine, Pethidine or Fentanyl) but adequacy of their knowledge was less common for weak opioids (43).

Another Nationwide Multicenter Survey study done on Knowledge, Practices, and Perceived Barriers Regarding Cancer Pain Management among Physicians and Nurses in Korea demonstrate that Although physicians had better knowledge of pain management than nurses, both groups lacked knowledge regarding the side effects and pharmacology of opioids. It also indicate Physicians working in the palliative care ward and nurses who had received pain management education obtained higher scores on knowledge (44).

A non-probability descriptive study done on Nurse's Knowledge and Attitudes toward Cancer Pain Management at Baghdad Hospitals showed that oncology units nurse's knowledge towards pain management were unacceptable the correct answer for the entire questionnaire was 37.4% and only 7.4 % of the nurses scored above 50% of the questionnaire (45).

According to the study conducted in Saudi Arabian at King Abdul-Aziz University Hospital, 54% of the respondents believed that <40% of cancer patients experienced pain, 46% of them considered cancer pain as untreatable, while 41.6% considered pain as insignificant, and 58.6% considered the risk of addiction is high with legitimate opioids' prescription. The major finding of the study is that there is inadequate knowledge toward cancer pain management among final year medical students (46).

A data from 105 participants in an exploratory cross-sectional study done on assessment of pain knowledge attitude and practice among care providers in Saudi Arabia suggest that there is a significant knowledge deficit on pain and pain management. As 73 participants scored 44% or below (69.5%). Additionally, only 6 participants (5.7%) scored above 60% which is the accepted passing rate this all indicates that high prevalence of deficit in pain assessment knowledge, and pain management practice (47).

According to study done in Iran the evaluated result of resident physicians knowledge attitude and practice regarding cancer pain for their knowledge show that, there was a clear knowledge gap and difference between residents of different specialties or working areas (wards). Anesthesiology

residents found to have better knowledge than residents of other specialties. Knowledge score for anesthesiology residents was 27.2 ± 11.8 and knowledge score for residents of other specialty was 23.3±5.6 even though the gap was not significant (48).

A study conducted in South Korea on attitude and knowledge of physicians about cancer pain management, focusing on young doctors of South Korea in their early career show that the large portion of physicians displayed substantial knowledge deficits of opioids prescribing. One of the large percentages (76.7%) of wrong answer was about equi analgesic dose.

The study also showed that a total of 74.9% of physicians could not answer pain numbering system correctly. Sixty nine percent of physicians did not know that opioids have no ceiling effect, which can be increased without restriction. More than half (56.5%) of physicians did not recognize the necessity of stool softener use when opioids are administered. A total of 48.6% of physicians unnecessarily worried about the addiction risk of opioids (49).

Furthermore a comprehensive literature review for articles published between 2008 and 2015 has shown that, nurses have lack of knowledge and inadequate attitudes toward the assessment of cancer pain and its treatment with analgesics. These deficiencies include misunderstanding about pain assessment and the incorrect acceptance that patients overstate their pain, inopportune beliefs about drug tolerance and addiction, poor knowledge of analgesic drugs pharmacology (50).

Another cross-sectional non-experimental survey design used to determine the ability of the Knowledge, Attitude and Practice (KAP) model to predict nurses' practices to manage the patients' pain done in Jordan showed that nurses have a moderate score for the nurses' knowledge of pain management. The results showed a moderate score for the nurses' knowledge of pain management (with mean of 4.338 ± 1.032 standard deviation (51).

Another study done in Jordan on healthcare providers' knowledge and practice of pain assessment and management revealed that the overall percentage of knowledge of all health care providers (HCPs) was 28.7%. The mean number of total correct answers was 6.52 ± 2.06 (range 1–13). The study revealed no health care provider answered all questions correctly. The question with lowest rate of correct answers (18%) was staff can always pick up cues from children that indicate that they are in pain. There was no difference in the level of knowledge among different wards within each HCP group (52).

A study conducted in Nigeria on knowledge of cancer pain management revealed inadequate knowledge in cancer pain management among the nurses. When questioned on pain assessment procedure, 40 (33.6%) did not know what to do. The study also show that 96 (80.7%) of the respondents took no idea on the relevance of opioids (morphine) in the controlling of cancer pain as potent analgesics for severe pain management. Seventy eight (66%) of the respondents did not knew the interval for oral administration (morphine) to be 4 hourly. Thirty percent of the nurses said opioids should not be used freely because they are addictive, expensive and too strong and they would not prescribe morphine for patients in pain. Sixty three percent of the participants had no idea about cancer pain management (53).

A study conducted in Ethiopia in 2013 to assess knowledge of nurses regarding cancer pain management at selected health institutions, offering cancer treatment in Addis Ababa, revealed that only 35.4% of the respondents had good knowledge on cancer pain management. The mean score for correctly answered items was 12.6 (37.1%) (54).

2.2. Health care providers attitude towards cancer pain management

A comparative study done in Jordanian nurses' knowledge and attitude towards cancer pain management show that nurses had poor attitude, in most cases nurses believed the same myths and misconceptions about pain management found among patients. For example 39.5% of nurses agreed to encourage patients to tolerate pain as much as they could before administering their scheduled opioids dose (18).

According to the Asian survey of cancer pain management practice, the overall, physicians expressed unanimity on the effectiveness of opioid use in the management of cancer pain and exhibited a good understanding of dosing regimens. The majority of physicians (83.8%, agreed that opioid therapy should be first-line therapy in cancer patients with moderate-to-severe pain (55).

A South Korean study of attitude and knowledge of physicians about cancer pain management, show that about half (47.5%) of the physicians thought that "when patients complained about pain, patients usually exaggerated their pain frequently and were not impressed with the necessity of psychological consultation for drug addiction. Eighty seven percent of physicians did not feel to postpone analgesics use to prepare for pain aggravation. Physicians in internal medicine group

showed the best positive attitude for CPM and general physicians showed the most negative attitude for CPM (49).

A study on clinicians' practice and attitudes toward cancer pain management in Korea described that one quarter of respondents reported, patients requested medications too frequently, and three quarters agreed that patients with terminal cancer increasingly requested pain medicine because their pain was increasing. Other reasons for increasing requests for pain medication included anxiety, depression, need for attention, and addiction (56).

According to a study conducted in Turkey, Ankara university hospital on doctors' opinions, knowledge and attitudes towards cancer pain management, only one fifth of the respondents (22%) believed that satisfactory pain control can be achieved for more than 75% of the cancer patients. The study also show that more than half of the respondents (56%) reported that they feel themselves insufficient in management of pain caused by compression of nerves by tumor. More than three quarters of the respondents found themselves moderately or more sufficient about assessment of the cause or the severity of pain (43).

A survey in china on "cancer pain management in China: current status and practice implications based on the ACHEON survey" show that 28% and 17% of physicians believed that their medical school and residency training was sufficient in cancer pain management. Thirty eight percent of physicians received pain-related continuing medical education (CME) per year of less than 10 hours and 84% of physicians believed that intensity of pain experienced by patients was varying with physicians' assessment, physicians interviewed on questions about applying opioid drugs in cancer pain management. A total of 90% of physicians supposed that opioid therapy is the first-line approach for the treatment of moderate-to-severe cancer pain (13).

A study done in Iran teaching hospital, resident physicians attitude regarding cancer pain management show that residents attitude ranging from 20 to 49 (25.1±9). Residents of anesthesiology had optimistic attitude towards analgesics administration and dosage determination, an observation that appears to be a result of their requisite education. Residents of other specialties however, were near to the ground. The study also recommend that Providing residents with extra curriculum education would be necessary to change the attitude of residents of other specialties towards pain management (48).

Another study conducted in Iran show that children's pain was compounded by factors like; constant development, relatively limited cognitive ability, limited verbal skills, and limited behavioral competencies. Only 63.7% of oncology nurses in this study identified that they believed children who reported pain, which indicates poor attitude towards pain management (16).

A study conducted in china on knowledge and attitudes of surgical staff towards the use of opioids in cancer pain management, indicated that, a fairly high amount of staff appeared to believe pain was always a part of advanced cancer (38%) and this statistic enhanced very little by the follow-up assessment (35%) (57).

Another study conducted in Saudi Arabia show that 23.1% of students believed that patients poorly judged their pain, 68% of them limited opioids prescription to patients with poor prognosis, and 77.1% believed that drug tolerance or psychological dependence, rather than advanced stages' cancer is the cause of growing analgesic doses. The study revealed bad attitude of medical students toward cancer pain (46).

According to a study conducted in Saudi on assessment of knowledge attitude and practice among care providers, health care providers hold inappropriate attitudes in caring for patients experiencing pain (47).

Another cross-sectional non-experimental survey in Jordan shows that the nurses tended to have moderate level of attitude towards pain management with mean and standard deviation of 4.504 and 0.935, respectively, which suggests moderate level of attitude towards pain management (51).

A study conducted at Baghdad Hospitals show that oncology units nurse's attitudes towards pain management were found unacceptable (45). A descriptive survey conducted in Iran on nurse's knowledge and attitude toward cancer pain management in AL Zahra hospital show that poor attitude in relation to cancer pain management (41).

A cross sectional study conducted in Ethiopia, on nurses attitude practice and barriers towards cancer pain management shows that more than half, 53.7%, of the nurses' have a negative attitude, while 46.3% had a positive attitude towards cancer pain management. Over half of the respondents agree and strongly agree that opioids should not be given for patient with history of substance abuse, and 64.4%of nurses believed that placebo is a useful test to determine if the pain is real (18).

2.3. Health care providers practice regarding cancer pain management

A study done among physicians and nurses in Korea revealed that nurses performed pain assessment and documentation more regularly than physicians did, although physicians had better knowledge of pain management than did nurses (34).

According to a study conducted in Saudi on assessment of knowledge attitude and practice among care providers suggest that there is a practice gap in pain management in addition several nurses' indicated that pain assessment tools are inaccurate and not beneficial. Profoundly, the consequences of these deficits would lead to disregarding the patients' report of pain, which results in an impact on the effective treatment of patients' pain (47).

Clinicians' practice and attitudes toward cancer pain management in Korea described that nearly half of clinicians assessed their patients' pain every day, with the medical group assessing pain more frequently than the surgical group ($p<0.01$). Very few physicians had not ever prescribed opioid analgesics. Of those who did, 36% waited until the patient's prognosis was less than 1 month before providing the maximum opioid analgesic. Medical doctors' first choice for managing moderate to severe pain was sustained-release (SR) morphine, whereas surgeons most often choose immediate-release (IR) morphine (56).

A survey conducted in 2015 in 10 Asian countries on patients and physicians practices in cancer pain management show that, the majority of physicians had stated they assess patients routinely to characterize 90.5%, and quantify 88.3% pain. NRS such as the visual analog scale (VAS), BS-11 pain scale, the FACES or verbal questionnaire (0–10) rating scale were used for pain quantification by 86.8% of physicians (55).

A study done in China indicate that, 84% of the surveyed physicians perceived the inconsistence of pain assessed by clinical physicians and experienced by patients. This result strengthened the necessity of use of pain scale by physicians. The research also showed that 32.8% of patients and 20% of physicians revealed that pain scale was not used when assessing pain. About 27% of physicians perceived no adequate pain assessment of clinicians (13).

In a study of, knowledge, attitude and practice regarding cancer pain management among resident physicians of Iran, Shahid Beheshti School of medicine teaching university hospital, practice regarding cancer pain management was 11.2 ± 4.1 (ranging from 0 to 17), however, anesthesiology

physicians practice level were proved to be significantly higher than residents of other specialties with p value 0.001 (48).

A study done in Jordan on knowledge, attitude and practice to predict nurses' practice to manage the patients' pain showed that nurses had a moderate level of pain management practices. Attitude towards pain management and knowledge of pain management were both positively correlated with pain management practices (51).

Another study done in Jordan on healthcare providers' knowledge and practice of pain assessment and management showed, significant difference between the different HCP groups, the highest (92%) were nurses compared to physicians (85%) and pharmacists (65%) (52).

A study conducted in Ethiopia, on nurses attitude, practice and barriers to cancer pain management revealed that, almost two third (65.9%) of nurses had poor cancer pain management practice whereas only 34.1% had good cancer pain management practice (11).

2.4. Factors related to health care providers' knowledge, attitude and practice of cancer pain management

According to the Asian survey of cancer pain management practice, socio-demographic characteristics of physicians, years of experience and cancer pain management training and patient characteristics were the associated factors for cancer pain management attitude and practice (55). A survey of nurse's knowledge and attitude toward cancer pain management conducted in Iran show that the knowledge of the nurses had a direct relationship with their attitude, perceived benefits, self-efficacy, and cues to action. No relationship was observed between the two sexes and the mean score of variables. Pearson correlation indicated that there was no significant relationship of age and work experience with the score of model variables (41).

A study conducted in Turkey showed that statistically significant difference was found regarding education level, working unit, whether a pain management course had been taken, whether a book or journal on pain had been read, and the evaluation of the nurse's efficacy regarding pain (42).

A study conducted in Turkey, Ankara university hospital on doctors' opinions, knowledge and attitudes towards cancer pain management show that Age, sex, working in a medical department or attending cancer patients with pain once a week or more", "giving priority to treatment of pain"

and “presence of cancer patient/s in the family, level of education in , place of work and years of experience were the associated factors in cancer pain knowledge and attitude development (43).

According the South Korean study on cancer pain management, Socio demographic characteristic such as (age and gender), work area, work experience and experience in opioid prescription for cancer pain management, education and training for cancer pain management were the associated factors with physicians knowledge and attitude during cancer pain management (49).

According to study conducted in Jordan no significant differences between characteristics (age group, education level, and years of nursing experience, experience with pain and continuing education). However; nurses’ pain knowledge significantly differed according to their education level, previous pain education related to cancer, regular cancer pain care, knowledge score and conference attendance in pain management, knowledge score and in-services training, modules, protocols and other knowledge and skills related to pain management, knowledge score and nurses’ rating of their experiences with pain (39).

A study on clinicians' practice and attitudes toward cancer pain management in Korea described that gender of physicians, work area (department surgical or medical), work experience, being working in palliative care unit) and training in cancer pain management were the associated factors in cancer pain management practice and attitude (56).

A study conducted in Baghdad hospital suggested that there were no significant differences between knowledge and attitudes, about cancer pain management and socio-demographic characteristics (age, gender, level of education, but a positive correlation was found in years of experience and training. Nurses who had training session of cancer and/or pain related have a better pain knowledge score than those nurses who have no such training (45).

According to a study conducted in Saudi on assessment of knowledge attitude and practice among care providers indicated that 87 participants were nurses, and 18 were physicians. Level of education, years of experience, age, ethnicity and sex were the studies identified associated factors during pain management. It also identified that male health care providers have better knowledge than female HCPs (47).

In a study of, knowledge, attitude and practice regarding cancer pain management among resident physicians of Iran, Shahid Beheshti School of medicine teaching university hospital, knowledge

attitude and practice in cancer pain management among resident physicians was affected by age, sex, work area, whether participants had a positive family history of cancer or not, training taken in cancer pain management and level of education (48).

According to the study conducted in Jordan, having a postgraduate degree and working in private hospital, were significantly associated with higher level of knowledge. In contrast, being a nurse was significantly associated with lower level of knowledge (52).

A study conducted in Addis Ababa on attitude, practice and barriers of cancer pain management among nurses showed that lack of courses related to pain in the under graduate classes, lack of continuing training and work overload, role confusion, lack of motivation and salary were the identified barriers for adequate pain management (18).

Another study in Addis Ababa, on cancer pain management knowledge on nurses showed that a statistical significance was observed in nurse's work experience with pain knowledge at $P<0.05$. However, no statistical significance was observed for other socio demographic variables. The study conclude that inadequate education, lack of both pre service and in service trainings were major barriers for acceptable knowledge on cancer pain management (54)

2.5. Conceptual frame work

Ideas that are directly and indirectly related to the major variables of the study are developed from literature review. Among these: socio demographic characteristics of health care providers (e.g., age, sex, monthly income and religion), education, experience and area of work are anticipated to affect the dependent variable of the study (13, 42, 44, 45, 46, 47, 52, 55, 56, 57, 58).

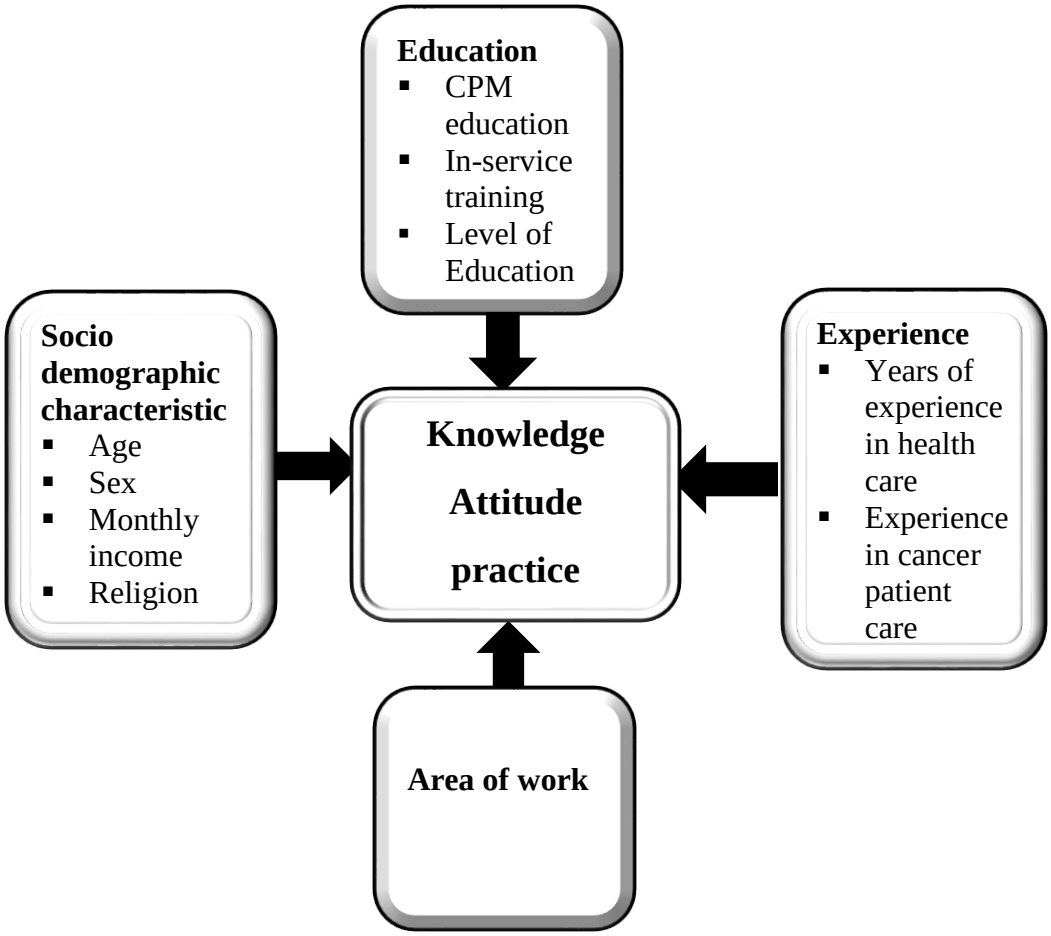

Figure 1: Diagrammatic representation developed to show associations between dependent and independent variables.

3. OBJECTIVE

3.1. General objective

- ✓ The aim of this study was to examine knowledge, attitude, practice and associated factors towards cancer pain management among health care providers in selected governmental hospitals of Addis Ababa Ethiopia, 2018.

3.2. Specific objectives

- ✓ To examine level of knowledge and attitude regarding cancer pain management among care providers in selected hospitals of Addis Ababa.
- ✓ To assess health care providers practice regarding cancer pain management.
- ✓ To examine factors associated with cancer pain management among health care providers in selected hospitals of Addis Ababa.

4. METHODOLOGY

4.1. Study area

This study was conducted in selected governmental hospitals of Addis Ababa. Addis Ababa is the capital city of Ethiopia and it has a population size of 3,048,631 of whom 1,595,968 were females and the rest1,452,663 were males. The city is divided in to 10 sub-cities. The city is located at the heart of the country, at an altitude ranging from 2,100 meters at Akaki in the south to 3,000 meters at Entoto Hill in the North(58).

With regard to health institutions the city totally holds 13 government hospitals (5 federal, 6 under Addis Ababa health bureau, 1 owned by police force and 1 armed force hospital) distributed throughout 10 sub cities. The government hospitals in the city are Tikur Anbesa Specialized Hospital (TASH), St Paul Hospital Millennium Medical College (SPHMMC), Amanuel Hospital, ALERT Hospital, St Peter Hospital, Police Hospital, Armed Force Hospital, Zewditu Memorial Hospital, Menilik II Memorial Hospital, Ras-Desta Memorial Hospital, Yekatite-12 Hospital, Tirunesh Beijing Hospital and Gandi Memorial Hospital (61).

In this study Saint Paul and Tikur Anbesa Specialized Hospital which have oncology centers were selected.

4.2. Study design

Institutional based cross sectional study design was used.

4.3. Study period

The study was conducted from March 1 to 30, 2018

4.4. Populations

4.4.1. Source population

All health care providers working in selected hospitals of Addis Ababa (Saint Paul Hospital Millennium Medical College (SPHMMC) and Tikur Anbesa Specialized Hospital (TASH).

4.4.2. Study population

Health care providers (physicians and nurses) working in oncology unit in selected governmental hospitals in Addis Ababa and are meeting the inclusion criteria.

4.4.3. Inclusion and exclusion criteria

- **Inclusion criteria:** Health care providers (nurses and physicians) who are working in the selected governmental hospitals, and are willing to participate in the study were included.
- **Exclusion Criteria**:
- Health care provider's those who have never followed a cancer patient.
- Health workers on annual leave and maternity leave were excluded from the study.
- HCPs who are seriously sick and unable to fill the questionnaire.

4.5. Sample size determination

The sample size was determined by using formula for estimating a single population proportion formula. The sample size for this cross sectional study calculated by assuming knowledge prevalence to be 35.4% and attitude prevalence 46% in a study done in Addis Ababa (18). Based on the assumption 5% marginal error, 95% confidence interval (CI) and a none response rate of 10%, the actual sample size for the study was as follows.

$$n = \frac{(Z_{\alpha/2})^2 P(1-P)}{d^2}$$

Where n=Sample size

Z=value corresponding to a 95% level of significance=1.96

p= prevalence in previous study for attitude(0.46)

q= (1-p) = (1- 0.46) = 0.54

d= Margin of error, assumed to be 5%

Therefore, using the above single population proportion formula the sample size Calculated as; 382, using attitude prevalence (0.46) from previous study done in Addis Ababa on attitude, practice and barriers of cancer pain management among nurses. Based on the prevalence of knowledge from a study done among nurses regarding cancer pain management a P value calculate of the sample size yields lower sample size than the P value of attitude (less than 382). Therefore I select the largest sample size calculated using attitude prevalence.

Since the study population is less than 10,000 I used population correction formula in order to get the required minimum sample size.

Where;

$$n_f = \frac{n}{1+(n/N)}$$

n_f = desired sample size

n= the calculated sample size

N= total population (nurses and doctors in both selected hospitals)

$$n_f = \frac{382}{1+(382/350)}$$

nf = **181**

and then adding 10 % for non-response rate to provides a total sample size of 200 Health Care Providers.

4.6. Sampling technique and Sampling procedure

From the 13 governmental hospitals found in Addis Ababa only two of the hospitals which have oncology units were selected i.e. Tikur Anbesa Specialized Hospital and Saint Paul Hospital.

To select the study participants, the total sample size was allocated proportionally based on the number of health care providers from each selected hospitals. Proportional allocation was done for health care providers to keep homogeneity. Again proportional allocation was done for each work area in each selected hospitals. Finally, from each work area, health care providers were selected using a lottery method to attain the final individuals by using list of health care providers in each work area as a sampling frame.

4.7. Proportional allocation

Based on proportionate the total sample size (200) was allocated to each selected hospitals.

$n_j = n \times N$

Where : nk=is the sample size of the k^{th} hospital

Nk=is population size of the k^{th} hospital

n= n1+ n2 is the total sample size (200)

N=N1+N2 is total population size of hospitals. Then by using simple random sampling technique, participants were selected from the prepared sampling frame.

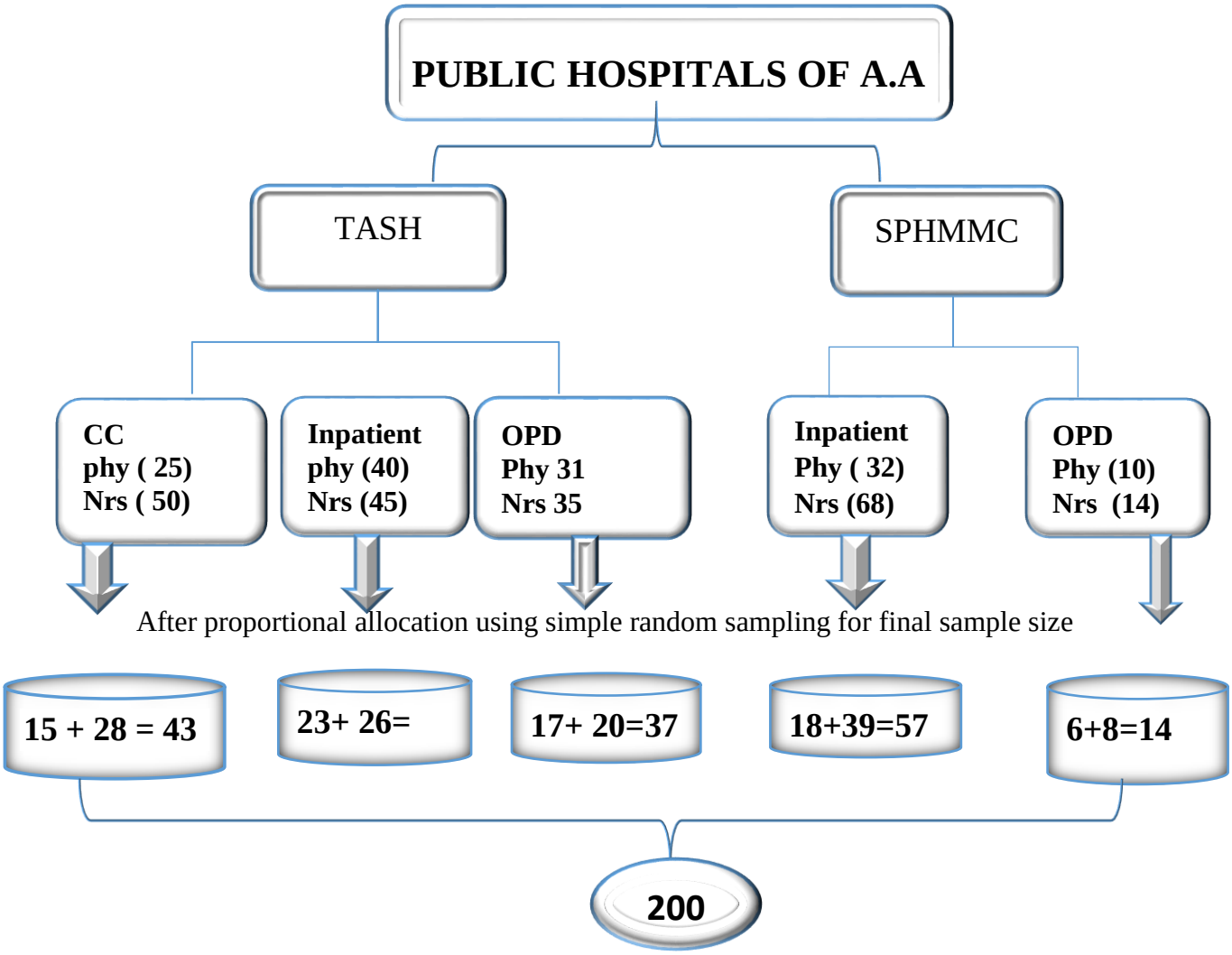

Figure 2: Proportional allocation and final sampling technique of study participants at selected hospitals of A.A, 2018.

4.8. Variables

4.8.1. Dependent Variables

- Knowledge and attitude regarding cancer pain management
- Practice regarding cancer pain management

4.8.2. Independent Variables

- Age
- Sex
- Monthly income
- Religion
- Cancer pain education
- In-service training
- Level of education (diploma, degree, MSc for nurse and General Practitioner(GP) and resident for physicians)
- Year of experience(service) in nursing
- Experience in care of cancer patient
- experience in care of a patient with pain
- Area of work (oncology unit, cancer center, hematology ward etc.)

4.9. Operational definition

- Good Knowledge and attitude on cancer pain management: if the participants respond mean and above (≥ 0.48) of the Knowledge and attitude survey regarding pain (KARSP) questions on the questionnaire.
- Poor knowledge and attitude on cancer pain management: if the participants respond below mean of the Knowledge and attitude survey regarding pain (KARSP) questions on the questionnaire
- Good practice: If participants respond mean and above of the practice related questions
- Poor practice: If participants respond below mean of practice related questions.

4.10. Methods of data collection

4.10.1. Data collection tool

A self-administered questionnaire was used for data collection. The knowledge and attitude survey regarding pain questionnaire (KASRP) (59) was used to assess knowledge and attitude, and 6 practice questions. The tool is free access and has been used by many studies. The practice questions are adapted from previous study (18).

The content of the tool is derived from current standards of pain management such as the American Pain Society, the world health organization, and the national comprehensive cancer network pain guidelines.

The tool was identified as discriminating between levels of expertise. Test-retest reliability was established (r>.80) by repeated testing in a continuing education class of staff nurses (N=60). Internal consistency reliability was established (alpha r>.70) with items reflecting both knowledge and attitude domains. Regarding analysis of data: it is most helpful to avoid distinguishing items as measuring either knowledge or attitudes. Many items such as one measuring the incidence of addiction really measures both knowledge of addiction and attitude about addiction. Therefore, it is important analyzing the data in terms of the percentage of complete scores as well as in analyzing individual items. For example, it very helpful to isolate items with the least number of correct responses and those items with the best scores to guide educational needs.

Section one: A socio demographic variables include (age, sex, religion, work experience, educational level, salary), cancer and/or pain related training, place of work)

Section two: The knowledge and attitude survey regarding pain questionnaire consists of 22 true or false, 14 multiple choice and two case study a total of 38 questions.

Section three: The practice section contains 6 questions.

4.10.2. Data collection procedure

Four health care providers as data collectors (two for each hospital) were recruited. The data collectors were Master (MSc) nurses with experience of data collection. The data collectors were responsible for the distribution of the self-administered structured questionnaire to all health care providers meeting the selection criteria and willing to participate in the study after briefly presenting the study purpose and consenting the individual HCPs in the study area. The

respondents were encouraged to respond to all items in the questionnaire within the time they devoted as much as possible to minimize large non-response rate.

4.10.3. Data quality control

Data quality control was made by pretest in 10 % of the sample HCPs in Betezata Hospital. One full day training was given for data collectors and supervisor regarding the study, the questionnaire and data collection procedure by the main investigator. The Collected data was checked every day by supervisors and principal investigator for its completeness. Problems faced were discussed over night with data collectors and the supervisors. Data was kept in the form of file in secure place where no one can access it except the investigator and confidentiality was insured by not recording names or any personal identity. Data was checked again for its completeness before data entry.

4.11. Data analysis

Data was entered twice in to epi data version 4.2 software and export to SPSS version 23.0 and was checked for missing values. Data was cleaned. Descriptive statistics was done to describe frequency and percentages and displayed in tables, graphs and charts. Measure of central tendency (mean) was calculated. Binary logistic regression was done to see the crude significant relation of each independent variable with dependent variables. Then independent variables found significant, entered in to multivariate logistic regressions to control the effect of confounding. Significant factors were identified based on AOR include in 95% confidence level at P-value less than 0.05.

In the analyzing the questionnaire we didn't distinguish among questions that quantified the extent of either knowledge or attitude separately with respect to cancer pain management. This was due to the overlap of the knowledge and attitude concepts. In order to allow better analysis of the knowledge and attitude questions they were grouped in to three categories; (22) true false questions, (12) multiple choice questions and (4) case study questions.

Correctly answered questions were assigned a score of 1. Incorrectly answered questions and those not answered were assigned a score of 0. The total score was calculated for each participant by adding up the scores for each participant.

4.12. Ethical consideration

- Ethical clearance was obtained from institutional review board of Addis Ababa University, college of health sciences, department of nursing and midwifery research committee.
- Support letter from department of nursing and midwifery was written to Tikur Anbesa Specialized referral hospital, St. Paul Hospital and Betezata Hospital.
- Formal letter of ethical approval was obtained from AAU and St. Paul hospital IRB.
- Informed written consent was obtained from all study participants .
- Participants were informed about the objective of the study.
- After information is provided about purpose of the study, non- invasiveness of the data collection procedure, confidentiality of the information and respondents was reassured that they would be anonymous (unnamed).
- Then respondents were given a chance to ask anything about the study and were free to refuse or stop at any moment they want if their choice.

4.13. Dissemination and Utilization of Result

The primary objective of this thesis is for partial fulfillment in the requirements to degree of master in oncology nursing; it was presented and submitted to the department of nursing and midwifery, school of allied health sciences, Addis Ababa University. In addition copies of the result was given to Tikur Anbesa Specialized Hospital and St. Paul Hospital to utilize the information for further development of strategic and educational plan promotion of Health care providers' knowledge attitude and practice towards cancer pain management. Presentations at professional, local, national and international meetings and publication in peer reviewed national or international journals will be attempted.

5. RESULT

A total of 200 self-administered questionnaires were distributed to the study participants with a response rate of 95.5% (191).

5.1. Socio demographic characteristics

From the total of 191 respondents 109(57.1%) were female and 135 (71.7%) were at the age range between 23 to 29 years. The mean age of the participants was 28.5 ± 4.3 years old. Health care providers from Tikur Anbesa Specialized Hospital (TASH) constituted the largest proportion 122 (63.9%) of the study population. Majority 111(58.1) of the respondents were orthodox christians and protestant followers were the second largest group accounting 37 (19.4%). With respect to their profession 70 (36.2%) of the participants were physicians whereas 121 (63.8%) were nurses. Only 8 (4.2%) of the nurses had Master's degree (MSc) while the largest proportion of nurses 94 (49.2%) were bachelor of science degree (BSc) holders. However majority of physicians 65 (33.5%) were residents and 5 (2.6%) were General Practitioners (GP). Regarding to their current working area or place of work 41(21.5%) of the health care providers (HCP) were from oncology ward, 40 (20.9%) cancer center and 28 (14.71%) working in hematology ward. Majority (72% of the care providers had less than 5 years of experience whereas only 6 (3.1%) of them had more than ten years of work experience.

Of all the study participants, 176 (92.1%) had experience in managing cancer pain while 127 (66.5%) didn't take formal cancer pain management education. Only 88 (46.1%) of them had taken in service training on cancer pain management.

Table 1; Socio demographic characteristics of health care providers working at selected governmental hospitals of Addis-Ababa, 2018.

Factors	Category		Frequency(n)	Percent (%)
Hospital	TASH		122	63.9
	SPHMMC		69	36.1
Age	23- 29 years old		135	71.7
	30- 39 years old		49	25.8
	Greater than 40 years old		6	3.2
Gender	Male		82	42.9
	Female		109	57.1
Religion	Orthodox Christian		111	58.1
	Muslim		27	14.1
	Protestant		37	19.4
	Catholic		14	7.3
Profession	Physician	GP	5	2.6
		Residents	64	33.5
	Nurse	Diploma	20	10.5
		BSc nurse	94	49.2
		Master	8	4.2
Current working area	Oncology		41	21.5
	Hematology		28	14.7
	Gynecology		17	8.9
	Medical		21	10.94
	Surgical		9	4.7
	OPD		35	18.3
	Cancer center		40	20.9
Year of experience	Less than 5 years		138	72.3
	5-9		47	24.6
	>10 years		6	3.1
Experience of CPM	Yes		176	92.1
	No		15	7.9
CPM education	Yes		64	33.5
	No		127	66.5
Training on CPM	Yes		88	46.1
	No		103	53.9
Income	< 3500		22	11.5
	3500- 5000		51	26.7
	≥ 5000		118	61.8

The mean score for knowledge and attitude of health care providers was found to be 19 ± 4 with 9 minimum and 32 maximum result. Only 40.2% of the health care providers scored mean and above of the knowledge and attitude questions. This indicates poor in knowledge and attitude according to the study.

As shown in fig 3, physicians have higher score of knowledge and attitude than nurses. Only 33.6% of nurses have good knowledge and attitude regarding cancer pain management, whereas 53.6% of physicians had good knowledge and attitude regrading cancer pain management.

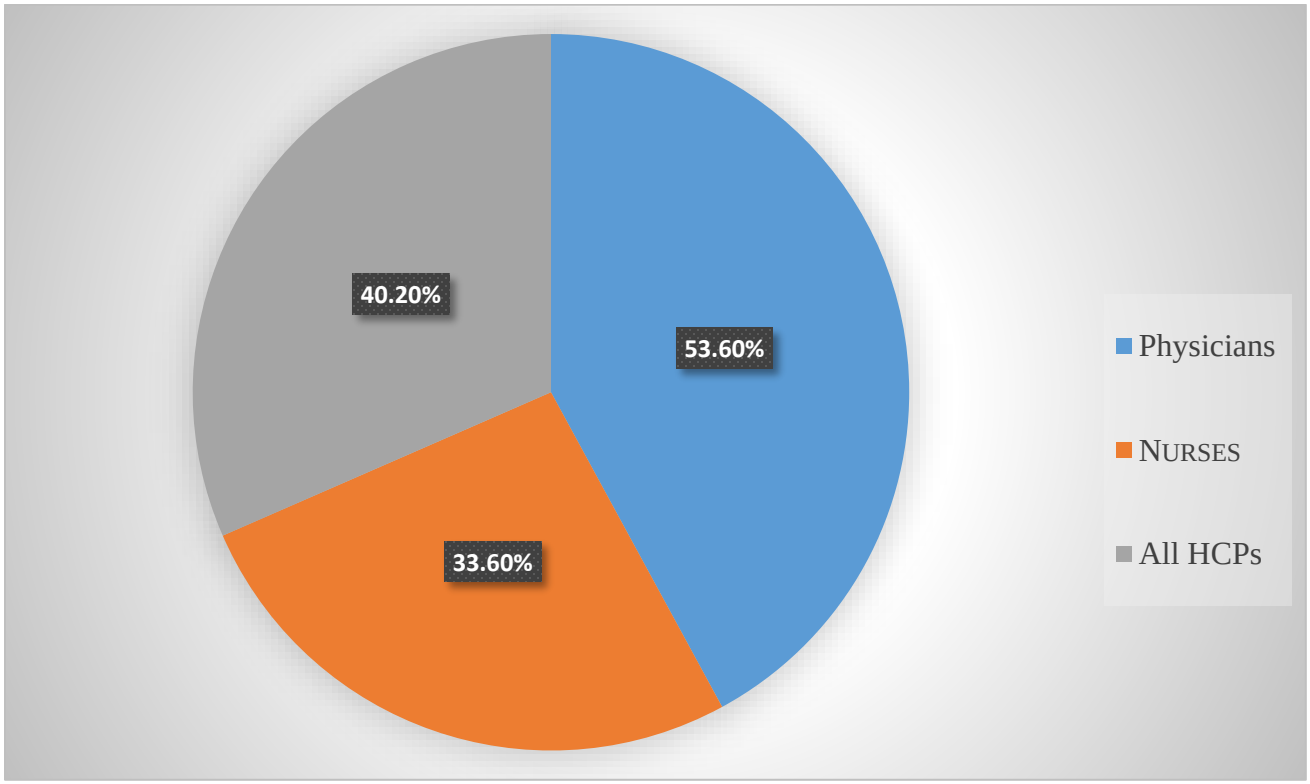

Figure 3: Knowledge and attitude regarding cancer pain management among health care providers at selected hospitals of A.A, 2018.

5.2. Knowledge and attitude regarding cancer pain management among care providers in selected hospitals of A.A, 2018.

Table 2: Frequency and percentage distribution of the knowledge and attitude (22 true false questions) among health care providers at selected hospitals of A.A, 2018.

Question	Ans	Correct Answer		
		Sum	%	Mean
Vital signs are reliable indicators of a patients pain	False	80	41.9	0.42
Question on children's nervous system and drug tolerance	**False**	121	63.4	0.63
Patients who can be distracted from pain usually do not have severe pain.	**False**	121	63.4	0.63
Patients may sleep in spite of severe pain.	**True**	65	34	0.34
Aspirin and other non- steroidal anti-inflammatory agents are NOT	**False**	79	41.4	0.41
Respiratory depression rarely occurs in patients who have been	**True**	121	63.4	0.63
Combining analgesics may result in better pain control	**True**	130	68	0.68
The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.	**False**	70	36.6	0.366
Opioids should not be used in patients with a history of substance abuse.	**False**	96	50.3	0.5
Elderly patients cannot tolerate opioids for pain relief.	**False**	111	58	0.58
Patients should be encouraged to endure as much pain as possible before using an opioid.	**False**	96	50	0.5
Children less than 11 years and child's pain intensity.	**False**	100	52.4	0.52
Patients' spiritual beliefs and pain suffering are necessary.	**True**	119	62.3	0.62
An initial dose of opioid analgesic and, subsequent doses	**True**	112	58.6	0.58
Giving patients sterile water (placebo).	**False**	75	39.3	0.39
Vicodin PO is approximately equal to 5-10 mg of morphine PO.	**True**	101	52.9	0.53
If the source of the patient's pain is unknown, opioids should not be	**False**	67	35	0.35
Anticonvulsant drugs such produce optimal pain relief after a single dose.	**False**	88	46	0.46
Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment.	**True**	113	59	0.59
Narcotic/opioid addiction	**True**	148	77.5	0.77
The term 'equianalgesia' means approximately equal analgesia	**True**	152	79.6	0.796
Sedation assessment recommendation and pain management	**True**	148	77.8	0.79

Table 2, shows correctly answered items from item (1-22) with high percent (79.6) is the item which is about "The term 'equianalgesia' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain

relief." The table also shows that only 14 items from the (22) were more than 50 percent or (above mean of 0.48).

Table 3: Frequency and percentage distribution of knowledge and attitude (multiple choice questions) regarding cancer pain management among health care providers at selected hospitals in A.A, 2018.

Multiple choice Questions	Correct Ans	N	%	Mean
The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is	Oral	71	37.2	0.37
The drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?	Morphine	158	82.7	.827
A 30 mg dose of oral morphine is approximately equivalent to:	10 mg IV	58	30.4	.30
Complication of respiratory depression, after persistent morphine administration	Less than 1%	61	31	.31
The most likely reason a patient with pain would request increased doses of pain medication is	Increased pain	84	44	.44
Which of the following is useful for treatment of cancer pain	D	91	47	.47
The most accurate judge of the intensity of the patient's pain is	Patient	90	48.7	0.468
How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?	5-15%	54	28.3	0.28
The time to peak effect for morphine given IV is	15 min	101	52.9	0.53
The time to peak effect for morphine given orally is	1-2 hrs.	66	34.6	.346
Following abrupt discontinuation of an opioid, physical dependence is manifested by:	Sweating yawning..	47	24.6	.24
Which statement is true regarding opioid induced respiratory depression:	OSA is risk factor	63	33	.33

As shown in Table 3, only two items were above 50%, the highest percent from the multiple choice items which is about 82.7. All except the two items were scored below mean (0.48) of the multiple choice items. More than 80% of the HCPs have good knowledge of medications which are recommended for cancer pain management whereas only 24% of them had good knowledge and attitude of drug withdrawal and dependence.

Table 4: Frequency and percentage distribution of the knowledge and attitude regarding cancer pain management (Case study items) among care providers at selected hospitals of A.A, 2018.

Case study questions	ans	N	%	Mean
Case study 35, A. Megersa is 25 years old and this is his first day following abdominal surgery.As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Megersa's pain.	**8**	46	24	0.24
Case B. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time.	**Morphine 3mg iv**	37	19.4	0.19
Case study 36. A: Kelem is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8. A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Robert's pain:	**8**	50	25.2	.25
Case study,36. B Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time	**Morphine 3mg iv**	42	22	0.22

Table 4 shows the correct answer percentage of the case study questions. All respondents scored far from mean (0.48), ranging from 0.19 to 0.25.

5.3. Practice items

Table 5: Frequency and percentage distribution of the practice items regarding cancer pain management among care providers working in selected hospitals of A.A, 2018.

Practice items	Category	N	%	Mean
Use of standard pain assessment tool for CPM	Yes	63	32.9	0.33
	No	128	67	0.67
Do you perform regular and ongoing assessment for a patient with cancer pain?	Yes	45	23.5	.236
	No	146	76.4	.764
How Frequent do you assess your patient's pain per day?	< 6 times	175	91.6	0.916
	≥ 6 times	16	8.4	0.083
Education for patient and family on cancer pain?	Yes	69	36.1	0.36
	No	122	63.8	0.638
Documentation habit	Yes	50	26.1	0.26
	No	141	73.8	0.74
Demonstration non pharmacological pain management for a patient with pain?	Yes	123	64.4	0.644
	No	68	35.6	0.356

The mean score of the health care providers practice regarding cancer pain management was 3. Only 31.9 % of the care providers have scored mean and above for the practice related items of the questionnaire. Out of the 191 participants only 63 of the care providers respond yes for utilization of a standard pain assessment tool, 8.4% of the care providers perform regular and ongoing assessment for a patient with cancer pain 6 or more times per day. Although the care providers practice for cancer pain management is found to be poor, nurses scored higher good practices of cancer pain management than physicians, as 36.3% nurses have good practices while only 24.6% physicians have shown good practices.

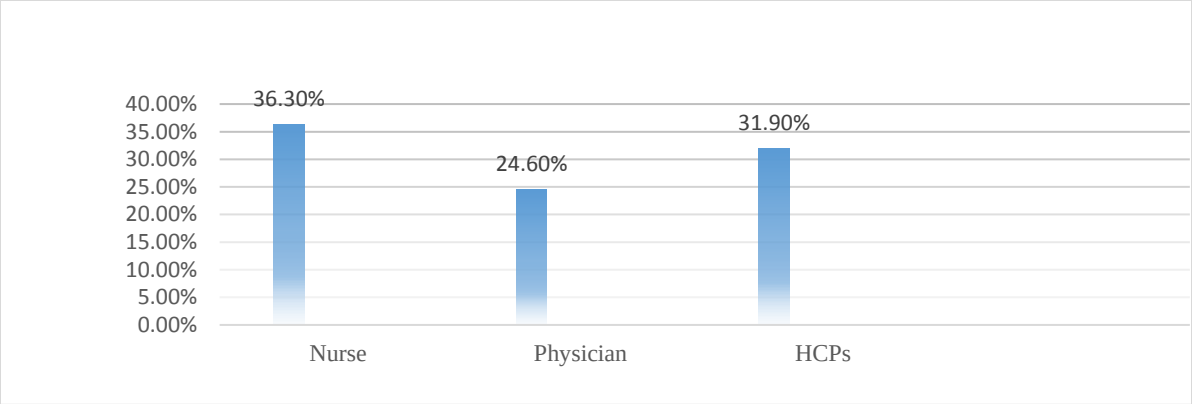

Figure 4: Health care providers practice regarding cancer pain management at selected hospitals of A.A, 2018.

5.4. Knowledge and attitude regarding cancer pain management and associated factors

In binary Logistic regression analysis only type of hospital, gender, profession, age difference among care providers, formal cancer pain management education in universities and monthly income were found significant determinant factors of knowledge and attitude of care providers. As shown in the table below the odds of knowledge and attitude regarding cancer pain management of participants from TASH was 2.44 folds more likely higher compared to participants from SPHMMC [COR: 2.44; 95% CI (1.3-4.65)]. Male participants were having 53.8% higher to knowledge and attitude survey than females.

In the multiple logistic regression analysis there is change in P value and OR and only some of the variables were found significant. Hospital difference; participants from TASH were 2.32 fold more knowledgeable and have favorable attitude than participants of SPHMMC [AOR: 2.32; 95% CI (1.20-4.44)]. Male participants had almost more than 50% better knowledge and attitude than females [AOR: 0.488; 95% CI (0.26-0.906)]. With regard to profession the odds of knowledge and attitude was increased by 2.88 folds for physicians [AOR: 2.88; 95% CI (1.7-4.11)]. The association among different age groups and knowledge and attitude survey also shows that Participants in the age group 23- 29 were 2.29 folds good than the age group 30- 39 above 40 years old participants were 17 folds good in knowledge and attitude. Having age greater than 40 years old and 23 to 29 indicates having good knowledge and attitude [AOR: 17; 95% CI (.007-0.73)] and [AOR: 0.126; 95% CI (0.012-1.3)].

Table 6: Knowledge and attitude survey regarding cancer pain management and associated factors among care providers in selected hospitals of A.A, 2018.

Characteristics	Category	KASRP		P value	COR	P value	AOR
		Poor %	Good				
Type of hospital	TASH	51.6%	48.4%	**0.005***	2.46 (1.3,4.65)	**0.010****	2.32 (1.20,4.44)
	SPHMMC	72.5%	27.5%	**0.00***	**1**		**1**
Gender	Male	35.4 %	53.8%	**0.012***	.47 (0.26,0.84)	**0.022***	0.488 (.26,.906)
	Female	64.6%	46.2%	**0.02***	**1**		**1**
Age group	23-29	78.8%	62.8%	**0.032***	**1**		**1**
	30- 39	20.4%	30.8%	0.061	1.89 (0.97,3.7)	0.082	17.08 (.007,.73)
	>40	0.9%	6.4%	**0.047***	9.08 (1.03,79.9)	**0.027***	0.126 (.012,1.3)
Profession	Physician	46.4%	53.6%	**0.007***	2.284 (1.24,4.1)	**0.006****	2.88 (1.7,4.11)
	Nurse	66.4%	33.6%	**0.00****	**1**		**1**
Monthly income	<3500	84.6	13.6	**0.001****	**1**		**1**
	3500-5000	72.5	27.5	.209	2.3 (.61,9.370)	0.696	3.4 (0.767,4.22)
	>5000	48.3	51.7	**0.003***	6.78 (1.9,24.13)	0.18	2.7 (.221,5.46)
Formal CPM education in university	Yes	59.4	40.6	**0.012***	2.01 (1.8,5.38)	0.57	1.2 (0.63,2.30)
	No	59.1	40.9	0.966	**1**		**1**

***** p value is significant at 0.05, ****** p value significant at 0.01

5.5. Practice and associated factors

Binary logistic regression illustrated that type of hospital, monthly income, profession, formal cancer pain management education in university and in service training on cancer pain management after started working were significantly associated with practice in cancer pain management and were transported to multivariate logistic regression.

In the multiple logistic regression analysis only taking in service training on cancer pain management and having good knowledge and attitude regarding cancer pain management remained significantly associated with good cancer pain management practice. However gender, income, taking formal cancer pain management education in university, type of hospital,

profession and experience in managing cancer pain did not associate with better cancer pain management practice.

Health care providers who have taken in-service training on cancer pain management had 1.435 folds higher good practice compared to those who didn't take training [AOR: 1.435; 95% CI (1.01-5.3)]. HCP who have good knowledge and attitude had 0.3 higher good practice compared to those who had scored poor knowledge and attitude [AOR: 0.31; 95% CI (0.154-0.626)].

Table 7: Practice regarding cancer pain management and associated factors among care providers in selected hospitals of A.A, 2018.

		Practice items					
Characteristics	**Category**	Poor %	Good %	**P value**	**COR**	**P value**	**AOR**
Type of hospital	TASH	61.5	68.9	**.001****	1.38(1.72,2.64)	0.319	1.42(0.7,2.88)
	SPHMMC	38.5	31.1	0.327	**1**		**1**
Gender	Male	69.6	30.4	0.709	1.24(.607,2.08)		
	Female	66.97	33.03		1		
Experience in CPM	yes	68.1	31.8	0.904	0.933(.305,2.8)		
	No	66.6	33.3		**1**		
Monthly income	< 3500	14.6	4.9	**.027***	**1**		**1**
	3500-5000	21.5	37.7	0.133	0.374(.10,1.34)	0.113	0.32(.83,1.3)
	>5000	63.8	57.4	0.054	1.948(.98,3.83)	0.277	1.595(.688,3.7)
Profession	Physician	40.0	27.9		**1**		**1**
	Nurse	60.8	72.1	**.002***	1.72(1.01,3.34)	0.167	.565(.251,1.27)
Training on CPM	Yes	30.8	39.3	0.226	1		
	No	69.2	60.7	**.001****	1.45(1.12,6.82)	**0.02****	1.435(1.01,5.3)
CPM education	Yes	30.8	39.3		**1**		**1**
	No	69.2	60.7	**.048***	1.46(.36,.989)	0.379	.741(.379,1.45)
Knowledge & attitude	Good	36.1	4.7		**1**		**1**
	Poor	58.6	0.52	**.002***	0.37(.196,.686)	**.012****	0.31(0.154,.626)

***** p value is significant at 0.05, ****** p value significant at 0.01

6. DISCUSSION

The current study examined the knowledge attitude and practice of health care providers (nurses and physicians) regarding cancer pain management at selected hospitals of Addis-Ababa (Tikur Anbesa Specialized Hospital and St Paul's Hospital). Around 200 participants were involved in the study. The overall percentage of correct answers for the knowledge and attitude regarding cancer pain management questionnaires was 40.2% demonstrating physicians (53.1%), had better knowledge than nurses (33.6%).

This is comparable with the studies done in Iran, Shiraz University of medical sciences among 213 health care professionals (43.1%), nationwide multi center survey in Korea and Saudi Arabia (44%) (44,47) (38,44,47). However, the current finding is high compared to Jordanian study (28.7%) (52). This may be due to difference in educational system, curriculum development and health care providers' commencement towards reading different guide lines relatively.

The study revealed that only 33.6% of nurses' working in the selected hospitals of Addis Ababa scored mean and above (≥ 0.48) of the knowledge and attitude regarding cancer pain management. It was found consistent compared to the study done in Ethiopia at selected health institutions offering cancer treatment (35.4%) (54). Its low compared to the studies done in Jordan (42.7%) and Iran Shahid Soudaghi hospital (65.1%) (39,60). This may be due to lack of on work trainings and inadequate cancer pain management guide lines and limited lectures on cancer pain management in under graduate nursing courses in the current study area. However it is high compared to the study done in Turkey (15.8%) (42). This may be due to difference in methodology and instrument to assess cancer pain management knowledge and attitude among care providers.

Fifty three percent of physicians scored above 50% of the knowledge and attitude regarding cancer pain management questionnaire. This shows consistent result with studies done in Turkey Ankara University hospital and Iran on resident physicians knowledge and attitude (43,48).

Only 17.3% of physicians didn't knew about equi-analgesia, 75% couldn't answer pain numbering system (case study questions) correctly, and 52.17% unnecessarily worried about the addiction risks of opioid's. This result is consistent with the study done in South Korea (61) among resident physicians in some cases. The South Korean study revealed that 76.7% did not know about equi-

analgesia, 74.9% incorrect response for pain numbering system, and 48.6% unnecessarily warried about risks of opioid's. The wrong answer for the equi analgesia is lower in the current study. This may because of physicians are working by rotation that let them share knowledge of equi analgesia from different health care providers different departments of the current study.

Regarding practice on cancer pain management, only 31.9% of the care providers have good practice regarding cancer pain management. Out of the 191 participants only 63 of the care providers respond yes for utilization of a standard pain assessment tool, 8.4% of the care providers perform regular and ongoing assessment for a patient with cancer pain 6 or more times per day. Although the care providers practice for cancer pain management is found to be poor, nurses scored higher good practices of cancer pain management than physicians, as 36.3% nurses have good practices while only 24.6% physicians have shown good practices.

Compared to the studies done in Korea, Iran and Saudi (34,48,50) on health care providers the overall practice is consistent although quite poor. Regarding clinicians practice to cancer pain management, the study showed that only 73.4% of physicians were found poor in practice of cancer pain management. This result is consistent with the studies done in Korea, Jordan and survey of 10 Asian countries (52,55,56).

However the finding is higher than a study done in Iran Shahid Beshati school of medicine teaching University (11.2%). This may be due to difference in questionnaire items. The finding is low compared to the study done in China (27%) this may be due to research instrument difference and technological advance and cultural difference. Nearly two third (63.75) of nurses had poor practice regarding cancer pain management. Although the result is consistent with the study done in Ethiopia (69%), it's far from moderate compared to the study done in Jordan. This may be due to cultural difference, lack of training in cancer pain management and poor knowledge and attitude regarding cancer pain management.

In this study participants from TASH were 2.32 fold more knowledgeable and have favorable attitude than participants of SPHMMC. This may be due to the hospitals focus of cancer pain management training provision to health care providers involved in cancer pain management besides along term provision of cancer care could cause a difference in pain outcomes.

The association among different age groups and knowledge and attitude survey also shows that Participants in the age group greater than 40 years old were having 9 folds better knowledge and attitude than the age group 23-29. This age group is the least prevalent and working age group in the study areas. And therefore the matureness and better strength compared to the other ager groups may lead them to being productive intention which may in turn lead them to have better knowledge, attitude and practice regarding cancer pain management.

According to the Asian survey of cancer pain management practice, health care providers who had more years of experience and taken cancer pain management training were found having better knowledge and attitude. Our study also shows consistent association of in service training on cancer pain management and knowledge, attitude and practice (55).

In the finding of this study Male participants had as more as 50% better knowledge and attitude than female participants. This shows consistent association between gender and knowledge and attitude regarding cancer pain management as of the studies done in south Korea, Saudi Arabia and Iran Shahid Beshati hospital (34,50,52) yet studies done in Iran and Baghdad didn't agree with the association of the study's finding (44). This may be due to a difference in study design.

According to the study conducted in Jordan being physician was significantly associated with higher level of knowledge attitude. In contrast, being a nurse was significantly associated with lower level of knowledge and attitude (52). This is consistently related to our study with regard to profession, studies done in Turkey, Korea and Iran (41,42,56) consistently showed nearly similar association of variables to our study. Physicians had better knowledge and attitude whereas nurses perform good practice than physicians. This may be due to physicians take better training on cancer pain management as well as better inclusion of formal cancer pain management education in their curriculum. Whereas nurses may have better initiative and concern compared to physicians in this study.

A study done in Jordan showed that HCP who have good knowledge and attitude have good cancer pain management practice this is comparable with this current study as having good knowledge and attitude showed good cancer pain management practices (51).

Taking in service training on cancer pain management remained significantly associated with practice regarding cancer pain management. Health care providers who have taken in-service

training on cancer pain management had good practice compared to those who didn't take training. This is comparable with studies done in Asia like Asian survey of cancer pain management, south Korean study on cancer pain management, Jordan, Iraq and Iran (39, 45, 48, 49, 53). It is also consistent with studies done in Ethiopia Addis Ababa (13, 54).

7. STRENGTH AND LIMITATIONS

Strength

- Many different variables considered as associated factors of cancer pain management were assessed and analyzed to illustrate their relative influence to cancer pain management.
- Standard and valid questionnaire used in other studies was adopted and adapted for this study.
- Pretest was done before actual administration of the prepared tool at actual subjects.

Limitation

- The respondents might not provide accurate information.
- Cross sectional study makes determining causality impossible.
- Even though the study focuses in health care providers the study subjects are only nurse and physicians. Therefore the result may not represent all health care providers knowledge attitude and practices levels in the selected hospitals.
- Though the study area mentioned selected hospitals of Addis Ababa the result may not represent knowledge attitude and practices regarding cancer pain management in Addis Ababa other than TASH and SPHMMC.

8. CONCLUSION AND RECOMMENDATION

Conclusion

Based on the findings of the study the principal investigator made the following major conclusions

- The investigator revealed that Health Care Providers(HCPs) working in the two hospitals (TASH and SPHMMC) have poor knowledge, attitude and practice regarding cancer Pain management.
- Physicians showed better knowledge and attitude of cancer pain management
- Nurses performed better in cancer pain assessment and documentation practices.

- Health care providers working in TASH had good knowledge, attitude and practice regarding cancer pain management
- Gender, monthly income, taking formal cancer pain management education in university and profession were significantly associated with cancer pain management knowledge and attitude.
- In service training on cancer pain management and having good knowledge and attitude was significantly associated with cancer pain management practices.

Recommendation

Based on the findings of the study the following recommendations are forwarded to concerned bodies

- Quality improvement projects regarding cancer pain management need to be conducted, supervision and monitoring of daily activities of health Care providers (HCPs) must be done, ensuring that cancer pain is assessed and documented together with other vital signs.
- In service training regarding cancer pain management should be given to nurses and physicians who are working in cancer centers
- Pain management (cancer pain management) should be incorporated and reinforced in to nursing and other health related professions curriculums.
- Guidelines and protocols must be designed to improve the nurses and physicians knowledge, attitude and practice regarding cancer pain management for good outcomes and wellbeing of cancer patients.
- Unit managers and matrons in collaboration with training and research center and director of nursing should encourage and organize continues professional development, provide in service training regarding cancer pain management and promote for upgrading the health care providers education levels.
- The hospitals should make sure of development and implementation of cancer pain management documentation policies and standard guide line and setup measures to monitor the implementation through regular clinical audit quality improvement projects regarding cancer pain management.

- The hospitals should make effective committee of cancer pain management involving all domains of health care providers included and setup the ways of reporting and follow up of cancer pain management activates.

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ANNEXSES

ANNEXS A. QUESTIONNAIRE

Code _____

R.	Socio- demographic questions	
101	Age	In_____ years
102	Gender	1. Female 2. Male
103	Religion	1. Orthodox Christian 2. Muslim 3. Protestant 4. Other
104	What is your Profession ?	1. Nurse 2. Physician
105	If your answer is 1 then what is your level of education?	1. Diploma 2. BSc nurse 3. MSc nurse 4. Other
106	If your answer for 106 is 2 then what is your level of education	1. GP 2. Resident 3. Specialist
107	Current working area (ward)	1. Oncology 2. Hematology 3. Medical 4. Surgical 4. Other (specify)
108	Year of experience in care provision (years)	In _____years
109	Do you have experience in managing cancer pain ?	1. Yes 2. No
110	Have you learned formal cancer pain management education in your university?	1. Yes 2. No
111	Have you taken in service trainings on cancer pain management after you start working?	1. Yes 2. No
112	Monthly income	Ethiopian birr

Section II. knowledge and attitude survey regarding pain questions

201	Vital signs are always reliable indicators of the intensity of a patient's pain.	1. True 2. False
202	Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.	1. True 2. False
203	Patients who can be distracted from pain usually do not have severe pain	1. True 2. False
204	Patients may sleep in spite of severe pain	1. True 2. False
205	Aspirin and other non- steroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.	1. True 2. False
206	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.	1. True 2. False
207	Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent.	1. True 2. False
208	The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.	1. True 2. False
209	Opioids should not be used in patients with a history of substance abuse.	1. True 2. False
210	Elderly patients cannot tolerate opioids for pain relief.	1. True 2. False
211	Patients should be encouraged to endure as much pain as possible before using an opioid.	1. True 2. False
212	Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity.	1. True 2. False
213	Patient's spiritual beliefs may lead them to think pain and suffering are necessary	1. True 2. False

214	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
215	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.	1. True 2. False
216	Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5 - 10 mg of morphine PO.	1. True 2. False
217	If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.	1. True 2. False
218	Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.	1. True 2. False
219	Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment.	1. True 2. False
220	Narcotic/opioid addiction is defined as a chronic neuro biologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.	1. True 2. False
221	The term 'equianalgesia' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief.	1. True 2. False
222	Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.	1. True 2. False

Multiple choice questions (circle the answer)

223. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is, A. intravenous B. intramuscular C. subcutaneous D. oral E. rectal

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

A. codeine B. morphine C. meperidine D. tramadol

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

A. Morphine 5 mg IV B. Morphine 10 mg IV

C. Morphine 30 mg IV D. Morphine 60 mg IV

226. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously.

The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is A. less than 1% B. 1-10% C. 11-20% D. 21-40% D. > 41%

227. The most likely reason a patient with pain would request increased doses of pain medication is A. The patient is experiencing increased pain

B. The patient is requesting more staff attention

C. The patient is experiencing increased anxiety or depression.

D. D. The patient's requests are related to addiction.

228. Which of the following is useful for treatment of cancer pain?

A. Ibuprofen (Motrin) B. Hydromorphone (Dilaudid)

B. Gabapentin (Neurontin) D. All of the above

229. The most accurate judge of the intensity of the patient's pain is

A. the treating physician B. the patient's primary nurse

C. the patient D. the pharmacist

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

A. < 1% B. 5 – 15% C. 25 - 50% D. 75-100%

231. The time to peak effect for morphine given IV is ___ A. 15 min. B. 45 min C. 1hr D. 2hrs

232.. The time to peak effect for morphine given orally is, A. 5 min B. 30 min C. 1-2 hr D. 3 hrs

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

A. sweating, yawning, diarrhea and agitation, when the opioid is abruptly discontinued. B. Impaired control over drug use, compulsive use, and craving. C. The need for higher doses to achieve the same effect. D. A and B

234. Which statement is true regarding opioid induced respiratory depression:

A. More common several nights after surgery due to accumulation of opioid.

B. Obstructive sleep apnea is an important risk factor.

C. Occurs more frequently in those already on higher doses of opioids before surgery.

Can be easily assessed using intermittent pulse oximetry.

Case Studies

Two patient case studies are presented. For each patient you are asked to make decisions about pain and medication. Directions: Please select one answer for each question.

1. Patient A: Megersa is 25 years old and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information:

BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

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

0 1 2 3 4 5 6 7 8 9 10

No pain/discomfort Worst Pain/discomfort

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

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

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

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

0 1 2 3 4 5 6 7 8 9 10

No pain/discomfort Worst Pain/discomfort

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

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

Section three: **practice questions**

301.	Utilization of a standard pain assessment tool.	1. Yes 2. No
302	Do you perform regular and ongoing assessment for a patient with cancer pain?	1. Yes 2.No
303	How Frequent do you assess your patient's pain per day?	_____
304	Education for patient and family on cancer pain.	1. Yes 2. No
305	Documentation habit	1. Yes 2. No
306	Do you demonstrate non-pharmacological pain management for a patient with cancer pain?	1. Yes 2. No