

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ANESTHESIA



KNOWLEDGE AND ATTITUDE OF ANESTHETISTS AND PACU NURSES ON
PEDIATRIC POST OPERATIVE PAIN MANAGEMENT AT TIKUR ANBESA
SPECIALIZED HOSPITAL

BY TIGIST MANYAZEWA

A THESIS TO BE SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE OF
HEALTH SCIENCES, DEPARTMENT OF ANESTHESIA FOR THE PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR THE MASTER DEGREE IN ANESTHESIA

JUNE 2017

ADDIS ABABA, ETHIOPIA

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Knowledge and Attitude of Anesthetists and PACU nurses on Pediatric Post-Operative Pain Management at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia 2017.

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_____	Examiner	_____	_____

ABSTRACT

Background: Pain in children is not different from that in adults and can lead to similar detrimental effects on the body. Poor attitude and lack of knowledge about pain had been demonstrated in which professionals and their pediatric patients respond to the varied dimensions of pain management. The aims of this study were to survey the knowledge and attitudes of Tikur Anbesa Specialized Hospital Pediatrics Post-Operative Unit and Operating theater professionals towards pediatric pain by develop a valid questioner to assess pain knowledge and attitude.

Objective: - To assess the knowledge and attitude regarding PPOPM among PACU nurses and anesthetists at Tikur Anbesa Specialized Hospital, Addis Ababa, Ethiopia.

Methods: A cross-sectional survey was employed among PACU nurses and Anesthetists using a validated 31-item consisting five likert scales. Results were depicted using means, percentages, figure and tables. Comparisons among groups were performed through Binary and multivariate logistic regration, to make a conclusion about the hypothesis with 95% confidence the p-value of the chi-square should be less than 0.05, which is alpha level associated with a 95%CI.

Results: - Bivariate and multivariate logistic regration among professionals was performed. PACU nurses 21 and anesthetists 46, total of 67 (99.7%) professionals have completed a 31-item questionnaire evaluating knowledge and attitude about PPOPM. The mean percentage of correct answers for knowledge was 50.7% and 73.1% for attitude. General principles of knowledge and attitude items were seventeen and fourteen respectively. Nurses had a mean score of correct answer of 42.9% followed by anesthetists 54.3%.

Conclusion: - In this study which augments the universal concern of inadequate knowledge and attitude regarding to pediatric pain management. Thus, the situation demands various educational and quality improvement initiatives that could enhance the professional's knowledge in the area of pain management. Overall attitude score was encouraging.

Keywords: - *knowledge, attitudes, pediatric pain, pain management.*

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First and principal Glory goes to the Almighty God; through Him, all things are possible. In Him, I put all my faith for strengthening and supervision! —Emebete jemareye banchi nebere fitsameyem Bekenesh Tekenawene Amesegenesh zend Silefekedeshilegn Amesegeneshalehu”.

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ACRONYMS

AAU-Addis Ababa University

AMA-America Medical Associations

ANS- America Nurses Association

ASA-American Society of Anesthesiology

CHEOPS -The Children's Hospital of Eastern Ontario Pain Scale

HSS – Hospital for Special Surgery

HRQOL- Health Related Quality Of Life

JCAHO-Joint Commission on Accreditation of Healthcare Organizations

NRS – Numeric rating scale

NICHD - National Institute of Child Health and Development

NSAID- Non-steroidal anti-inflammatory drugs

PACU- Post Anesthesia Care Unit

PACU N- post Anesthesia Care Unit Nurse

PCA- Patient control analgesia

POPM- post operative pain management

PPOPMP- Pediatric Post-Operative Pain Management Practice

SOM – School of Medicine

SPSS- Statistical Package for Social Score

TASH- Tikur Anbesa Specialized Hospital

VAS- Visual analog scale

WHO- World health organization

CHAPTER ONE

INTRODUCTION

1.1. Back ground

After the first public demonstration of ether anesthesia at the Massachusetts General Hospital in 1846, the news that we have conquered pain spread around the world [1]. What not understood at the time that the potent hypnotics merely suspend pain perception, but do little to change pain transmission? The addition of neural blockade or strong analgesics (notably opioids) needed to halt the pain processes that excite the nervous system, trigger neuroendocrine stress responses and produce pain once it can be perceived [2].

Pain treatment in children is often insufficient and less potent analgesics used compared with those used by adults. There is a tendency to use simple analgesics and to use them later in the course of disease. Personnel treating children are often unfamiliar with children, insufficiently trained and have an unrealistic fear of cardiorespiratory depression and addiction [3]. However, babies, even premature, can sense pain, although the response is less focused [4]. The provision of analgesia, during and after surgery, now considered a vital and integral part of anesthesia and its central goal to reduce the stress and derangements of surgery. Anesthesiologists apply their knowledge of pharmacology, anatomy, physiology, pathophysiology, surgery, and medicine toward optimizing pain relief. Whether by means of an informal relationship with surgical colleagues, or a more structured service an acute pain service they play a key role in managing postoperative pain as experts; they help educate others in the tools of pain management and teach the importance of pain control in terms of postoperative recovery [3, 5].

For many years, pediatric procedural and postoperative pain has undertreated or not treated [6]. In some areas, this practice still exists and is reflection hold true. The appropriate management of persistent related to the infants ability to perceive pain. New literature exists showing that these former beliefs do not true. The appropriate management of postoperative pain is contingent on a cooperative effort from pediatric surgeons, pediatric anesthesiologists‘ pediatricians and parents [7].

In developed countries acute pain services usually staffed by a mixture of attending physicians (sometimes pain trained and commonly anesthesiologists), nurses, and pain fellows in academic centers and anesthesia residents.

It is now a well-established fact which is proved by various studies by neuroscientists and pain specialists that the components required for pain perception are fully developed at about 25 weeks of gestation while the endogenous descending inhibitory pathway remain underdeveloped till mid-infancy [6]. The under treatment of acute postoperative pain in children can lead to activation of physiological and biochemical stress response leading to impaired metabolic, endocrine, neurologic pulmonary and immunologic functions [8]. Ongoing comprehensive assessment the foundation of effective pain management and determine the cause effectiveness of treatment and impact on quality of life for the patient and their family [9].

1.2. Statement of the problem

Pain treatment in children is often insufficient and less potent analgesics used compared with those used by adults. There is a tendency to use simple analgesics and to use them later in the course of disease.

Personnel treating children are often unfamiliar with children, insufficiently trained and have an unrealistic fear of cardiorespiratory depression and addiction [10]. However, babies, even premature, can sense pain, although the response is less focused [6].

It is a challenging task to assess pain appropriately in pediatric population as they have limited experience [5, 11].

The use of strong opioid medications was associated with significant respiratory depression and perceived potential addiction in adult patients and small children usually avoided [12].

1.3. Justifications

Identifying the knowledge and attitude of pediatric post-operative pain management was mandatory for better pediatric patient outcome and satisfaction of parents after anesthesia and surgery. This study expected providing benefits to:

Hospital administrators and policy makers

It provides information to improve the quality of education to professionals through workshop, training and refresher course to bring quality care in PACU and anesthesia services as well.

Researchers

Will provide experience for further research activities.

Professionals (Anesthetists and PACU Nurses)

Improve their knowledge and attitude to better outcome for those special paediatrics age groups.

1.4. Research Question or Hypothesis

The researcher address the major question that was

-  What is the attitude of nurses and anesthetists regarding pain and pain management?
-  What is the relationship among socio demographic variables and PACU Nurses' and anesthetists knowledge and attitudes toward pain and pain management?
-  How manage pain as necessary as pediatric patient condition?
-  How advance pain management knowledge and attitude by anesthetist and nurses looks like?
-  What are the factors that affect pediatric pain management?

CHAPTER TWO

LITRATURE REVIEW

The idea of the acute pain service arose during the 1980s when “walking” epidurals made. Epidural analgesia suddenly more feasible for postoperative patients, and when the microchip made patient-controlled analgesia (PCA) pumps small enough to have wide applicability. Initially, pain services ran both these modalities, developed treatment protocols, and taught nurses and others how to manage these new therapies. Soon surgeons and nurses became familiar with the use of PCA, so that this component of postoperative management, at least for routine cases, largely taken over by them. Epidurals and other continuous per neural techniques remains the province of anesthesiologists, and the core function of most acute pain services is to manage postoperative epidural analgesia [13, 35].

Pain as defined by International Association for study of pain, is unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage [3, 14]. The mechanism of pain perception in pediatrics population is different, complex and often not adequately understood. Rather than emphasizing on clinical evaluation alone. Uncontrolled postoperative pain may activate the sympathetic nervous system and thereby contribute to morbidity or mortality.

Special populations (Neonates, Infants, and Children)

Throughout childhood, the management of pain presents special challenges. Very young children neonates and infants tolerate opioids poorly because they are prone to apnea and their handling of this and other groups of drugs altered by several factors, including slow conjugation by the liver. It is no longer acceptable to avoid giving opioids to neonates on the basis that they don't feel pain, as there is now a great deal of evidence that they do feel pain just as do adults, and that untreated pain can produce an imprint that may have long-term psychological, and even physical, consequences [31].

Pain Assessment

Pain is a complex, multidimensional symptom resulting from a combination of tissue damage and nociception, previous pain experience, personal beliefs, culture and mood. This explains why patients with the same degree of tissue damage can differ widely in their pain reports. Because there is no objective measure of pain, we must trust that patients' report of pain reflects their pain experience or distress [15].

Pain assessment is critical to optimal management intervention while pain is a highly subjective experience; its management necessitates objective standards of care [5,16].

Many institutions record pain as a "fifth vital sign" on the vital signs chart, especially since the introduction of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) mandate; others have a policy of recording a pain level in the medical record[17].

Wherever it documented, the recorded level is useful for communication between medical professionals and for assessing trends in an individual's pain level. Verbal numeric rating scales are most commonly chosen to measure acute pain. The patient asked to rate pain on a numeric scale, usually 0–10, where 0 is no pain and 10 is the worst pain imaginable. Verbal descriptive scales also be used, but are difficult for postoperative patients to cope with. Examples would be "mild, moderate, or severe" or "mild, discomforting, distressing, horrible, or excruciating." Visual analog scales used in research and unlike verbal numeric rating scales validated for this purpose. The patient marks on a measured line labeled "no pain" at one end and "worst pain imaginable" at the other. Visual analog scales rarely used in clinical practice, again because compliance is difficult for postoperative patients [18].

Although the use of pain scales is necessary for documentation purposes, the clinical assessment of pain should always include asking patients to describe their pain and their pain experience since the last assessment. This is likely to reveal more information than the simple level. At the same time, the clinician should assess pain location, radiation, quality, and etiology. It is always important to expand the assessment to identify or exclude sources of pain not accounted for by the primary and expected source.

Assessment of pain in children, especially young children, is much more difficult. Although developmentally normal children older than 6–7 years of age will respond to adult assessment

tools, children younger than this need a different approach. Infants, neonates, and very young children (0– 4 years of age) are the most challenging. Children as young as 3 years old may be able to express pain and point to a painful area, but are unlikely to be able to rate their pain. Children younger than this are unable to express pain other than by crying or screaming, posturing, grimacing, palmar sweating, and respiratory and heart rate changes—signs that are not specific to pain. Older children (4–7 years of age) are usually able to rate their pain, but it is helpful to use a scale designed for children, such as the Wong-Baker FACES Pain Rating Scale (Fig.–1). Parents are usually better able to recognize the presence of pain in their children than are any of the other caregivers, and they should always be asked to contribute to the assessment process [19].

Age of children will influence their perception of pain. Pain evaluated in terms of self-report, physiological changes or behavioral observation. Physiological indicators of pain are often unreliable but may include tachycardia, restlessness, pallor, vomiting, or blood pressure increases. Children older than four years can usually talk about their pain and those older than six to eight years can use visual analogue pain scale.

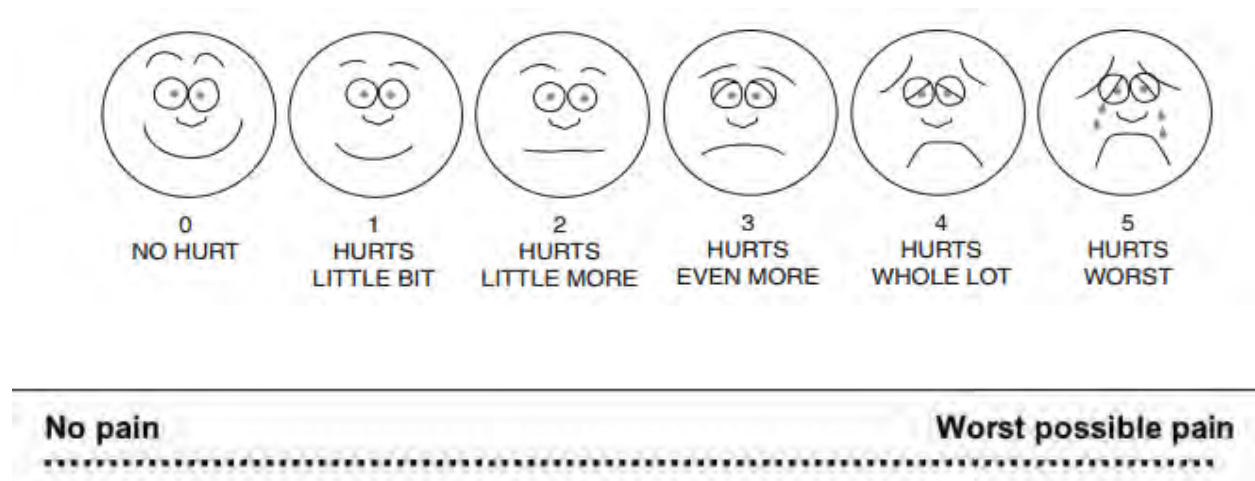


Figure 1: Possible pain face scales for children. [17, 36]

Figures: Tools Commonly Used to Rate Pain

Visual Analogue Scale

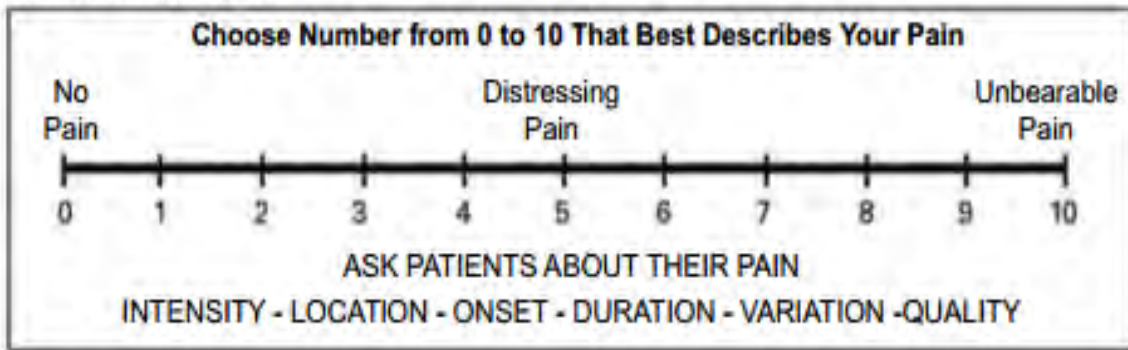


Figure 2. Tools commonly used to rate pain [20].

Behavioral rating scales

Which use non-verbal behavior to assess pain, are probably the most reliable indication of pain in children who cannot verbalize their pain accurately? The Children's Hospital and CRIES are both reliable and useful.

The approach to pain relief in children

A holistic approach including drugs, but also psychological preparation, regional analgesia, play, music and art therapy, reflexology, aromatherapy, hypnosis, acupuncture, gentle handling and supportive positioning may provide the best results, depending on the cause of pain. The organizational aspects of a pain service for children are very important. Inexperience and uncertainty amongst personnel are reasons why children's pain treated inadequately. Where definitive protocols and adequate training are present, pain relief for children has been found to be adequate [21].

Psychological support

Fear, anxiety and stress worsen pain. These can be minimized if good contact is made with both the child and the parents during the preoperative visit. Everything should be explained in concrete terms (abstract thoughts only develop around five to six years). If a picture book or toys can be used to demonstrate procedures, understanding will be greatly enhanced [22].

Drugs

Medications can be administered orally, intravenously, intramuscularly, mucosal, subcutaneously, transcutaneous and rectally. The exact mode of administration will depend on the available resources and on the training and experience of the caring personnel. A multimodal approach, using more than one method, increases the success rate.

A child should not be denied adequate pain relief for fear of respiratory arrest or addiction, which is not a problem if the drugs are, used correctly [23]. A special group of babies is the premature babies, who tend to get respiratory arrest postoperatively when opioids are used intraoperative. In this group of children, opioids should be avoided until 60 weeks post conception. Children should always be observed with at least a pulse ox meter, respiratory monitor and apnea blanket in a high care unit if they received any opioids. Intravenous paracetamol is now available in South Africa. A loading dose of 20 mg/kg, followed by 15 mg/kg four hourly to a maximum of 60 mg/kg, may be used in children heavier than 33/ kg.

Management of postoperative pain common recommendations [3]

Minor surgery

Acetaminophen and NSAIDs

Plus

Peripheral nerve block, caudal blocks, or wound infiltration when applicable

Plus

Intravenous opioids in single doses, when needed

Major surgery- Abdominal thoracic, orthopedic, or urogenital

Acetaminophen and NSAIDs

Plus

Opioids

Continuous intravenous opioids in children <6 years of age

Patient-controlled analgesia with opioid in children >6 years of age

Regional anesthesia

Continuous epidural analgesia, or

Continuous paravertebral analgesia

Planning for the Postoperative Experience

Anesthesiologists and anesthetist play a key role in preparing children and their parents for the postoperative period and the pain the children are likely to experience. First, they can explain what is going to happen and how pain will be managed and assessed. They can explain treatment options and help parents (and older children) select the right approach. Often an intervention such as an epidural, a single-shot caudal, or a nerve block is helpful, and these options can be discussed.

The future better understanding of the mechanisms and physiology of acute pain and nociceptors is the goal of a stress-free anesthetic. With minimal post-operative discomfort is attainable. No single therapy can achieve this goal. A multimodal approach using different drugs and techniques can reap the highest benefit and reduce the side effects. Some newer agents that may offer better therapeutic benefits.

Evidence suggests that surgery suppresses the immune system and this suppression the immune system is proportionate to the invasiveness of the surgery [24]. Good analgesia can reduce this deleterious effect. Data available indicate that afferent neural blockade with local anesthetics is the most effective analgesic technique.

Around 4 million children undergo inpatient surgery in the United States each year, however little is known about the impact of surgery and postoperative pain on children's health-related quality of life (HRQOL) during the weeks and months after surgery. We measured pain and HRQOL in a large heterogeneous pediatric post-surgical population from baseline 1-month follow up Over a 20 month period. parents of 915 children age 2-18 years (mean=9.6years), 50% male, 56% white admitted to surgical services at a children's hospital enrolled in the study Parent participants reported on socio demographics, child HRQOL and pain characteristics at baseline and 1 month after discharge [25].

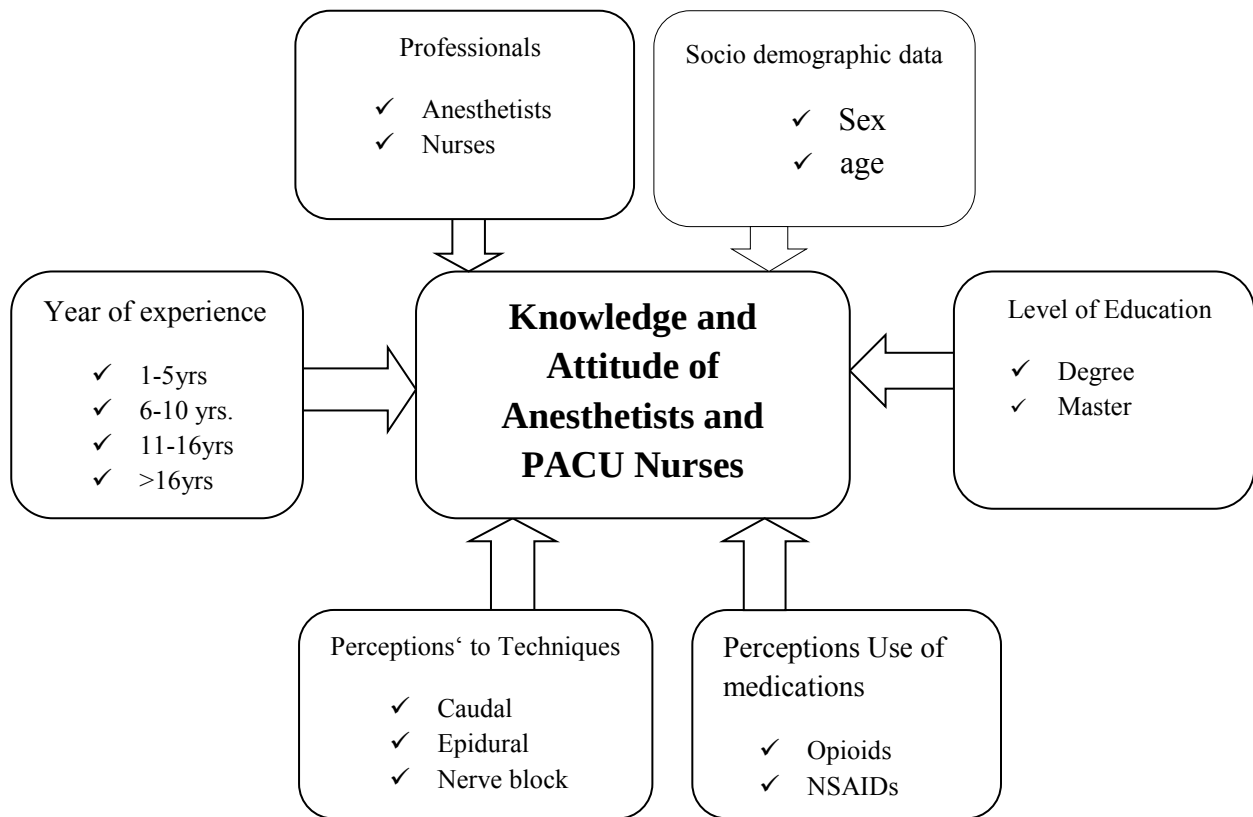
Although most of the children of the reverred to baseline by 1 month after hospital discharge, 23% of children had a significant decline in HRQOL. Logistic regression analyses found that increasing child age (odd ratio =2.1 for age 13-18 years) and the presence of moderate to severe pain at 1month (odds ratio5.7) was significantly associated with deterioration in HRQOL to the baseline level for most children.

PERSPECTIVE: This study addresses an important gap in the literature, knowledge and attitude of pediatric post-operative pain management undergoing a wide range of inpatient surgeries.

Post-operative pain control generally managed by anesthesiologists and anesthesiologists, because they offer regional anesthetic techniques as well as pharmacological expertise in analgesics. Concerns over increased cost may be unjustified because some studies have demonstrated lower mortality and morbidity as well as reduced hospital cost, with these techniques [26].

The anesthesia team emphasizes management of analgesia, airway, cardiac, pulmonary, and metabolic problems, whereas the surgical team generally manages any problems directly related to the surgical procedure itself. Based on the assumptions that the average PACU stay is 1 hr. and that the average inpatient procedure lasts 2–3 hr., a ratio of one recovery nurse for two patients is generally satisfactory. However, staffing for nursing care should be tailored to the unique caseload requirements of each facility. If the operating room schedule regularly includes pediatric patients or frequent short procedures, a ratio of one nurse to one patient is needed [27].

Conceptual Framework



CHAPTER THREE

OBJECTIVES

3.1. General objectives

The main objective of this study is to assess the knowledge and attitude of Anesthetists and PACU nurses on pediatrics post-operative pain management.

3.2. Specific objectives

- ✚ To assess the knowledge of PACU Nurses and anesthetists among pediatric post-operative pain management.
- ✚ To assess the attitude of PACU nurses and anesthetists among pediatrics pain management.

CHAPTER FOUR

METHODOLOGY

4.1. Study area and period

This study was conducted at Tikur Anbesa Specialized Hospital, Addis Ababa Ethiopia from 5th March to 4th April 2017. Addis Ababa Between 1889 to 1891 became Ethiopia's capital when Menelik II became Emperor of Ethiopia. Prior to 1972, the SOM was located on the main campus for preclinical training and then Princess Tsehay Memorial Hospital (now, the Armed Forces General Hospital) for clinical training. Later, with the opening of the Tikur Anbesa Specialized Hospital in 1972, the hospital became the only site for training Medical Doctors.

In Ethiopia TASH is the largest referral and teaching hospital, Addis Ababa University, School of Medicine found in Addis Ababa Lideta sub city and sees approximately 370,000- 400,000 patients a year but the exact number is not known. The emergency department sees around 80,000 patients a year. The hospital has 800 beds, with 169 specialists. It got fourteen major operating theatre rooms. It is the training center for fellows, postgraduate, undergraduate, medical students, dentists, nurses, radiographers and laboratory technicians. It provides different types of elective surgery for over 696 pediatrics patients within two days per week annually besides other Health services. There are 21 PACU Nurses and 47 Anesthetists in the hospital [28].

4.2. Study Design and Setting

An institutional based quantitative, cross sectional study was conducted at TASH from March to April 2017.

4.3. Population

4.3.1. Source population

✚ Anesthetists and PACU nurses that work at TASH during the study period

4.3.2. Study population

✚ All anesthetists and PACU nurses that work on pediatric age groups at TASH, during the study period.

4.4. Eligible criteria

4.4.1. Inclusion criteria

- ✚ All anesthetists and PACU nurses that working on pediatrics post-operative pain management.

4.4.2. Exclusive criteria

- ✚ Anesthetists or PACU Nurses who was not assigned at pediatric surgery unit during the study period

4.5. Sample size and sampling technique

All PACU nurses and anesthetists that assigned at pediatric surgery unit during the study period were included.

4.6. Study variables

4.6.1. Dependent

- ✓ Knowledge and Attitude of PACU Nurses and Anesthetists

4.6.2. Independent

- ✓ Age
- ✓ Sex
- ✓ Profession
- ✓ Place of work
- ✓ Level of education
- ✓ Work experience
- ✓ Perceptions‘ for pediatric pain
- ✓ Perceptions‘ for opioids
- ✓ Perceptions‘ for techniques (caudal, epidural, nerve blocks)
- ✓ Uses of medications (NSAIDs, narcotics)
- ✓ Beliefs of destruction

4.7. Operational definitions

- ✚ Analgesia: – Absence of pain in response to painful stimulus.
- ✚ Good knowledge: - participants those scored knowledge questions above median.
- ✚ Poor knowledge: - Participants those scored knowledge questions below median.
- ✚ Knowledge: - is defined as the fact or condition of knowing something with familiarity gained through experience or association (Merriam-Webster Online Dictionary, 2012).
- ✚ Multimodal analgesia: - Absence of pain by using medication from different classes /combination drug therapy. /
- ✚ Pain: - defined by the International Association for the Study of Pain, 2012, as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage”.
- ✚ Pain attitude: - defined as a persisting set of beliefs and values that affect how one responds or reacts when pain is involved (McMillian, Tittle, Hagan, Laughlin, & Tabler, 2000).
- ✚ Positive Attitude: - participants those scored attitude questions above median.
- ✚ Negative attitude:- participants those scored attitude questions below median.
- ✚ Pain Management: - defined by the American Pain Society Quality of Care Task Force, as all interventions used to understand and ease pain, and alleviate the origin of the pain (Gordon et al., 2005).
- ✚ Post-operative pain management: - Diminish suffering, pain and associated emotional Distress to improve coping ability and relationship with others.

4.8. Tools for Data Collection

The “Knowledge and Attitudes Survey Regarding Pain” tool used to assess nurses and other professionals. The tool developed in 1987 and used extensively from 1987 to present. The tool revised over the years to reflect changes in pain management practice [29].

The content of the tool 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. Construct validity has been established by comparing scores of nurses at various levels of expertise such as students, new graduates, oncology nurses, graduate students, and senior pain experts. The tool identified as discriminating between levels of expertise. Test-retest reliability was established ($r > .80$) by repeat testing in a continuing Education class of staff

nurses 60. Internal consistency reliability was established ($\alpha > .70$) with items reflecting both knowledge and attitude domains [30]

To assess the knowledge and attitude towards pediatrics post-operative pain management, Structured and standardized questionnaires were prepared in English. The first part was containing socio demographic characteristic questions; the second part that contain 17 knowledge and 14 attitude assessment items. Total of 31 items having a five likert scales called SD (Strongly Disagree), D (Disagree), N (Neutral), A (Agree), and SA (Strongly Agree) were prepared from previously validated tools [31]. The respondent was health professionals PACU nurses and anesthetists had direct contact with PPOPM service in Tikur Anbessa Specialized Hospital.

4.9. Data collection technique

Structured, well standard and self-administered questionnaire developed and adopted from other related studies [31]. The questionnaire was prepared in English. The time of data collection was from March to April. The questionnaire had three parts, socio demographic characteristic, and knowledge and attitude questions. The respondents were Anesthetists and PACU nurses had direct contact with pediatric post-operative pain management service in Tikur Anbessa Specialized Hospital. The questionnaire handed to Department heads of each room, who undertook to give it to all the anesthetists and nurses; all instructed to keep the questionnaire anonymous but to indicate their qualifications and profession. The questionnaire completed quickly, without consulting medical texts.

4.10. Data quality control

To keep the quality of the data:-

-  Close supervision was under taken during data collection.
-  The principal investigator checked collected data every day.

4.11. Data analysis

After data collection, the returned questionnaires were checked for completeness, cleaned manually and data coded and entered into Epi data version 3.1 and analyzed in SPSS version 21. Frequencies and cross tabulations were used to summarize descriptive statistics of the data tables and graphs were used for data presentation. Descriptive statistics was computed to

describe each variable Item-total. Results were prepared using narrations, means, percentages, figure and table. Analysis among groups was performed through analysis of chi square and alpha value.

4.12. Ethical consideration

The research was conducted after approval by the Institutional Review board of medical faculty, AAU. Official support letter was written to TASH and permission for data collection was sought from the hospital authorities. Informed verbal consent was obtained from respondents after giving them information about the study. In addition, all the responses were kept confidential and anonymous.

4.13. Dissemination of Results

The finding of the study could be submission to Addis Ababa University, College of Health Sciences, School of Graduate Studies, and Department of Anesthesia. TASH department of anesthesia and PACU is also the other responsible body to be aware of the final study finding of this thesis.

CHAPTER FIVE

RESULT

5.1. Result

1. Socio demographic characteristic of participant

Of the presumed 68 professionals, 67 (99.7%) most of them were accessible and willing during the data collection period. The socio demographic characteristic of 67 professionals 68.8% were between the age group 28-32(40.3%) years. Level of education was bachelor 55 (82%) and 12 in master of 17.9%. Most of work experiences were between 1-5 years 37(55.2%). Place of work 46(68.7%) anesthetists in operation room and 21(31.3%) nurses in PACU. Majority of health professionals were male which accounts 51.6%.

Table 1 Socio-demographic characteristic of participant at TASH from March to April 2017.

Variable	Category	Frequency	Percent
Age	23-27	26	38.8
	28-32	27	40.3
	33-37	3	4.5
	38-42	4	6.0
	>43	7	10.4
Sex	A. Male	36	53.7
	B. Female	31	46.3
Educational Level	A. Diploma	0	0
	B. Bachelor	55	82.0
	C. Masters	12	17.9
Service year	A. 1-5	37	55.2
	B. 6-10	23	34.3
	C. 11-15	2	3.0
	D. >16	5	7.5
Place of work	A. PACU	21	32.8
	B. Operating theater	46	67.2
Profession	A. Anesthetist	46	68.7
	B. Nurse	21	31.3
	Total	67	100.00

2. Knowledge of pain management

Among the study participants, 7.5% and 31.3% were strongly agree and agree regarding to a patient should experience discomfort prior to giving the next dose of pain medications respectively (Table 2).

Table2: Knowledge of nurses and anesthetists towards PPOPM, at TASH from March- April, 2017.

Variables	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
A pediatric patient should experience discomfort prior to giving the ne	19(28.4%)	28(41.8%)	5 (7.5%)	11(16.4%)	4 (6%)
A pediatric patient should experience discomfort prior to giving the next dose of pain meds.	5 (7.5%)	21(31.3%)	11(16.4%)	18(26.9%)	12(17.9)
The preferred rule of administration of narcotic pain relievers to pediatric patients with pain is intramuscular.	5(7.5%)	22(32.8%)	15(22.4%)	17(25.4%)	8 (11.9)
When a pediatric patient requests increasing amounts of analgesics to control pain, this usually indicates that the patient is psychologically dependent.	10(14.9%)	24(35.8%)	16(23.9%)	14 (20.9%)	3(4.5%)
Because narcotics can cause respiratory depression, they should not be used in pediatric patients	8 (11.9%)	12(17.9%)	16 (23.9%)	21 (31.3%)	10 (14.9)
The most suitable dose of morphine for a pediatric patient in pain is a dose that best controls the symptoms; there is no maximum dose (i.e., a level that must not be exceeded) for morphine.	5 (7.5%)	14(20.9%)	11 (16.4%)	19(28.4%)	18(26.9%)
For effective treatment of cancer pain in pediatric patients it is necessary to continuously assess the pain and the efficacy of the therapy.	27(40.3%)	28(41.8%)	8 (11.9%)	4 (11.9%)	0 (6%)
Pediatric Patients having severe chronic pain often need higher dosages of pain meds than					

pediatric patients with acute pain do.	17 (25.4)	28(41.8%)	10(14.9%)	11(14.9%)	1(1.5%)
Increasing analgesic requirements are signs that the pediatric patient is becoming addicted to the narcotic	13(19.4%)	25(37.3%)	20(29.9%)	9(13.4%)	0 (0%)
If a pediatric patient (and/or family member) reports that a narcotic is causing euphoria, s/he should be given a lower dose of the analgesic.	14(20.9%)	22(32.8%)	23(34.3%)	9(11.9%)	0(0%)
25% of pediatric patients receiving narcotics around the clock become addicted.	6(9.0%)	20(29.9%)	32 (47.8)	7(10.4%)	2(3.0%)
Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.	4(6.0%)	26(38.8%)	20(29.9%)	12(17.9%)	5(7.5%)
Pediatric Patients may sleep in spite of severe pain.	6(9.0%)	14(20.9%)	13(19.4%)	19(28.4%)	15(22.4%)
Respiratory depression rarely occurs in pediatric patients who have been receiving stable doses of opioids over a period of months.	9(13.4%)	26(38.8%)	17(17.9%)	17(25.4%)	3(4.5%)
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.	32(47.8%)	23(34.8%)	8(11.9)	4(6%)	0(0%)
After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual pediatric patient's response.	27(40.3%)	30(44.8%)	7(10.4%)	3(4.5%)	0(0%)

3. Over all Knowledge of pain and its management

To calculate score, for each response score was given as follows: for strongly agree 5 points, agree 4 points, neutral 3 points, dis agree 2 points and strongly dis agree 1 points. The responses were summed up and total score obtained for each respondent. The mean was calculated and those who scored above the mean value had good knowledge and those who scored below mean were considered as they have poor knowledge. Among the professional (50.7 %) were had good knowledge and (49.3 %) were had poor knowledge.

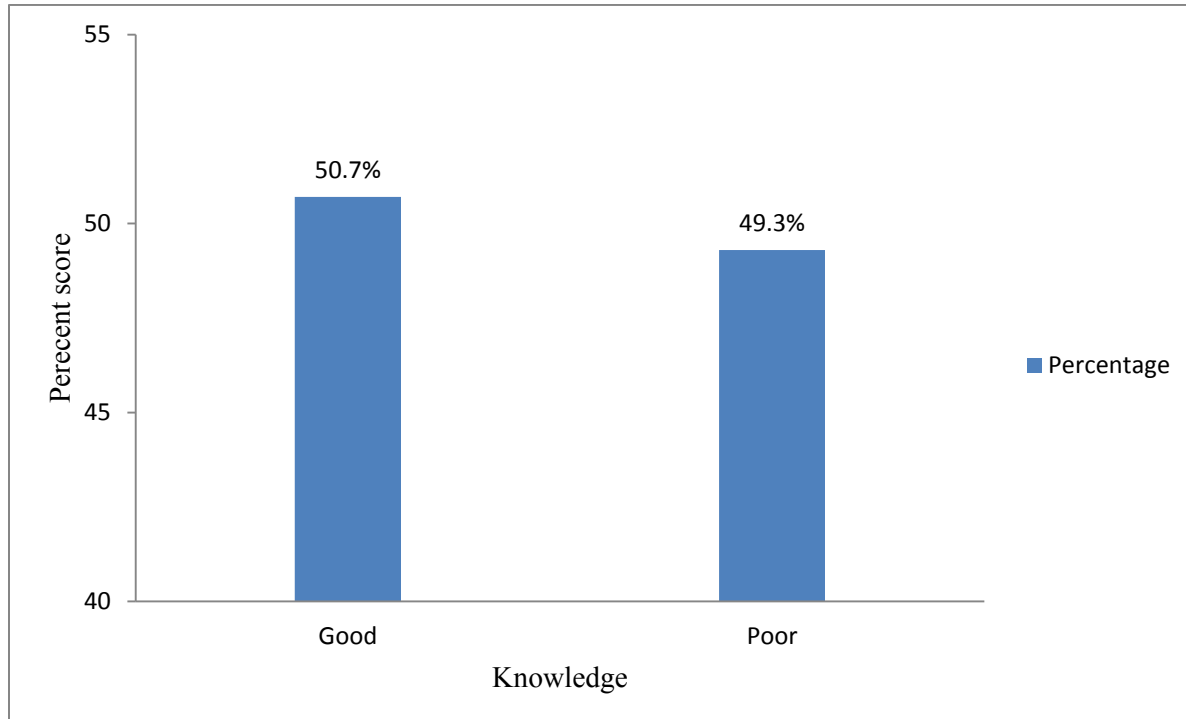


Figure 3: Over all knowledge of pain management among nurses and anesthetist

4. Relation of socio-demographic data with knowledge of pain management

Among Anesthetists, those participated in the study 54.3 % of them scored the knowledge question above mean that means they have good knowledge regarding to pediatric pain management. Concerning to Nurses, out of 21 those involved in the study 42.9 % have good knowledge while 57.1 % have poor knowledge on the pain management of pediatric.

Table 3:- Relation of socio demographic data with knowledge of pain management at TASH from March to April 2017.

Variables		Knowledge		Total
		Good	Poor	
Age	23-27	13 (50.0%)	13 (50.0%)	26 (100%)
	28-32	13 (48.1%)	14 (51.9%)	27 (100%)
	33-37	2 (66.7%)	1(33.3%)	3 (100%)
	38-42	1 (25.0%)	3 (75.0%)	4(100%)
	>=43	5 (71.4%)	2 (28.6%)	7 (100%)
Profession	PACU nurse	9 (42.9%)	12 (37.1%)	21(100%)
	Anesthetists	25 (54.3%)	21(47.5)%	46 (100%)
Place of work	PACU	9 (42.9%)	12 (57.1%)	21(100%)
	OR	25 (54.3%)	21 (45.7%)	46 (100%)
Education al level	Bachelor	27 (49.1%)	28 (50.9%)	55 (100%)
	Master	7 (58.3%)	5 (41.7%)	12 (100%)

Association of socio demographic data with knowledge

The Chi-Squared test was used to detect any statistical difference between the knowledge of pediatrics pain management between each socio demographic factors. There was no statistically significant difference in the level of knowledge of pediatrics pain management among age, sex, profession, educational level, years of experience and place of work ($p>0.005$) (table 3).

Table 3 Association of socio demographic factor with knowledge of nurses and anesthetists in chi-square at Tikur Anbesa Specialized Hospital, Ethiopia, 2017.

Variables		Knowledge		Chi-square	
		Good n (%)	Poor n (%)	P value	
Sex	Male	15 (41.7%)	21 (58.3%)	2.56	0.109
	Female	19 (61.3%)	12 (38.7%)		
Age	23-27	13(50%)	13 (50%)	0.308	0.857
	28-32	13 (48.1%)	14 (51.9%)		
	>33	8 (57.1%)	6 (42.9%)		
Profession	Anesthetist	28 (54.3%)	21 (45.7%)	0.371	0.542
	Nurses	9 (42.9%)	12 (57.1%)		
Educational level	Bachelor	27(49.1%)	28(50.9%)	0.068	0.561
	Masters	7(58.3%)	5(41.7%)		
Year of experience	<3 years	15(55.6%)	12(44.4%)	0.421	0.81
	3-6years	11(47.8%)	12(52.2%)		
	>7years	9(52.9%)	8(47.1%)		

Association of knowledge with selected question

Among the questions, some of them were selected and their association was checked by using chi-square. Those p values less than 0.05 were significantly associated with knowledge of the participants.

Question of Patient having severe chronic pain often need higher dosages of pain medications the chi square was 4.695, with $p= 0.030$. For effective treatment of cancer pain it is necessary to continuously assess the pain and the efficacy of the therapy the chi square was 15.061, with $p<0.001$. Respiratory depression rarely occur in patients who have been receiving double doses of opioids over a period of months the chi square was 6.569, $p=0.010$.

There was an association between the question, “pediatrics patients having severe chronic pain often need higher dosage of pain medication than pediatric patients with acute pain and knowledge of pediatric pain management”. While 45.5% of those did not know as, “patient having severe chronic pain often need higher dosages of pain medications” than pediatrics with acute pain among those had poor knowledge of pediatric pain management with a chi square 4.695, $p= 0.030$.

Attitude of participants towards pain management

To calculate over all attitude score, for each response score was given as follows: for strongly agree 5 points, agree 4 points, neutral 3 points, disagree 2 points and strongly disagree 1 point. The responses were summed up and total score obtained for each respondent. Questions related to knowledge of pain management and attitude towards pain management were asked the participants. The maximum knowledge score was 17 and the minimum was zero. The mean was calculated and those who scored above the mean value had positive attitude and those who scored below mean considered as they have negative attitude. Among the participants 55 (82.1 %) were had positive attitude and 12 (17.9 %) were negative attitude.

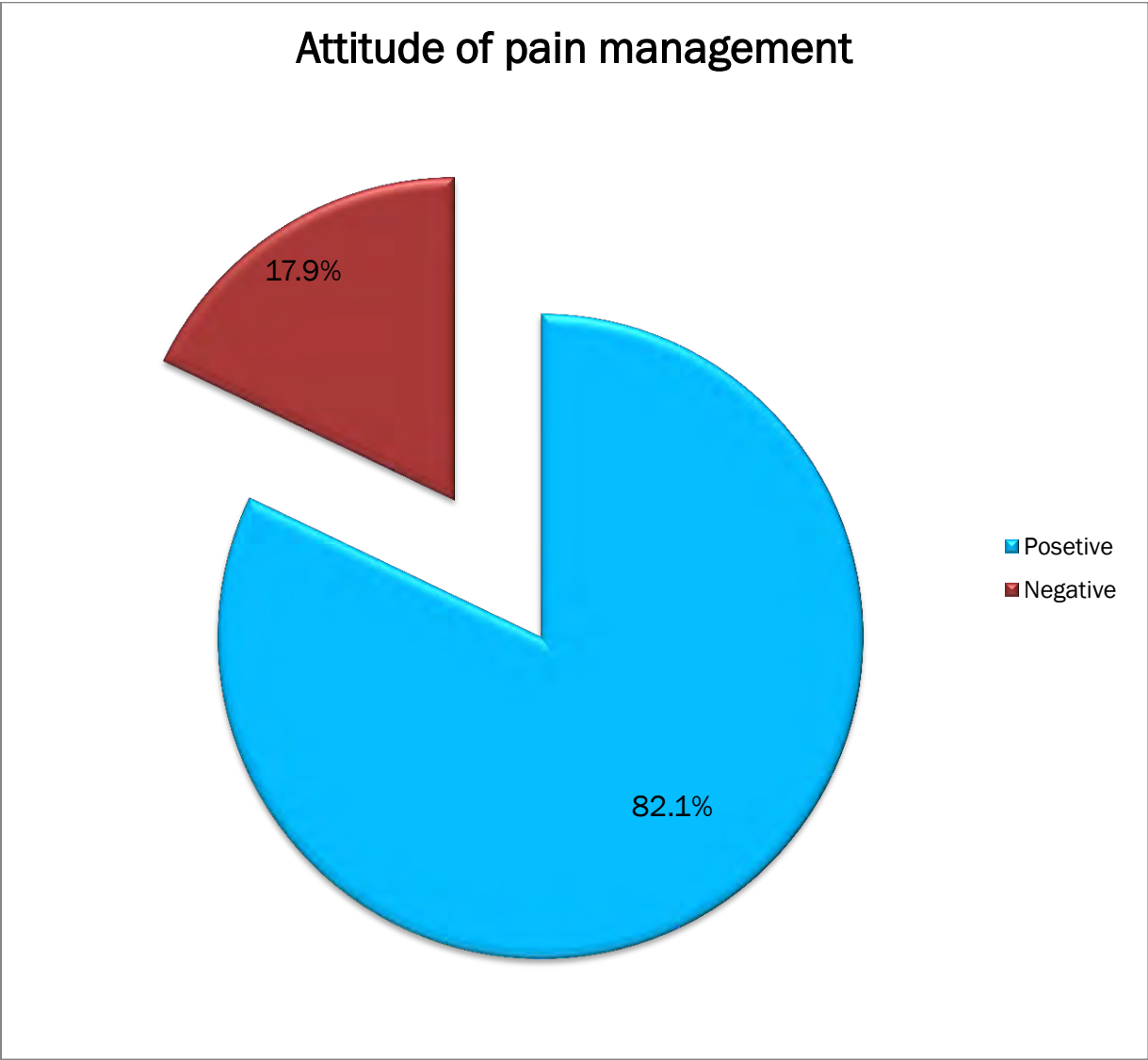


Figure 4: Over all Attitude of pain management among nurses and anesthetist

Relation of socio demographic with Attitude of pain management

Out of 55 nurses and Anesthetists those have bachelor degree 38 (69.1%) were have positive attitude towards pain management and 34 (73.9%) of anesthetist have positive attitude while 26.1% of them have negative attitude. There was a slight difference between Place of work and profession regarding positive attitude towards pediatrics pain management, operating theater 21(73.9%) and PACU 9(61.9) (Table 5).

Table 4: Cross tabulation of pain management Attitude in pediatrics among PACU nurse and Anesthetists at TASH, 2017

Variables		Attitude		Total
		Positive	Negative	
Age	23-27	18 (69.2%)	8 (30.8%)	26 (100%)
	28-32	19 (70.4%)	8 (29.6%)	27 (100%)
	33-37	3 (100.0%)	0 (0%)	3 (100%)
	38-42	2 (50.0%)	2 (50.0%)	4 (100%)
	>=43	5 (71.4%)	2 (28.6%)	7 (100%)
Sex	Male	10(14.9%)	26(38.1%)	36(100%)
	Female	10(14.9%)	21(31.34%)	31(100%)
Place of work	PACU	13 (61.9%)	8 (38.1%)	21 (100%)
	OR	34 (73.9%)	12 (26.1%)	46 (100%)
Profession	Nurse	13(61.9%)	8(38.1%)	21(100%)
	Anesthetists	34(73.9%)	12(26.1%)	46(100%)
Educational Level	Bachelor	38(61.0%)	17(30.9%)	55(100%)
	Master	9(75.0%)	3(25.0%)	12(100%)

5.2. Discussion

The proportions of professionals who had a good knowledge constitute 50.7% of study participant while the rest 49.3% constitute poor knowledge. Gender has not been associated with knowledge of professionals with Chi square result of 2.06 and $p=0.106$. From chi-square analysis, there is no statistically significant association between knowledge (good or poor) and variables like age category, year of experience, educational level and professions.

Data analysis revealed various responses overall in the actual knowledge and attitude of pediatric post-operative pain management surgical patients. Findings in the mean scores of PPOP suggests that there was a gap in the understanding of pharmacology related knowledge questions to pain management, and attitude related questions like under estimation of pediatric post-operative pain, fear of giving opioids for pediatrics age group. In general, diversion activities rather giving actual medication for PPOPM was seen in this study.

The overall knowledge score was consistently lower. The finding was the same with the finding in Carolina where the study reported that the knowledge of nurses towards pain management was poor.

In this study the overall knowledge, mean correct answer score of participants were 50.7%. This finding was inconsistent with the finding in Iran and USA. For instance, a study conducted among Iranian nursing students showed that their mean correct answer score was 37.8% [43]. A higher score of 68% was seen among senior nursing students in USA. Since the tools used by the above and other studies were detailed, specific to nurses, conducted post lecture and on selected volunteers and included multiple items; direct comparison would not be sounding. This is opted to check students' score against the AMA standard 70% [42]. The difference of this research finding with the others could be due to the difference of study participants and study area.

The overall correct answer for questions of knowledge mean score is 9.28 and attitude 9.49. This mean score demonstrated that professionals were able to correctly answered only 64.2% the questions on average. Only anesthetists age above 43(71.4%) for good knowledge and attitude 73.9% of scored above the cutoff point (70%) than nurses regarding pain management.

The study at Jimma University on pain management shows that overall correct item score ranged from 23.7% to 82.2% with an overall mean correct answer of 52.3%. This mean score demonstrated that students were able to correctly answered only 52.2% the questions on average. Only 4.2% of the students scored above the cutoff point (70%) for good knowledge regarding

pain management. Students of pharmacy and medicine were correct 55.7% and 54.7% of the time respectively [43].

Service Years of a professionals were negatively correlated with poor knowledge of the respondents was ($r -0.14$). However, in Carolina there was no significant relationship found between the service years of registered nurse and knowledge and attitudes towards pain and pain management. The difference may be due to more staff retained in the study done in Carolina [44].

Anesthetists and Nurse those have masters education 58.3% of them were scored regarding to question related to knowledge whereas of those that have bachelor degree 49.1% of them have good knowledge. These can shows when an individual level of education increases at the same time his/her knowledge also increases. The result concerning knowledge and socio-demography relation presented in Table 3. There is no correlation between age and giving narcotics on a regular schedule is preferred over p.r.n.“ schedule for continuous pain.

Attitudes of nurses or anesthetists who participated in this study were marginally more satisfactory towards pain management. The overall positive attitude professionals score was 82.1%. Anesthetists scored higher on attitude survey (73.9%) than nurses (61.9%). Of the Questions, attitude more answered by both departments than relation to knowledge was.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1. Conclusion

Overall findings indicates that PACU nurses and anesthetists knowledge‘ were in adequate as the area was higher level teaching hospital and the attitude of the participants was relatively good

regarding to pain management among pediatrics. Anesthetists had relatively better knowledge and attitude when compared with nurses. Post-operative pain in children is still under treated. Raising awareness and improving knowledge for health care providers needed. However, this study provides important baseline information regarding the knowledge, & attitude of early management of PPOP among PACU nurses and anesthetist, which can play an important role for further study.

6.2. Recommendation

Based on the above finding the following recommendation was given for-

FMOH

- ✚ Effective training and refreshment course should be given on early management of acute pediatric post-operative pain to TASH anesthetists and PACU nurses.
- ✚ Training on PPOPMP to minimize the gap in Pain knowledge and attitude among health professional should initiated Intensify information on PPOP in video, the availability of brushers, magazines, charts & pain guidelines in clinical areas will be better.

Hospital decision makers

- ✚ Encourage professionals to update their knowledge and attitude to remind them practice regularly.
- ✚ Motivate staffs to change or minimize barriers for better pediatric post-operative pain management.

Other researchers

- ✚ Further studies needed to explore what management best used to improve the knowledge and attitude of PPOPM.

Strength

- ✚ The study conducted in TASH that provides different types of pediatric surgeries in the country at all than other hospitals.

Limitation of the study

- ✚ The study did not include anesthesiologists, pediatricians and pediatric surgeons.
- ✚ Limited related studies have done in Ethiopia and Africa, especially on professionals.

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ANEX I

Pain management guideline

These guidelines will focus on knowledge base, skills and range of interventions that are the essential elements of effective management of acute, chronic and pain-related problems.

TABLE Stages Defined According to NICHD Pediatric Terminology

Stage	Definitions (Release Date July6, 2011)
Preterm neonatal	the period at birth when a new born is born Before the full gestational period
Term neonatal	Birth-27 d
Infancy	28d-12 month
Toddler	13 month-2yr
Early childhood	2-5yr
Middle childhood	6-11
Early adolescence	12-18
Late adolescence	19-21yr

ANNEX II

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

DEPARTMENT OF ANESTHESIA

March to April, 2017

Questionnaire on pediatric post-operative pain management practice in on PACU nurses and anesthetists.

Prepared by: Second year postgraduate anesthesia student

Dear PACU Nurses and anesthetists I am second year MSc student in anesthesia and now I need your willingness to fill this questioner based on your work place (Hospital). Fill only by PACU Nurses or anesthetists. If your answer is other please specify what it is. I would like to thank for your willingness.

I. QUESTIONNAIRE FOR SOCIO DEMOGRAPHIC VARIABLES

No.	Question	Resapons	Skip to
101	Age	-----	
102	Sex	A. Male B. Female	
103	Educationnel lebel	A. Diploma B. bachelor C. masters	
104	Service year		
105	Place of Works	A. ICU B. OR	
106	Profession	A. Anesthetist B. Nurse	

II. Questionnaire on Knowledge variables

No.	Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
201	Giving narcotics on a regular schedule is preferred over __p.r.n.“ schedule for					

	pediatric continuous pain.					
202	A pediatric patient should experience discomfort prior to giving the next dose of pain meds.					
203	The preferred route of administration of narcotic pain relievers to pediatric patients with pain is intramuscular.					
204	When a pediatric patient requests increasing amounts of analgesics to control pain, this usually indicates that the patient is psychologically dependent.					
205	Because narcotics can cause respiratory depression, they should not be used in pediatric patients					
206	The most suitable dose of morphine for a pediatric patient in pain is a dose that best controls the symptoms; there is no maximum dose (i.e., a level that must not be exceeded) for morphine.					
207	For effective treatment of pediatric cancer pain, it is necessary to continuously assess the pain and the efficacy of the therapy.					
208	Pediatric Patients having severe chronic pain often need higher dosages of pain medications than pediatric patients with acute pain.					
209	Increasing analgesic requirements are signs that the pediatric patient is becoming addicted to the narcotic.					
210	If a pediatric patient (and/or family member) reports that a narcotic is causing euphoria, s/he should be given a lower dose of the analgesic.					
211	25% of pediatric patients receiving narcotics around the clock become addicted.					
212	Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.					
213	Pediatric Patients may sleep in spite of severe pain.					

214	Respiratory depression rarely occurs in pediatric patients who have been receiving stable doses of opioids over a period of months.					
215	Combining analgesics that work by different mechanisms (e.g., combining an opioid with an NSAID) may result in better pediatric pain control with fewer side effects than using a single analgesic agent.					
216	After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual pediatric patient's response.					
217	The recommended route of administration of opioid analgesics for pediatric patients with severe pain of sudden onset, such as trauma or postoperative pain is intravenous					

III. Attitude Questions

No.	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
301	Pediatric Patients receiving narcotics on a <u>p.r.n.</u> basis may be likely to develop clock-watching behaviors.					
302	The most accurate judge of the intensity of the pediatric patient's pain is the patient.					
303	When a pediatric patient in pain is receiving analgesic medication on a <u>p.r.n.</u> basis, it is appropriate for the patient to request pain medications before the pain returns.					
930 4	Staff can always pick up cues (signs) from children that indicate that they are in pain.					
305	Children cry all the time; therefore, diversion activities are indicated rather than actual pain medications.					
306	It may often be useful to give a placebo to a pediatric patient in pain to assess if he is genuinely in pain.					
307	It is a pediatric patient's right to expect total pain relief because of treatment.					
308	Lack of pain expression does not mean lack of					

	pediatric pain.					
309	Distraction, for example, by the use of music or relaxation, can decrease the perception of pediatric pain.					
310	Estimation of pain by Pediatrician or PACU Nurses or anesthetists is as valid a measure of pain as a patient's self-report.					
311	Analgesics for pediatric post-operative pain should initially be given around the clock on a fixed schedule					
312	The most accurate judge of the intensity of the pediatric patient's pain is the patient					
313	Types of medication/techniques used for pediatric post-operative pain management preoperatively is Opioid, NSAIDs, Epidural analgesia, Caudal epidurals, Nerve block					
314	Types of medication/techniques used to pediatrics post-operative pain management intra operatively is Opioid, NSAIDs, Epidural, Caudal epidurals, Nerve block					
315	Factors that inhibit anesthetists or PACU nurses from using pediatric pain assessment tools is Unavailability of pain rating scale charts, Work over load, lack of newer drugs (that are minimal adverse effect)					
316	Pediatric Pain is record as 5 th vital sign in the chart					

ANNEX III

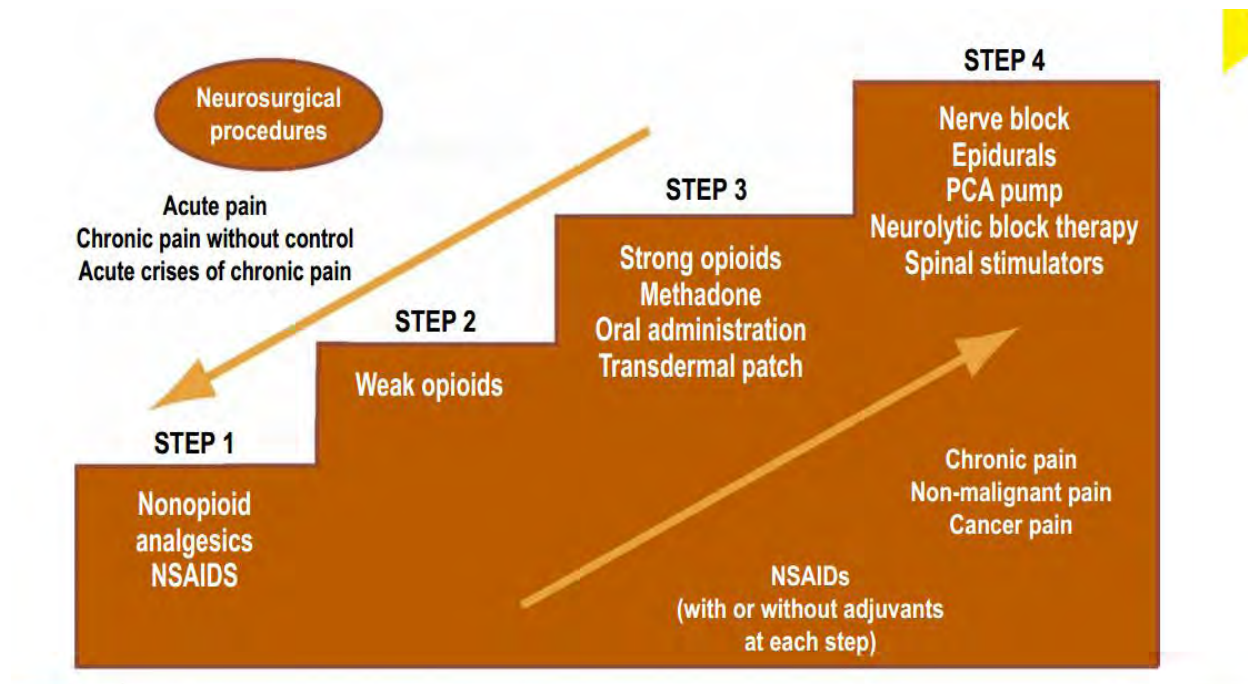


Figure 9: - WHO Analgesia Ladder