ADDIS ABABA UNIVERSITYCOLLEGE OF HEAL TH SCIENCE SCHOOLOF MEDICINE DEPARTEMENT OF ANESTHESIOLOGY CRITICAL CARE AND PAIN MADICINE REASERCH THESIS.

Assessment of knowledge, attitude and practice towards Pediatric pain management among nurses working in pediatrics unit at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia

Thesis to be submitted to the Department of Anesthesiology in Partial Fulfillment of the Requirement for Specialty Program in Anesthesiology.

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Assessment of knowledge, attitude and practice towards Pediatric pain management among nurses working in pediatrics unit at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia

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APPROVED BY THE BOARD OF EXAMINATION

The thesis here, entitled "Assessment of Knowledge, Attitude and Practice Towards Pediatric Pain Management Among Nurses Working In Pediatrics Unit At Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia" is accepted in its present form by the board of examiners as Partial Fulfillment Of The Requirement For Specialty Certificate In Anesthesiology Critical Care And Pain Medicine.

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STATEMENT OF DECLARATION

I hereby declare and affirm that this research is my own original work as a partial fulfillment of the requirements for the Specialty Certificate training in Anesthesiology. I have followed all the ethical considerations in the preparation, data collection, data analysis and completion of this research. All the sources of the materials used for this research and all people and institutions who gave support for this work are fully acknowledged. I affirm that I have cited and referenced all the sources used in this document.

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ACRONYM AND ABBERIVATIONS

BSc: Bachelor of Science

ETB: Ethiopian Birr

FLACC: Face, Legs, Activity, Cry, Consolability

IASP: International Association for the study of pain

ICU: Intensive Care Unit

IRB: Institutional Review Board

KAP: Knowledge, Attitude and Practice

MOH: Ministry Of Health

NICU: Neonatal Intensive Care Unit

PEOPD: Pediatric emergency outpatient department

PICU: Pediatrics Intensive Care Unit

PNKAS: Pediatric Nurses' Knowledge and Attitude Survey Regarding Pain

POPD: Pediatric Out Patient Department

PRN: "pro re nata," which means "as the thing is needed.

PW: Pediatric ward

TASH: Tikur Anbessa Specialized Hospital

UOG: University of Gondar

VAS: Visual Analog Scale

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SUMMARY

Background: Pain in children is often under recognized and undertreated. Conscious adults are able to expresses their feelings or pain intensity whereas children are not aware or have a difficulty on explanation of their pain. So, objective assessment and interventional management is mandatory.

Objectives: To assess knowledge, attitude and practice towards pediatric pain Management among nurses working in pediatrics unit at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia.

Method: An Institutional based cross-sectional study was conducted among nurses working in Pediatrics department of Tikur Anbessa Specialized Hospital from October to November 2020. A stratified random sampling technique was used to select 131 nurses. Data was collected using a standard self-administrated questionnaire, cleaned and entered using SPSS version 26. Data analysis was done using frequency mean and percentages. Logistic regression model was used to measure association between independent versus out-come variables considering the AOR, 95% CI and $p < 0.05$ as significant for all the independent variables.

Result: Total number of 129 nurses with a response rate of 98.4% had participated in the study. Male to female ratio was 1:1.5.The result indicates that 61.2%, 58.1% and 52.7% of study participants have adequate knowledge, favorable attitude and good practice towards pediatric pain management respectively. Pediatric work unit (pediatric OPD, NICU, and pediatric ward) were factors significantly associated with practice level towards pediatric pain management.

Conclusion & recommendation: Pediatrics unit nurses in TASH have adequate knowledge but unfavorable attitude and poor practice towards pediatrics pain management. Focused pain management training program and treatment protocol shall be developed to improve pediatric pain management.

1.INTRODUCTION

1.1. BACKGROUD

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage[1].

Pain in children is often under recognized and undertreated.[2] Barriers to pediatric pain management may include patient related, health care professional related or system related. System related barriers are regulatory barriers to access of analgesics, resource limitations and lack of SOP (Standard operation protocol).[3] Health care Professional barriers or Myths are lack of knowledge and beliefs that opioids are more dangerous in the pediatric patient; that the infant's immature nervous system does not allow them to feel pain, that pain builds character, the tolerance of pain in children is better than adults, and that the memory of pain is absent in children[4].

Undertreated or untreated pain affects children with their day-to-day physical activity, emotional wellbeing and sometimes that of their family and has multiple consequences including both physiological and psychological effects[4]. An important responsibility of healthcare professionals is to eliminate pain [5]. Nurses play an integral part of pain management in children. As advocates for the child and family, nurses are responsible for ensuring that pain medication is provided. Previous research indicates that nurses' knowledge and attitudes affected their response to children in pain and thus pain management.[6]Health care related factors especially Nursing factors related to under management of children's' pain include lack of standardized assessment and evaluation methods, limited knowledge of pediatric pain, education level, lack of knowledge of analgesics[7].

The main objective of this study is to assess the knowledge, attitude and practice towards pain management of pediatric patients among nurses working in pediatric unit at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia.

1.2. Statement of the Problem

Inadequate pain management is evident across all ages, especially in children, and they receive less analgesia than adults in comparable situations. Hence, significant numbers of hospitalized children experience unacceptable levels of pain due to lack of knowledge with pain management practice among health care providers and myths about pain[8].

Large numbers of patients in middle and low-income countries suffer from acute or chronic pain, but health care providers mostly do not treat pain[9].Some developing countries face considerable challenges related to pain management due to limited resources, poorly developed healthcare systems, lack of education and access to information, cultural attitudes and lack of analgesic medication[10].

Sub-Saharan Africa, carries a high burden of disease and therefore a significant potential for pain and suffering[10].In Ethiopia, it is hard to get relevant study that shows the prevalence of pain among hospitalized children and reports from FMOH shows that the care was neglected by health care providers. Thus, pain assessment with ultimate effective management is one of the most important aspects of patient care and is relevant to all nurses[9].

This study will help identify knowledge Attitude and Practice deficits regarding currently accepted principles of pain management practice as well as beliefs that could interfere with optimal care.

1.3. Significant of the study

In Ethiopia little is known about the burden of unrecognized and undertreated pain to children[11,12] Nurses play a crucial role in the pain management of pediatric patients. Assessing their level of knowledge, attitude and practice towards pain management and identifying where the gap is, will be very important aim of this research. This will be one of the few researches on pediatrics pain management among nurses working in pediatric unit done at TASH.The outcomes of this research will be used as a basis for future planning, policy making and intervention by different administrative bodies of this hospital.

The result of this study will be used as a reference for other researchers who have interest in the area for further investigation and will help develop specific programs that could enhance nurses' knowledge, attitude and practice of pain management for children.

2.Literature Review

2.1. Concept of pain

The assessment and treatment of pain in children are important parts of pediatrics practice. Recent research showed that feelings of pain have distinct relationships to the physical, emotional, and cognitive aspects of individuals. This view of pain has broadened the understanding of pain and has brought new ways to understand its characteristics.

2.2. Knowledge of Nurses towards pain management for children

According to a quantitative, descriptive, cross sectional study done in Jordan on Nurses` knowledge and attitudes towards pediatrics pain management, the level of knowledge and attitude towards pediatric pain management for pediatric nurses is low and not satisfactory. The result form this study showed the total mean score towards knowledge achieved by the study participants was 45.3 percent, scores ranged from 22.5 percent to 67.5 percent. By level of education, majority of the nurses (87 %) had bachelor degree, 8.1 % had diploma, and 4.9 % had master's degree. 78.3 % of them had no attendance of any sort of continuous education related to pain management, 6.5 % mentioned that they attended conferences, and 15.2 percent have attended courses. The study recommended nursing education on pain assessment and management improves Nurses knowledge[13].

From a descriptive cross sectional study conducted in Rwanda to assess on nurses knowledge and attitudes regarding pediatric pain management in three hospitals. It showed that Nurses have insufficient knowledge regarding pediatric pain management and it is necessary to increase the continued training for nurses. It is founded that the mean score for nurses was 54.7% (30% as a minimum and 77.5% as maximum). None of the sociodemographic variables predicted the scores obtained by the participants (> 0.05)[14].

A comparative cross sectional study on nursing students and nurses knowledge and attitudes regarding children pain done in Ghana found that nursing students and nurses generally had unsatisfactory knowledge and attitudes towards pain management in children. Nursing students

however, had significantly higher scores than nurses in the total PNKAS score and in 10 out of the 13 identified item-areas. Greater scores were obtained by nursing students in areas which were related to pain physiology, pharmacokinetics, pharmacology of analgesics and pain perceptions ($p < .05$). All the participating nurses could not accurately determine: the onset of action of orally administered analgesics, equianalgesic dose of orally administered morphine, and the right dosage of prescribed morphine for a child who consistently reported of moderate to severe pain[15].

Cross-sectional study conducted on Knowledge and Attitude towards Pain Management among Nurses Working at University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia. The result from the study showed nurses working at University of Gondar hospital had good knowledge and a lower level of attitude towards pain management. Of the entire participant Nurses more than half (58.1%) were males; 79.5% of them were in the age category of 19–29 years. The magnitude of good knowledge towards pain management among nurses was 66.9% with a mean score of 7.14 (1.74 SD) and the magnitude of favorable attitude towards pain management among nurses was 51.7% with a mean score of 49.33 (7.13 SD) [12].

2.3. Practice of nurses towards pain management for children

Similar study done in India on Evaluation of knowledge, perception, attitudes, and practices of pain management of children among pediatric nursing personnel of a tertiary care hospital it was found that there is a deficiency in nurses practices regarding pain in children. None of the nurses used painscoring system in daily practice and none of them were able to answer about the route of administration of morphine for chronic and prolonged pain. The mean age of nurses was 25.53 years. 90% had a diploma in nursing and the other 10% were graduates. 57.5% of the subjects had experience between 1 and 5 years[16].

A cross sectional study done on pain management for hospitalized children among nurses working in public hospitals in Mekelle City, North Ethiopia showed most of the nurses had a good practice on children pain managements. 55.8% of the participant nurses had good practice. Those respondents who said yes sedation interfering with pain assessment were 2.7 more likely knowledgeable on pain management for hospitalized children than others were. Reading guidelines, specific protocols, knowledge, charting area for pain, sedation interfering with pain assessment and working in pediatric ward were some of the factors that were significantly associated with children's pain management [11].

A quantitative cross sectional study conducted in Ethiopia to assess pain management for hospitalized children among nurses working in public referral hospitals of Amhara region. The results from this study showed that the practice scores of participant had mean value of 45.7%. It had a significant association between nurse's knowledge scores and level of education, attitude, Nursing workload, and lack of training [17].

2.4. Attitude of nurses towards pain management for children

A study done in Western Australia in 2018 on pediatric Nurses attitudes and knowledge towards pain management was not significant. It showed a result with a mean attitude score was 72.46%. Senior registered nurses had the most positive mean attitude score (82.4, SD 6.2) than the others, clinical nurses (73.77), registered nurses (71.64), and enrolled nurses (68.89) ($p < .05$). Nurses with specialist pediatric qualifications had significantly more positive attitude scores (mean 75.65, SD 11.6) than those without (mean 70.86, SD 11.7; $p = .005$). However, 51% of respondents believed that children tolerate pain better than adults do [18].

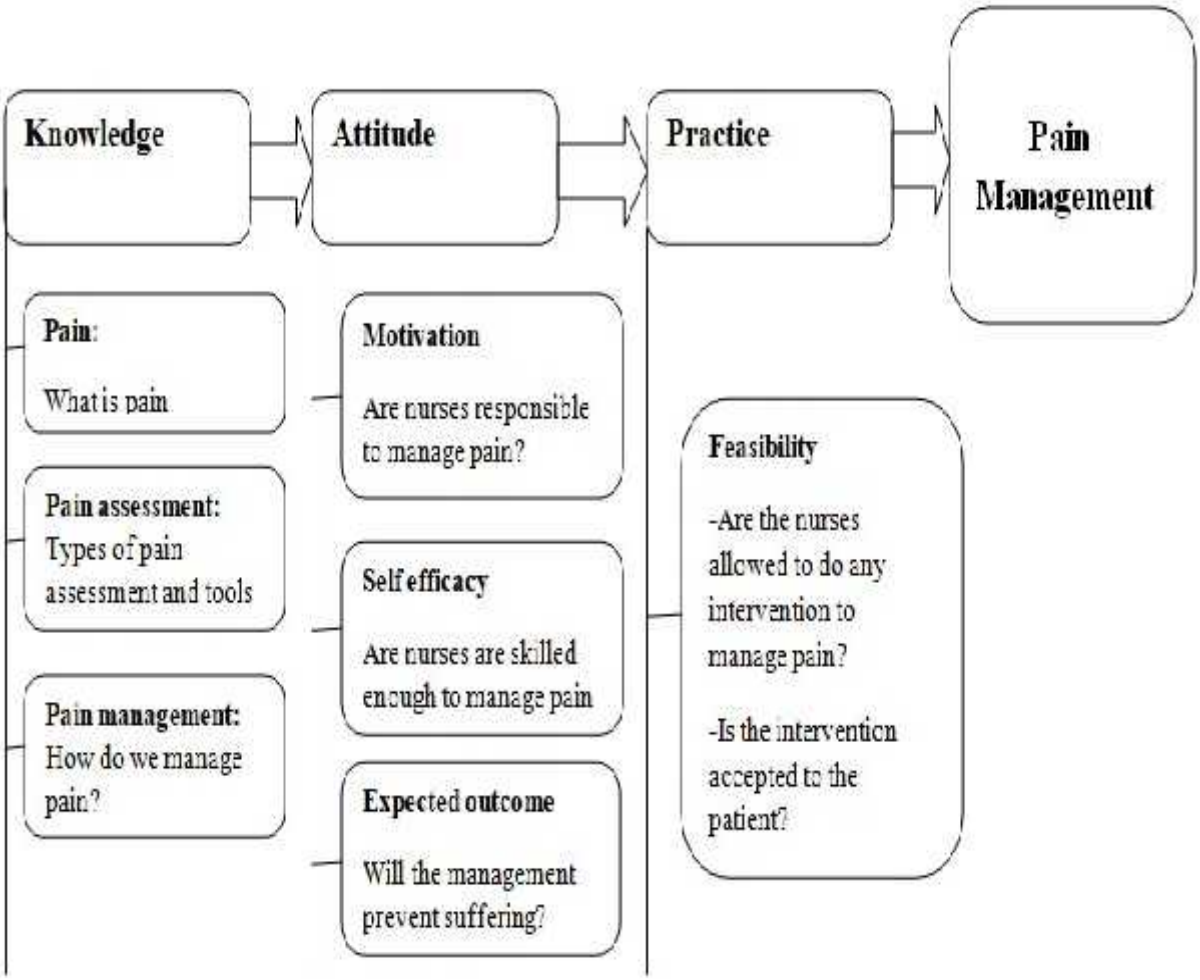
A research done in South Africa in 2020, it is founded that Responses of 100 participants were included in the analysis. Of which Practitioners with higher qualifications, more experienced years and those who did not attend medical education on pain, achieved higher scores. Alcohol and drug use by patients were the most selected barrier to pain care. The mean age of respondents was 34.74 years and the mean years' experience 10.02. Most respondents were male (69%), employed in the public/government sector (93%) as operational practitioners (85%) with 54% of respondents having attended medical education on pain care in the last 2 years. The mean percentage among emergency care provider was 58.0% towards attitudes regarding pain [19].

2.5. Conceptual Frame work

The study is centered on this perceived conceptual framework in the relationship between knowledge, attitude and practice which shows that high-level nursing knowledge status influence a positive attitude are indispensable for managing effectively the pain. The knowledge needed to include; what is pain, types of pain assessment and tools used, knowledge of pharmacological and nonpharmacological management. Attitude refers to the way of thinking or feeling about something or someone that determine the way of behaving in a certain situation. Nurses who are equipped with good knowledge and have a positive attitude about pediatric pain tend to properly manage pediatric

pain[20]. In this study, knowledge and attitude combined due to their impact on nurses' practices when they are caring pediatric patient with pain. This conceptual framework adapted from a literature and modified accordingly to fit this study.

Figure 1: KAP conceptual framework



3. Objectives

3.1 General Objectives

To assess the knowledge, attitude and practice of pediatrics pain management among nurses working in Pediatrics unit of TASH.

3.2 Specific Objectives

- To evaluate the Knowledge of pediatrics nurses towards Pediatrics pain management
- To assess the practice of pediatrics nurses towards Pediatrics pain management
- To evaluate the attitude of pediatrics nurses towards Pediatrics pain management

4Methods and Materials

4.1 Study area

The study was conducted at Addis Ababa University, College of Health Science, TASH from October to November, 2020. TASH is the largest referral hospital in Ethiopia established since 1972 GC at Addis Ababa which is capital city of the country specifically at Lideta sub city and given to Addis Ababa University (AAU) by the Ministry of Health (MOH) since 1998 GC for the faculty as a main teaching hospital. The hospital provides a tertiary level referral treatment and is open 24 hours for emergency services. The hospital is administered by Addis Ababa University and is the largest and oldest teaching hospital among all teaching hospitals in Ethiopia, staffed with the most senior specialists providing teaching for about 300 medical students and 350 residents every year. The hospital offers diagnosis and treatment for approximately 370,000- 400,000 patients per year. The hospital has 800 beds, with 130 specialists, 50 non-teaching doctors, 854 nurses and 900 professionals who support the hospital activities. Under the pediatric department, there are aboute11 subspecialty follow up clinics and including NICU and PICU There are 7 pediatric wards. Causality or ER, under five and surgical ward, above five ward, pediatric oncology ward and pediatric orthopedic ward.

4.2 Study period

The study was conducted from October 2020 to November 2020 G.C.

4.3 Study design

A quantitative, Institutional based cross-sectional study design was utilized.

4.4 Source Population and study population

4.4.1. Source population:

- All nurses who work at the Department of Pediatrics and child health in TASH (PEOP, POPD, NICU, PW and PICU).

4.4.2. Study population:

- All nurses who work at the department of Pediatrics and child health in TASH, who fulfill the inclusion criteria.

4.4 Eligibility: Inclusion and Exclusion Criteria

4.5.1. Inclusion Criteria:

- Those nurses who work at the Pediatric unit of TASH and gave consent during the data collection period was included in the study

4.5.2. Exclusion Criteria:

- Nursing students attaching at the Pediatrics unit of TASH during the study period were excluded from the study.

4.5 Sample size determination

The actual sample size for the study determined by using single population proportion formula for single proportion population,

$ni = \frac{(Z_{\alpha/2})^2 \quad x \quad p\,(1-p)}{d2}$ Where ni = Initial estimated sample size

Z = Confidence level (alpha, α) P = prevalence d = marginal error

To determine the sample size the following assumption was used.

The proportion of Nurses who had adequate knowledge, good practice and positive attitude on pain management taken from a previous related study conducted at Amhara region, Ethiopia, is 52.2%, 45.7% and 46.7% respectively. A 95% confidence level, margin of error (0.05).

$$Ni\ (1) = \frac{(1.96)^2 \times 0.522\ (1-0.522)}{(0.05)^2} = 383$$

$$Ni\ (2) = \frac{(1.96)^2 \times 0.457\ (1-0.457)}{(0.05)^2} = 381$$

$$Ni\ (3) = \frac{(1.96)^2 \times 0.467\ (1-0.467)}{(0.05)^2} = 382$$

383 is given large sample size and were used to calculate the final samples for this study. Since the total population (nurse working in Pediatrics unit in Tikur Anbessa Specialized Hospital) is 173 Nurses, which is less than 10,000, the correction formula was used

$$nf = \frac{ni}{1+ni/N)}$$

Where ,nf = final sample size ni = initial sample size

N = total population

$$= \frac{383}{}$$

1+383/173

= 119+12=131

When we add, 10% non-respondent percentage, final sample size will be 131.

4.6 Sampling procedure

Stratified random sampling technique was used to stratify Pediatric nurses according to the unit they are currently enrolled in. In TASH department of pediatric and child health has five units (POPD, PEOPD, PW, PICU and NICU).

The number of study participants to be sampled from each unit was determined using proportional to size allocation formula= $\frac{nf*ni}{N}$

Where: ni = number of pediatric nurses in each unit

nf = final sample of the study

N = total number of nurses in Pediatric unit.

Simple random sampling technique was used to select sampled nurses from each stratum.

Thematic areas(strata)	Total no.of nurses in each unit (ni)	Sample size of strata (nf)
Pediatrics OPD	33	25
Pediatrics Emergency	48	36
Pediatrics Ward	44	33
PICU	16	12
NICU	32	25
Total	173	131

Table 1: The proportion of sample size form each unit

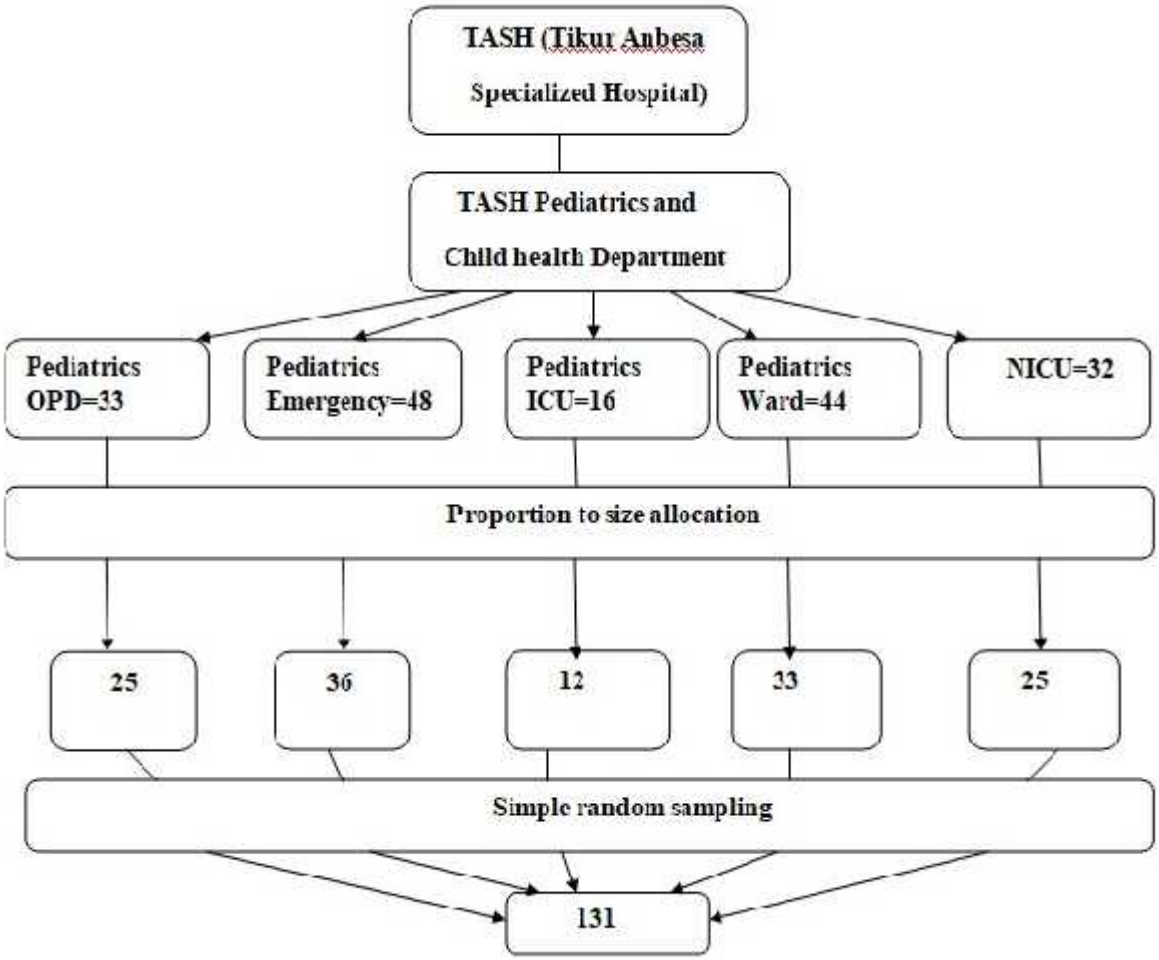


Figure-2: Schematic Presentation of Sampling Procedure in Pediatrics and Child health department of TASH in Addis Ababa, Ethiopia 2020.

4.7 Data collection procedure

A self-administered semi structured questioner adopted from a research conducted at public referral hospitals of Amhara region, Ethiopia, 2018. It was designed to include part I: socioeconomic variables such as age, gender, educational level, years of experience and pediatric working units. Part II: contain questions that can measure the level of knowledge of nurses, part III: questions that can measure practice of nurses for pain management, part IV: contain questions that can measure attitudes of nurses for pain management for hospitalized children. Two trained clinical nurses were recruited and participated throughout the data collection and were trained for one day by the principal investigator on the study instrument and data collection procedures. The questionnaire was handed over to the respondents in person and collected by the principal investigator.

4.9. Study variable

4.9.1. Dependent Variables

- Knowledge related to pain management
- Practices related to pain management
- Attitude related to pain management

4.9.2. Independent Variables

- Demographic characteristics: Age, sex, Level of education, Years of working experience, pediatric unit and position.
- Health care provider factors: Belief

4.10. Data quality assurance

Training was given to data collectors by principal investigator. To ensure the reliability of the data collection tool, pre-test was done on 5% of the total sample size one week before the actual data collection and the questionnaire was checked for its clarity and simplicity. The questionnaire was presented to the principal investigator and checked for its completeness to assure the quality of data. The Principal investigator was responsible for supervision and on reviewing questionnaires on daily basis.

4.11. Data processing and analysis

Data was entered into SPSS version 26 software packages (IBM Corporation, Armonk, NY, USA). Random checking was done to verify the validity of the entered data. Simple descriptive statistics such as frequency and percentage and measures of central tendency computed and summarize the results, Bi-variable and multi variable logistic regression was done to determine factors associated with the knowledge, attitude and practice level of study subjects.

4.12. Operational definition

Adequate knowledge – It is the knowledge status of nurses when they scored mean and above.

Inadequate knowledge -It is the knowledge status of nurses when they scored less than the mean. .

Good practice -It is the category of nurses when they scored mean and above value.

Poor practice - It is the category of nurses when they scored less than the mean value.

Favorable attitude- It is the category of nurses when they scored mean and above value.

Unfavorable attitude - It is the category of nurses when they scored less than the mean value.

Pain Management - nursing practice of assessing, diagnosing, planning, and intervening and evaluate children in pain in the hospitals.

4.13. Ethical Consideration

Ethical clearance was obtained from the department of Anesthesiology critical care and pain medicine. The aim of the study was clearly explained to the study participants. Information was collected after obtaining informed written consent from each participant. The personal information of study participants was kept entirely anonymous, and confidentiality was assured throughout the study period and the data was used only for the intended purpose of the study.

4.14. Dissemination of the result

The research paper will submitted to TASH, department of anesthesiology critical care and pain medicine, department of Pediatrics and Child health. The findings will be presented in different seminars, meetings and workshops and may be published in scientific journals.

5Results

5.2. Socio demographic characteristics

In this study a total of 129 nurses had participated with a response rate of 98.5%.There were 51(39.5%) male and 78(60.5%) female participants. The mean age was 29.52 years (Range, 22-45) years (SD, ± 3.612). Ninety five participants (73.6%) were within the age group of 25-30 years. Seventy six (58.91%) had less than 5 years of nursing experience and 53(41.08%) had more than 5 years of nursing experience. Out of the total participants, 110 (85.3%) were qualified for degree in Nursing, 17 (13.2%) were qualified for masters, and 2(1.5%) had diploma level.

Variable	Response	Frequency (n=129)	Percent (%)
Age	"under 25"	5	3.88
	25-30	90	69.77
	31-35	25	19.38
	36-40	8	6.20.78
	41 and older	1	
Sex	Male	51	39.5
	Female	78	60.5
Marital status	Never married	62	48.1
	Married	65	50.4
	Divorced	1	.8
	Separated	1	.8
Pediatrics unit	Pediatrics OPD	25	19.4
	Pediatrics ICU	12	9.3
	NICU	25	19.4
	Pediatrics wards	31	24.0
	Pediatrics Emergency	36	27.9

Table-2: Distribution Socio-demographic characteristics of Pediatrics unit nurses at TASH, in Addis Ababa Ethiopia, 2020 (N= 129)

5.2. Knowledge of Nurses towards pain management

To assess the knowledge of study participants 13 questions were prepared and the minimum score of 4 and the maximum 11 ,Then overall mean score of knowledge among participants was 7.99 (SD, ±1.544) with mean score percentage of 61.46 % . The result showed that seventy nine (61.2%) of participants had adequate knowledge whereas 50 (38.7%) had inadequate knowledge.

“Distraction, for example, by the use of music or relaxation, can decrease the feeling of pain” was the most answered question, whereas “It is important to frequently assess and document pain in patients able to communicate” and “Because narcotics can cause respiratory depression, they should not be used in pediatric patients.” Were the least answered questions.

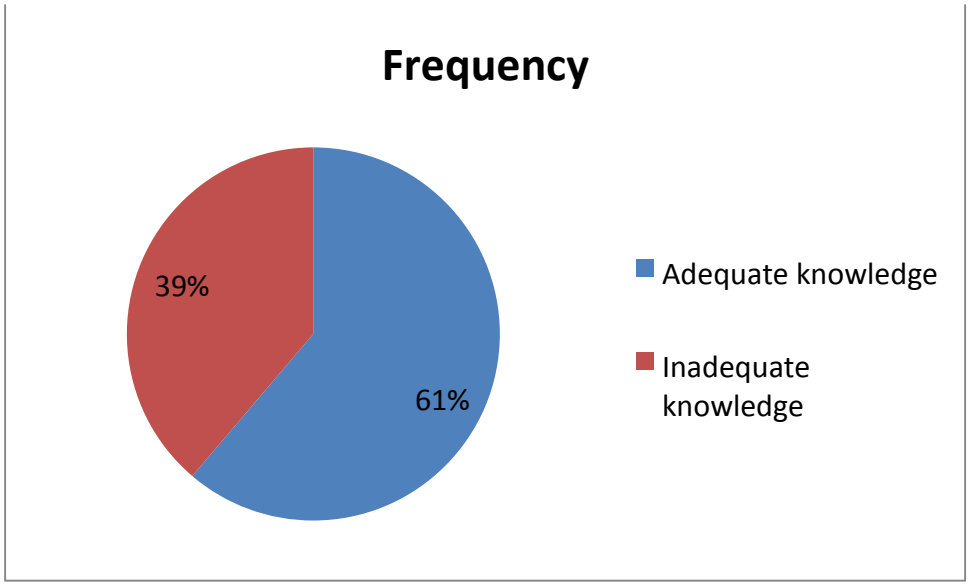


Figure 4: Distribution of total nurses according to their level of knowledge at TASH, Addis Ababa, Ethiopia.N= 129

Table-3:Knowledge questions correctly answered by the study participants for the assessment of knowledge, attitude and practice of nurses in pediatrics unit at TASH, 2020 (n = 129)

Respond	Frequency (n)	Percentage (%)
True	102	79.1
True	98	76.0
True	98	76.0

Distraction, for example, by the use of music or relaxation, can decrease the feeling of pain	True	93	72.1
The most accurate judge of the intensity of the patient's pain is the Patient.	False	91	70.5
Children who are not able to communicate it is recommended to routinely assess and document pain	True	88	68.2
Giving narcotics on a regular schedule is preferred over PRN schedule for continuous pain.	True	88	68.2
if a child doesn't show/express pain then he/she has no pain	True	83	64.3
	True	81	62.8
	True	81	62.8
	False	77	59.7
	True	52	40.3

Increasing analgesic requirements are signs that the patient is becoming addicted to the narcotic.	False	52	40.3
One of the consequences of chronic unrelieved pain in pediatrics is psychological disorders later in life.			

when asked if family/patient reports he/she has less pain after administration of narcotics, you should give lower dose of the narcotics dosage for the next time

Patients having severe chronic pain often need higher dosages of pain Medications than patients with acute pain.

It is important giving analgesics for patients with reduced facial expression.

Intramuscular route is the recommended route of administration of opioid analgesics to children with

brief, severe pain of sudden onset (e.g. trauma or postoperative) pain

It is important to frequently assess and document pain in patients able to communicate.

Because narcotics can cause respiratory depression, they should not be used in pediatric patients.

5.3. Factors related to knowledge of nurses for pain management

Binary logistic regression analysis was done for factors related to knowledge but none of the variables had statistically significant association with the attitude of nurses towards pediatrics pain management.(table 4)

Table 4: Bi-variable logistic regression result of factors associated with knowledge of nurses towards pediatrics pain management at TASH, 2020 (n=129).

	Level of knowledge	Crudes odds ratio	
			pvalue

Variable		Adequate knowledge n (%)	Inadequate knowledge n (%)	95% CI	
Age	<29.5	47 (64.4)	26(35.6)	1.356(0.664,2.768)	0.403
	Above 29.5	32(57.1)	24(42.9)	1	
Sex	Male	33(64.7)	18(35.3)	1.275(0.614,2.647)	0.514
	Female	46(59.0)	32(41.0)	1	
Marital status	Never married married	40(64.5) 39(58.2)	22(35.5) 28(41.8)	1.305(0.641,2.659) 1	
Educational Level	Bsc degree	68 (61.8)	42(38.2)	1.177(0.438,3.165)	0.746
	Others(diploma ,masters)	11(57.9)	8 (42.1)	1	
Position	Unit coordinator	3(60.0)	2(40.0)	0.947(0.153,5.878)	0.954
	Registered staff	76(61.3)	48(38.7)	1	
Work experience	<5yrs	47(61.8)	29(38.2)	1.064(0.516,2.130)	0.867
	>5yrs	32(60.4)	21(39.6)		
In which paediatric unit	Pediatrics OPD	13(52.0)	12(48.0)	0.542(0.190,1.543)	0.640
	Pediatrics ICU	6(50.0)	6(50)	0.500(0.133,1.885)	0.306

do you work?	NICU	15(60.0)	10(40.0)	0.750(0.260,2.162)	0.594
	Pediatrics ward	21(67.7)	10(32.3)	1.050(0.377,2.922)	0.92
	Pediatrics emergency	24(66.7)	12(33.3)	1	
1=reference					

5.4. Attitude of Nurses towards pain management

Based on the participants answer they scored a minimum of 8/22 and a maximum of 22/22 with a mean score of 16.64 (± 3.283 SD). Of 129 participants, 75(58.1%) respondents showed favorable attitude while 54(41.8%) participants had unfavorable attitude towards pediatric pain management.

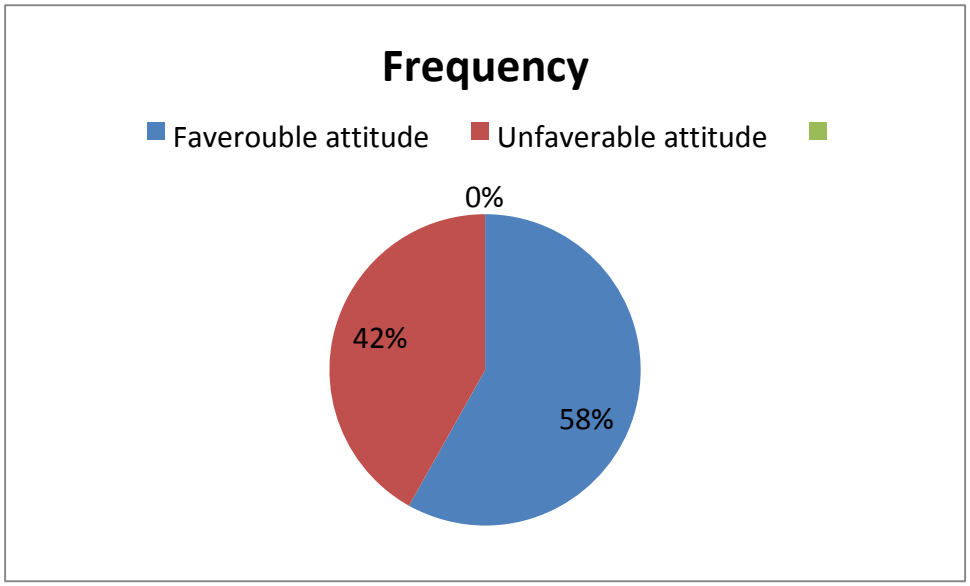


Figure-5: Total distribution of respondents' attitude towards pain management among Pediatrics nurses at TASH, Addis Ababa, Ethiopia, 2020.

5.5. Factors related to attitude of nurses for pain management

Binary logistic regression analysis was done for factors related to attitude but none of the variables had statistically significant association with the attitude of nurses towards pediatrics pain management. (table 6)

Table 6: Bi-variable logistic regression result of factors associated with attitude of nurses towards pediatrics pain management at TASH, 2020 (n=129).

Variable		Level of attitude		Crudes odds ratio	pvalue
		Favourableattitude n (%)	unfavourable attitude n(%)	95% CI	
Age	<29.5	42 (57.5)	31(42.5)	0.944(0.466,1.913)	0.8
	>=29.5	33(58.9)	23(41.1)	1	
Sex	Male	31(60.8)	20(39.2)	1.198(0.584,2.457)	0.623
	Female	44(56.4)	34(43.6)	1	
Marital status	Never married married	35(56.5) 40(59.7)	27(43.5) 27(40.3)	0.875(0.434,1.762) 1	0.709
EducationalLevel	Bsc degree	65 (59.1)	45(40.9)	1.300(0.489,3.455)	0.599
	Others(diploma ,mat	10(52.6)	9 (47.4)	1	

	ers)				
position	Unit coordinator	5(100.0)	0(0.0)	1246223450(0.000)	0.999
	Registered staff	70(56.5)	54(43.5)	1	
Work experience	<5yrs	46(60.5)	30(39.5)	1.269(0.624,2.581)	0.511
	>5yrs	29(54.7)	24(45.3)		
In which paediatric unit do you work?		19(76.0)	6(24.0)	0.542(0.190,1.543)	0.251
	Pediatric OPD	10(83.3)	2(16.7)	0.500(0.133,1.885)	0.306
	Pediatric ICU	10(40.0)	15(60.0)	0.750(0.260,2.162)	0.594
	NICU	22(71.0)	9(29.0)	1.050(0.377,2.922)	0.926
	Pediatric ward	14(38.9)	22(61.1)	1	
	Pediatric emergency				
1= reference					

5.6. Practice related to pain management

Our study showed that 68(52.7%) of respondents had good practice while 61(47.2%) participants had

	Level of practice	Crudes odds ratio	Adjusted odds ratio	

poor practice towards pediatric pain management.

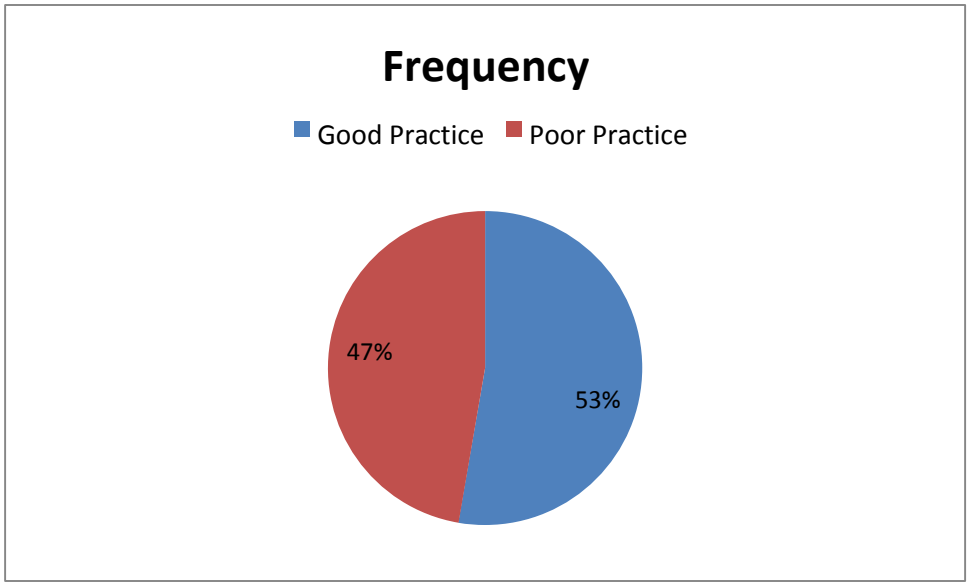


Figure 6: Practice of pain management among nurses in Pediatrics unit of TASH, 2020.

5.7.Factors related to practice of nurses for pain management

Multivariable logistic regression was done and the result showed that the adjusted odds ratio of nurses who worked in inpatient unit having good practice towards pediatric pain management was4.733(95%CI 2.232, 10.034; p-value 0.0001) times more likely than nurses in outpatient unit

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Variable		good practice n (%)	poor practice n(%)	95% CI	95% CI	p-value
Age	<29.5	41 (56.2)	32(43.8)	1.376(0.484,2.768)		0.375
	>=29.5	27(48.2)	29(51.8)	1		
Gender	Male	27(52.9)	24(47.1)	1.015(0.501,2.059)		0.967
	Female	41(52.6)	37(47.4)	1		
Marital status	Never married married	37(59.7)	25(40.3)	1.719(0.855,3.456)	1.369(0.615,3.049)	0.441
Educational Level		31(46.3)	36(53.7)	1		
	Bsc degree	58 (52.7)	52(47.3)	1.004(0.379,2.662)		0.994
Position	Others(diploma ,masters)	10(52.6)	9 (47.4)	1		
	Unit coordinator	2(40.0)	3(60.0)	0.586(0.095,3.629)		0.566
	Registered staff	66(53.2)	58(46.8)	1		

Table 8: Multivariable regression result of factors associated with attitude of nurses towards pediatrics pain management at TASH, 2020 (n=129).

Work experience	<5yrs	42(55.3)	34(44.7)	1.283(0.635,2.591)		0.488
	>5yrs	26(49.1)	27(50.9)			
In which Pediatric unit do you work?	Inpatient	48(70.6)	20(32.8)	0.464(0.314,0.687)	4.733(2.232,10.034)	0.001*
	outpatient	20(29.4)	40(67.2)	1		

*=P value < 0.05 , n= number of respondents ,1= reference

6 Discussion

In Children, little is known about the burden of unrecognized and undertreated pain. Adequate knowledge, favorable attitude and good practice are required to properly assess and effectively manage pain. Primarily assessing the knowledge, attitude and practice of nurses towards pain management will precisely help in identifying the gap. This study was aimed at describing the knowledge, attitude and practices related to pediatrics pain management among nurses working in pediatrics unit at TASH.

The knowledge attitude and practice of nurses towards pediatrics pain management was assessed and results were interpreted as having adequate or inadequate knowledge, good or poor practice, and favorable or unfavorable attitude respectively as per the operational definition using the mean response as a reference.

Accordingly, the knowledge of Pediatrics nurses working at TASH towards pediatrics pain management was adequate in 79 (61.20%) of the participants. This result was relatively higher than the results of the studies done in Jordan, Rwanda, India and Mekelle university (54.3%, 54.7%, 40% and 58.6% respectively) [13],[14],[16],[11]. The reason for the discrepancy may be attributed to these studies being multicenter studies. Another reason could be because this research was specific to those nurses working at the pediatrics unit while the rest of the researches were not specific to pediatrics nurses except the Indian research. On the contrary, nurses participating in this study showed lower level of knowledge regarding pain assessment and management in children compared to studies done at the

university of Gondar comprehensive specialized hospital (66.9%) and a study done Western Australia (77.56%)[12,18]. The reason for this difference might be the Gondar study included all nurses in the hospital working at different departments, whereas the higher score in Western Australia nurses about pain relief in children might be related a continuous professional training about current pain management principles[18].

In this study 75 (58.10%) of the study participants had favorable attitude towards pediatric pain management. The result is relatively higher than studies done in India, Amhara region and the University of Gondar (UOG) comprehensive specialized hospital nurses having favorable attitude about pediatrics pain management (44%, 46.7% and 51.7% respectively) [16,11,12].The likely reason for this difference might be due to the difference in the study setting.

On the other hand, nurses participating in this study showed unfavorable attitude regarding pain assessment and management in children compared to the study done at Western Australia (73.77%)[18], in which the higher score in Western Australia might be related with a continuous professional training about current pain management principles and having adequate knowledge directly correlate with having favorable attitude.

The result of this study showed that 68 (52.7%) of the study participants had good practice which is higher than the study done in Amhara region (45.7%). The likely reason for the difference might be our study was done at tertiary level hospital and their study was done in multicenter and all nurses working in different departments were included. The result of this study is consistent with the study done at Mekelle University (55.8%).[11]

Multivariable logistic regression was done and the result showed that the adjusted odds ratio of nurses who worked in inpatient unit having good practice towards pediatric pain management was 4.733(95%CI 2.232, 10.034; p-value 0.0001) times more likely than nurses in outpatient unit.

Since this study was limited to a single center setting and only involved a stratified group of nurses, it may not represent the knowledge, attitude and practice of nurses towards pediatric pain management in other hospitals or even in other units of the hospital. Therefore a large multi centered and broader research which also includes observations and in depth interviews may help understand the situation better and help policy makers to depend on the results of the larger study to improve the pain service delivered to patients.

7. Strength and limitation

7.1 Strength

The study tried to dig out information about knowledge, attitude and practice of pediatric pain management among nurses working in pediatrics unit. Pediatrics pain management also have different misconception and myths, so this study tried to analyze, and give information towards the misconception areas.

It used stratified sampling method.

This study was specific to the nurses working in pediatric unit and involved each units.

7.2 Limitation of the study

It is a cross sectional study and it only reflects experience of nurses at the time of assessment and therefore, a causal relationship cannot be established between KAP and its predictors.

The study did not observe the actual practices of Pediatrics nurse's assessment and management of pain in children but relied on the self- report by the respondents.

This study was limited to Tikur Anbessa Hospital only. It would have been possible to assess multiple specialized hospitals found in Addis Ababa.

Questions about availability of guidelines and protocol, analgesic drugs, and training on pediatric pain management were not asked.

8. Conclusion and Recommendation

8.1Conclusion

The study assessed the knowledge, attitude, practice and factors associated with pediatrics pain management among nurses who worked at the Pediatric unit of TASH. Based on the findings of the study the following was concluded:

In this study, nurses working at the pediatrics unit were found to have adequate knowledge towards pediatrics pain management. Despite this, they had unfavorable attitude and poor practice towards pediatric pain management.

Statistically significant associations were identified between pain management and its associate factors. Among these, working at the outpatientunit was found to be a risk factor for having poor practice towards pediatrics pain management. In contrast, those nurses working at the inpatient unit had good practice compared to those who worked at the pediatric emergency.

Therefore the findings of this study suggest that, even though nurses had adequate knowledge, much work is expected to be done to improve their attitude and practice towards pediatrics pain management.

8.2 Recommendation

Based on the findings of this study, the following are recommended;

Knowledge of Nurses

Nurses had adequate knowledge towards pediatrics pain management. This should be maintained and further improved by adding additional trainings by the department of anesthesia, critical care and pain medicine and department of pediatrics and child health.

Practice and Attitude of Nurses

Nurses had poor practice and unfavorable attitude towards pediatric pain management therefore;

- Meetings for experience sharing between different strata of the pediatrics units should be organized by the nursing team and the department of pediatrics and child health.
- Specific protocols and pain assessment and management tools to check and balance the practice of pain management should be prepared by collaboration of the department of anesthesia, critical care and pain medicine and department of pediatrics and child health.

For Future Researchers

- Employing mixed methods of studies involving more than one hospital is recommended to gain more information is recommended

9. References

1. Treede R, Cohen M, Quintner J, Rysewyk S Van. The International Association for the Study of Pain definition of pain : as valid in 2018 as in 1979 , but in need of regularly updated footnotes. 2018;3:3-5.
2. Twycross A. Original Article Nurses ' Views About the Barriers and Facilitators to Effective Management of Pediatric Pain. *Pain ManagNurs*. 2013;14(4):e164-e172. doi:10.1016/j.pmn.2011.10.007
3. Objectives E. Module 6 Pain Management : Pediatric Pain Management Module 6 Pain Management : Pediatric Pain Management American Academy of Orthopaedic Surgeons. 2012;7:1-12.
4. Carré JM, Ortiz TL, Labine B, et al. Digit ratio (2D:4D) and psychopathic traits moderate the effect of exogenous testosterone on socio-cognitive processes in men. *Psychoneuroendocrinology*. 2015;62:319-326. doi:10.1016/j.psyneuen.2015.08.023
5. Mcguire DB, Donovan MI, Ferrell BR. Knowledge and Beliefs Regarding Pain in a Sample of Nursing Faculty. 1993;9(2).
6. Vincent CVH, Wilkie DJ, Wang E. Pediatric Nurses ' Beliefs and Pain Management Practices : An Intervention Pilot. Published online 2011. doi:10.1177/0193945910391681
7. Olmstead DL, Scott SD, Austin WJ. Nursing Ethics. Published online 2010. doi:10.1177/0969733010378932
8. Dowden S, Paed RN, Bed C, Mccarthy M, Sci BA, Sci MA. Achieving organizational change in pediatric pain management. 2008;13(4):321-326.
9. Ministry F. Pain Free Hospital Initiative Implementation Manual. Published online 2018.
10. Albertyn R, Rode H, Millar AJW, Thomas J. Challenges associated with paediatric pain management in Sub Saharan Africa. *Int J Surg*. 2009;7(2):91-93. doi:10.1016/j.ijsu.2009.01.005
11. Miftah R, Tilahun W, Fantahun A, Adulkadir S, Gebrekirstos K. Knowledge and factors associated with pain management for hospitalized children among nurses working in public hospitals in Mekelle City, North Ethiopia: cross sectional study. *BMC Res Notes*. 2017;10(1):2-7. doi:10.1186/s13104-017-2446-7
12. Liyew B, Dejen Tilahun A, HabtieBayu N, Kassew T. Knowledge and Attitude towards Pain Management among Nurses Working at University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia. *Pain Res Manag*. 2020;2020. doi:10.1155/2020/6036575
13. Sultan U, Abidin Z. Nurses ' Knowledge and Attitude towards Pediatrics ' Pain Management in Jordan. 2019;(August 2018).
14. Wolfe DT, Hermanson DR, Ii BAB, et al. No Title**رولن** صه خلا کی ش پز. *EducPsychol J*. 2017;2(2):65-72. doi:DOI:
15. Amponsah AK, Oduro E, Bam V, Kyei-Dompim J, Ahoto CK, Axelin A. Nursing students and nurses' knowledge and attitudes regarding children's pain: A comparative cross-sectional study. *PLoS One*. 2019;14(10):1-12. doi:10.1371/journal.pone.0223730
16. Patnaik S, Swain N, Behera CK, Jain MK, Nayak MK. Evaluation of Knowledge, Perception, Attitudes, and Practices of Pain Management of Children Among Pediatric Nursing Personnel of a Tertiary Care Hospital. *Indian J Child Health*. 2017;04(01):75-78. doi:10.32677/ijch.2017.v04.i01.020

17. June 2018 ababa, ethiopia. 2018;(June).
18. Peirce D, Corkish V, Np MN, Rscn RGN. Original Article Nurses ' Knowledge and Attitudes Regarding Pediatric Pain Management in Western Australia. *Pain ManagNurs*. 2018;19(6):707-717. doi:10.1016/j.pmn.2018.03.002
19. Lourens A, Parker R, Hodkinson P. Prehospital acute traumatic pain assessment and management practices in the Western Cape, South Africa: A retrospective review. *Int J Emerg Med*. 2020;13(1):1-12. doi:10.1186/s12245-02000278-w
20. Goetting M. Relationship between Knowledge, Attitudes and Self-Efficacy of Nurses in the Management of Pediatric Pain. Published online 2005:1-5.

10. ANNEXES

10.1 Information Sheet And Informed Consent

Dear respondent:

Hello, my name is Dr. RozaTaddesse. Today I am here to collect data on the assessment of knowledge, attitude and practice towards Pediatrics pain management among Pediatrics unit nurses in Addis Ababa University School of Medicine, Tikur Anbessa Specialized hospital, Addis Ababa, Ethiopia, 2020. I am asking you for a few minutes of your time to participate in this study. The information you document and you give will be very useful in the realization of this study, and it will be kept confidential. The Name and Address of the participant will not be recorded. You have the right not to answer for any questions which might be inconvenient for you. However, your information is very important for the study. And we would like to confirm to you that all your data are confidential and used for research purpose only.

Are you willing to participate in this study?

Sign----------

Thank you for spending your precious and valuable time.

10.2 QuestionerTool

Good morning/afternoon? I am Anesthesiology, critical care and pain medicine final year resident. I need to collect data regarding “knowledge, attitude and practice towards Pediatrics pain management among Pediatrics unit nurses at Addis Ababa University School of Medicine, Tikur Anbessa specialized Hospital, using questionnaires and collected by the principal investigator. It will take 15 to 20 minutes.

Your honest response is very important to produce quality data in the organization there by to plan appropriate measures that could be taken.

Thank you for your participation.

Principal investigator Dr. ROZA TADESSE, Email rozattg@gmail.com and phone number 0913335281

Part 1:	
1.1. Age in year	
1.2. Sex	A) Male B)Female
Marital status	A) Never married B) Married C) Living together D) Divorced E) Separated F) Widowed
1.3. Position	A) Registered staff B) unit coordinator
1.4 Educational level	A) Diploma Nurse B) Degree (BSC) C) Masters D) Doctorate E) Other, specify……
1.5. Work experience in year	A) <2 yrs B) 2-5yrs C) 5-10 yrs D) >10 yrs
1.6. In which Pediatric unit do you work ?	A) Pediatrics OPD B) Pediatrics ICU C) NICU D) Pediatrics ward E) Pediatrics Emergency
Part 2:	

2.1. The most accurate judge of the intensity of the patient's pain is the Patient?	A) True B) False
2.2. it is important to frequently assess and document pain in patients able to communicate.	A) True B) False
2.3. Children who are not able to communicate it is recommended to routinely assess and document pain	A) True B) False
2.4. Intramuscular route is the recommended route of administration of opioid analgesics to children with brief, severe pain of sudden onset (e.g. trauma or postoperative) pain	A) True B) False
2.5.if a child doesn't show/express pain then he/she has no pain	A) True B) False
2.6. Distraction, for example, by the use of music or relaxation, can decrease the feeling of pain	A) True B) False
2.7. Increasing analgesic requirements are signs that the patient is becoming addicted to the narcotic.	A) True B) False
2.8. Patients having severe chronic pain often need higher dosages of pain Medications than patients with acute pain.	A) True B) False
2.9. when asked if family/patient reports he/she has less pain after administration of narcotics, you should give lower dose of the narcotics dosage for the next time	A) True B) False

2.10. Because narcotics can cause respiratory depression, they should not be used in pediatric patients.	A) True B) False
2.11. One of the consequences of chronic unrelieved pain in pediatrics is psychological disorders later in life.	A) True B) False
2.12. It is important giving analgesics for patients with reduced facial expression.	A) True B) False
2.13. Giving narcotics on a regular schedule is preferred over PRN schedule for continuous pain.	A) True B) False

Part 3:	
3.1. Do you assess pain for children able to communicate?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.2. If yes, how frequently do you use a pain assessment tool for pediatrics patients?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.3. Do you administer pain medication to children without communicating a physician/doctor first?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)

3.4. Do you use Visual Analogue Score (VAS) for assessment of children's pain in your practice?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.5. Do you use (FACE scale) for assessment of children's pain in your practice?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.6. Do you use behavioral pain scale (FLACC) for assessment of children's pain in your practice?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.7. How often would you administer analgesics ordered as PRN to relive pain, if a child has already received standing dose?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.8. How often do you reassess children's pain after giving analgesics in order to evaluate the effectiveness of the pain medication?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.9. How often would you administer analgesics postoperatively according to the scheduled time	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.10. After the initial recommended dose of Opioid analgesic, would you communicate the doctor to adjust subsequent doses in accordance with the individual /patient's response?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)

3.11. Would you check and report for seniors if you find skin rash, headache, vomiting, and increased heart rate after administering opioid analgesics	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.12. How often would you discuss pain scores and managements‟ during nurse-tonurse report?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.13. How often is pain scores and management discussed during unit rounds?	A) Seldom (1-25%) B) Often (51-75%) C) Sometimes (26-50%) D) Routinely (>75%)
3.14. How often do you use nonpharmacological intervention for children's	A) Seldom (1-25%) B) Often (51-75%)

pain managements	C) Sometimes (26-50%) D) Routinely (>75%)
3.15. If you use non pharmacological interventions Thick (√) the methods you use for pain management in children	A) Diversion B) Music C) Hot/Cold compress D) Play room E) Pressure F) Acupuncture
Part 4:	
4.1. Infants and children experience pain equal to that experienced by adults	A) Agree B) Disagree C) Neutral
4.2. Parents should be present during painful procedures	A) Agree B) Disagree C) Neutral
4.3. Pain management and pain relive are of priority in children treatment	A) Agree B) Disagree C) Neutral

4.4. Children have the right to appropriate assessment and management of their pain	A) Agree B) Disagree C) Neutral
4.5. To better assess child's pain, the nurse can discuss with his/her parents	A) Agree B) Disagree C) Neutral
4.6. Assessment and control of child's pain leads to improved his/her parents satisfaction	A) Agree B) Disagree C) Neutral
4.7. Like other vital signs, pain score should be documented	A) Agree B) Disagree C) Neutral
4.8. To ensure patient's comfort and pain relive is one of the most important tasks of nurses	A) Agree B) Disagree C) Neutral
4.9. Available tools for measurement of pain are the best for determining pain severity in	A) Agree B) Disagree
children	C) Neutral
4.10. When the necessary procedures have been done for the patient, the persistence of pain does not cause problems	A) Agree B) Disagree C) Neutral
4.11. Measurement and control of child's pain can affect the healing process and reduces the hospital stay	A) Agree B) Disagree C) Neutral