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Pain Management Practice of Health Care Professionals and Associated Factors in Pediatrics at Governmental Referral Hospitals in Bahirdar, Ethiopia

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**BAHIRDAR UNIVERSITY COLLEGE OF MEDICINE AND HEALTH
SCIENCES DEPARTMENT OF PEDIATRICS AND CHILDHEALTH**



**PAIN MANAGEMENT PRACTICE OF HEALTH CARE PROFESSIONALS
AND ASSOCIATED FACTORS IN PEDIATRICS AT GOVERNMENTAL
REFERRAL HOSPITALS IN BAHIRDAR, ETHIOPIA**

BY

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**THESIS SUBMITTED TO THE DEPARTMENT OF PEDIATRICS AND
CHILD HEALTH COLLEGE OF MEDICINE AND HEALTH SCIENCE
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**BAHIRDAR UNIVERSITY COLLEGE OF MEDICINE AND HEALTH
SCIENCES DEPARTMENT OF PEDIATRICS AND CHILD HEALTH**

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ABBREVIATIONS

CI: Confidence Interval

ED: Emergency Department

HCP: Health Care Professionals

IM: Intramuscular

IV: Intravenous

KAP: Knowledge Attitude and Practice

NB: New Born

NG: Naso- Gastric

NSAIDS: Non-steroidal anti-inflammatory drugs

OR: Odds Ratio

TGSH: Tibebe Gion Specialized Hospital

SPSS: Statistical Package for Social Scientists

WHO: World Health Organization

CONTENTS

ACKNOWLEDGEMENT	2
ABBREVIATIONS	3
List of tables and figures	6
Abstract	6
1. INTRODUCTION	8
1.1 Background	8
1.2. Statement of problem	10
1.3. Significance of study	11
2. LITRATURE REVIEW	12
2.1. Practice Related to pediatrics pain management	12
2.2. Socio-demographic and environmental factors affecting practice on pain management	13
2.3. Knowledge factors affecting pain management practice	13
2.4 Attitude Related to pediatrics pain management	14
2.5. Conceptual Framework	15
3. OBJECTIVE	15
3.1: General objective	15
3.2 Specific objectives	15
4. STUDY METHOD	16
4.1. Study design and period	16
4.2. Study area	16
4.3. POPULATIONS	17
4.31. Source population/ Study population	17
4.32. Inclusion criteria	17
4.33. Exclusion criteria	17
4.4. Sample size determination	17
4.5. Sampling technique and procedure	17
4.6. Study Variables	18
4.62. Dependent variables	18
4.61. Independent Variables	18

4.7: Operational Definitions.....	18
4.8.1. Data collection instrument	19
4.8.2 Data collection methods and.....	19
4.8.4 ETHICAL STATEMENT.....	20
5. Results.....	20
5.1: Socio-demographic Characteristics of the Participants	20
5.2: Environmental characteristics of participants (N=155).....	21
7.3: Knowledge of respondents on pediatrics pain management practice (N=155)	21
7.4: Attitude of respondents on pediatrics pain management practices.....	24
7.5: Practices on pain management in pediatrics	26
7.6: Association of pain management practice and associated factors	29
6. DISCUSSION	30
7: LIMITATIONS OF THE STUDY	32
8: CONCLUSION.....	33
9: RECOMMENDATIONS.....	33
10: RERERRENCES AND ANNEXES.....	35
10.1: REFERENCES	35
10.2: ANNEXES.....	37
Annex I: participant Information Sheet	37
Annex II: Questionnaire, English Version.....	38
I, Socio demographic and environmental factors	38
II. Knowledge Survey Regarding Pain	39
III. Attitude Survey Regarding Pain	40
II. Practice Survey Regarding Pain.....	40

List of tables and figures

Table 1: sociodemographic characteristics of participants (N=155)	20
Table 2 Environmental factors affecting pain management practice in pediatrics(N=155)	21
Table 3: knowledge of respondents on pediatrics pain management practice (N=155)	22
Table 4: distribution of respondents' knowledge on pain management practices in pediatrics (N=155)	23
Table 5: attitude of respondents on pediatrics pain management practice (N=155).....	25
Table 6: distribution of respondents' attitude on pediatrics pain management practices (N=155)	26
Table 7: distribution of respondents practice on pediatrics pain management (N=155)	26
Table 8: Association of practice on pain management and associated factors (N=155)	29
Figure 1: Conceptual Framework showing the relationship of practice on pain management and associated factors.	15
Figure 2: Commonly used analgesics in pediatrics.....	29

Abstract

Background: Pain is a global challenge that has complexity and a multidimensional phenomenon. According to International Association for the Study of Pain (IASP), the newest definition of pain is a distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive and social components. Pain has detrimental effect on pediatrics but most HCPs in both developing and developed countries have limited level of practice in pain management.

Objective: To assess practice of health care professionals in pediatrics pain management and associated factors in governmental referral hospitals at Bahirdar, Ethiopia 2020.

Method: A cross-sectional institution-based study was conducted on HCPS working in TGSH and FSHs in Bahirdar. The data collection was undertaken from August 1 to 30, 2020 by prepared questionnaire. It was cleaned, entered and analyzed by SPSS version 23. The study population were HCPs in pediatrics department and pharmacy units in governmental referral hospitals at Bahirdar with a sample size of 155. After analysis frequency and percentages were used to summarize the finding and significance of determinant factors were tested using binary Logistic regression and Odds Ratio & $P \leq 0.05$ was considered significant.

Result: The results of the study showed that 60.6% of HCPs had good practice and 39.4% had poor practice in pediatrics pain management. Regarding their knowledge the result showed majority of HCPs had good knowledge towards pediatrics pain management. It was found that, knowledge was significantly associated to pediatrics pain management practice with 0.025 P- value.

Conclusion and Recommendation: The finding emphasized the need to improve practices of HCPs on management of pain in children by improving the knowledge level of HCPs. Majority of HCPs had no in-service training, pain management protocol, previous course on pain management and pain assessment tools. The findings also showed use of WHO pain management ladder was limited. This study recommends development of mechanism to provide HCPs in-service training on pain management of children, incorporate content into the undergraduate courses and avail pain management protocol in the hospitals to improve pain management practices in pediatrics.

Key words: Pain, pain management, HCPs, pediatrics, practice, knowledge, attitude

1. INTRODUCTION

1.1 Background

Pain is an individual, multifactorial experience influenced by culture, previous pain events, beliefs, moods, and ability to cope. It may be an indicator of tissue damage but may also be present in the absence of an identifiable cause (1).

According to the International Association for the Study of Pain [IASP] Pain is an unpleasant sensory and emotional experience associated with actual or potential damage or described in terms of such damage. Every day millions of people suffer from pain whether they are in the hospital, their homes, or assisted living facilities. Pain is one of the most common reasons that patients seek medical treatment as well as being one of the most feared consequences for patients (2)

According to Fitzgerald and the American Medical Association, infants and children may experience a painful stimulus more intensively than adults, due to stronger inflammatory response and lack of central inhibitory influence. The American Academy of Pediatrics has stated that, despite the vast literature describing how to assess and manage pain in children by using low-cost, widely available, convenient, and safe methods, it has not been used (3). It is over a decade since the declaration of “the relief of pain should be a human right” by World Health Organization (WHO), and the International Association for the Study of Pain (IASP). But, studies from different regions of the world continued to report that pain in hospitalized children is staggeringly prevalent but undocumented and untreated (4)

Researches show that once the primary causes of pain are diagnosed or identified, the main reason for which patients seek professional help is forgotten. As a result, many of the patients admitted to the ED are discharged unrelieved from their pain (5). Effective pediatric pain management is an elusive target. Children remain undertreated for some reasons, such as lacking physicians’ prescription and nurses’ knowledge in pain assessment and management. Sometimes patient did not receive sufficient treatment for their pain, even after medication for pain relief, they still experience moderate pain (6).

Pain has detrimental effect on pediatrics by increasing anxiety, delay wound healing, has long term neuropsychiatric effects, decrease social interaction and school performance. A long-term negative

effect of untreated pain on pain sensitivity, immune functioning, neurophysiology, attitudes, and health care behavior are supported with numerous evidences. Health care professionals' who care for children are mainly responsible for abolishing or assuaging pain and suffering when possible. In pediatric age, it is more difficult to assess and treat pain effectively relatively to adults (7).

Successful management of pain depends on regular assessment, reassessment and documentation of the source, cause, and characteristics (intensity, site, and type) of the pain (8). Analgesic pharmacotherapy is the mainstay of pain management. Although concurrent use of other interventions is valuable in many patients and essential in some, analgesic drugs are needed in almost all cases (5). The practice of assessing pain and its management in pediatric patients can show a discrepancy based on the different countries and their respective health institutions. So, this review focused on the contemporary practice and new advances in pediatric pain assessment and its management.

1.2. Statement of problem

Pain is a personal experience that impacts the quality of life, unless health care professionals give quality care to prevent patients from sense of pain. Ineffective pain management can affect patients' physiologic, psychological, and financial status (9). The prevalence and severity of pain amongst hospitalized patients is up to 75% of patients experience moderate to severe pain and that in many cases this pain is not managed correctly in globally (10).

Studies in Asian countries showed that the practice of healthcare professionals in pediatrics pain management ranges from 48% to 80% (11, 12). Studies done in Sub-Saharan countries showed that practice of healthcare professionals in pediatrics pain management ranges from 32% to 62% (5, 13).

The factors associated with low level of practice are; lack of availability of pain management protocol/guideline, lack of pain assessment tool, short duration of experience in pain management, and low level of knowledge and attitude in pediatrics pain management (5, 13, 14).

Today, pain in children is not adequately addressed, and yet there is a deficiency of knowledge in the treatment of pain in people of different areas of health, such as physicians, nurses, psychologists,

and dentists. Medical staff often exhibit widespread and inappropriate attitudes towards pain management in children despite the efficacy of a variety of psychological and pharmacological interventions for reductions the pain (15). More research is needed to evaluate if pediatrics pain management methods are providing optimal pain management for their patients and if they have the necessary knowledge and attitudes to do so (16). Pain management interventions in pediatrics are actually useful, because they are decreasing stress, anxiety, and improve neuropsychiatric condition of children; but, medical personnel as well as patient's knowledge of these therapies are not well researched. Research related to health care professionals' practice regarding pediatrics pain management in the hospital care setting in Ethiopia is limited, no any documented study in government hospitals in Bahirdar reporting health care professionals' practices related to pain management.

This study is useful to determine the baseline level of health care professionals' practice regarding pediatrics pain management and to identify associated factors in government hospitals in Bahirdar.

1.3. Significance of study

It is a known fact that our children are the greatest assets of our country. They are the future leaders. Providing an optimal health to children in terms of physical, social, intellectual development should thus be a priority concern of everybody. This study will contribute for proper healthcare administration, enhance the quality of health given to children, develop applicable guidelines, help to design education programs on pain management and research in governmental referral hospitals at Bahirdar and Ethiopia at large to identify, gaps in health care professionals' level of pain management in pediatrics.

Pain management may help in reducing pain and must be encouraged as part of Complementary pain management effort. It improves both the quality of care and healthcare outcomes or quality of life. This research result is important for; policy making and administration, to increase quality of health, to develop applicable guidelines in the hospitals and, education and research purposes in higher learning institutions.

The study will identify major gaps in practice and to identify associated factors on practice of HCPs' on pediatrics pain management.

2. LITRATURE REVIEW

2.1. Practice Related to pediatrics pain management

A cross sectional study done in Brazil in 2016, showed that, (31.8%) nurses and (5%) physician reported that there were pain protocols that included neonatal pain scales that were posted on the walls of the neonatal units. The need to evaluate pain in NBs for its proper treatment was recognized by 65% of physicians, who stated they agreed with this statement, and 45.5% of nurses who strongly agreed with this statement (17).

A cross sectional study done in Jordan revealed that, in regard to coordinating/performing/assisting in the care of pain while performing procedures such as lumbar puncture, insertion of a chest tube and central catheter, 50% of physicians agreed with the statement (18).

A cross sectional study done in India in 2009 showed that; nearly two-thirds of the respondents (62.3%) felt that non-pharmacological measures are better to control pain rather than the drugs; of these the most common method reported was distraction like music. Majority (76.6%) of health care professionals' practices showed that they were willing for the parental presence during minor invasive procedure as it helped to calm the child. Regarding to the practices of various relieving measures used for procedures: Bone marrow aspiration; most of the respondents used local anesthesia (68.8%) and sedation (64.9%). Lumbar Puncture; local anesthesia (67.5%) and sedation (51.9%) were the most commonly reported intervention (12).

A cross sectional study done in Cameroon Yaoundé University Hospital in 2019 shown that, concerning participants' practices towards pain, 62.1% administered an analgesic based on the patient's complaint. The decision to administer WHO group I analgesics was adequate in 72.4% of physicians. The administration of WHO group II and III analgesics was adequate in 69% of physicians. With regards to the most used analgesics, paracetamol was the most used analgesics by 98.3% physicians, followed by tramadol used by 75.9% physicians and diclofenac used by 37.9% physicians. Morphine was the least reported analgesic, used by only 8.6% physicians (13).

2.2. Socio-demographic and environmental factors affecting practice on pain management

Cross sectional study done in Iran showed that there was no significant difference between the two sexes in the two studied groups. Results showed that medical residents scored significantly higher than nurses with respect to this item (medical residents: 4.0% vs. nurses: 0.0%) (11).

A cross sectional study done in Jordan revealed that, more than half of the respondents were females (54%) and half of them were young adults (25–35 years old). About 40% of HCPs had qualifications of five years or less in their work. (18).

A cross sectional study done in Brazil in 2016, showed that, 31.8% nurses and 5% physician reported that there were pain protocols that were posted on the walls of the neonatal units (17)

A cross sectional study done in Eritrean in 2019 revealed that, concerning participant in practice on pain management, only 31.7% of the nurses caring for emergency patients had prior training regarding pain assessment and management. Lack of availability of pain assessment tools, lack of protocol/ guidelines for pain management and lack of protocols/guidelines for pain assessment were the main identified problems for lower level of practice (5).

2.3. Knowledge factors affecting pain management practice

Cross sectional study done in Iran showed that, among residents, only 21.1% of pediatricians answered knowledge questions correctly. The percentages of correct answers from medical residents and nurses to narcotic drug questions, non-narcotic drug questions, and non-drug-related questions were calculated separately. Medical residents scored significantly higher than nurses in all three categories of pain control methods (11).

A cross sectional study done in Brazil in 2016 showed that, in regard to knowledge of specific scales to assess pain in new born (NBs), 36.4% of nurses and 35% of physicians agreed. A higher proportion of physicians in comparison to nurses agreed that there is a need to know about scales to assess pain in NBs (17).

Cross sectional study done in Jordan regarding HCPs' knowledge revealed that, medical doctors were the most knowledgeable professionals 36.1%, followed by pharmacists 35.5% and nurses 24.1% (17).

A cross sectional study done in Cameroon Yaoundé University Hospital in 2019 showed that, on average, the level of knowledge of the physicians was rated “poor”, with a mean score ranged from 3-24. This corresponded to 45 (77.6%) participants having a poor level of knowledge, 10 (17.2%) with an insufficient level of knowledge, and 3 (5.2%) has a moderate level of knowledge (13).

A cross sectional study done in Eritrean in 2019 revealed that, mean score of 80% or higher, which has been accepted as adequate knowledge regarding pain management, was not achieved by any of the participants. Nurses with a higher level of education (bachelor’s degree) scored significantly higher knowledge score than those at the diploma level (5).

2.4 Attitude Related to pediatrics pain management

A cross sectional study done in Iran in 2016 showed that; among participants, 62.4% incorrectly believed that opioids were not good drugs and that it was better for patients to tolerate pain as much as possible; 63.6% of medical residents and 95.6% of nurses overestimated the likelihood of addiction following narcotic utilization for pain management (11).

A cross sectional study done in Brazil, showed that, in regard to the statement that NBs do not need painkillers due to immaturity of their nervous system, 72.7% of nurses and 55% of physicians disagreed with this statement. It is also notable that 36.3% of nurses and 30% of physicians disagreed with the statement that sedatives (e.g., chloral hydrate, midazolam) do not relieve pain in NBs (17).

A cross sectional study done in India showed that, majority (64.9%) of the respondents believed that the best judge of the intensity of pain would be child himself/ herself. Only 33% of health care professionals reported that they were assessing pain intensity experienced by children routinely. However, none of them reported routine use of any of the pain assessment scales, 32.4% of HCPs believed that a child complaining of pain despite increasing the amount of analgesic was only due to development of physiological dependence (12).

A cross sectional study done in Eritrean in 2019 revealed that, mean score of 80% or higher, which has been accepted as adequate attitude regarding pain management, was not achieved by any of the participants (5).

2.5. Conceptual Framework

Conceptual framework showing the relationship between practice of healthcare professionals on pediatrics pain management and associated factors (5).

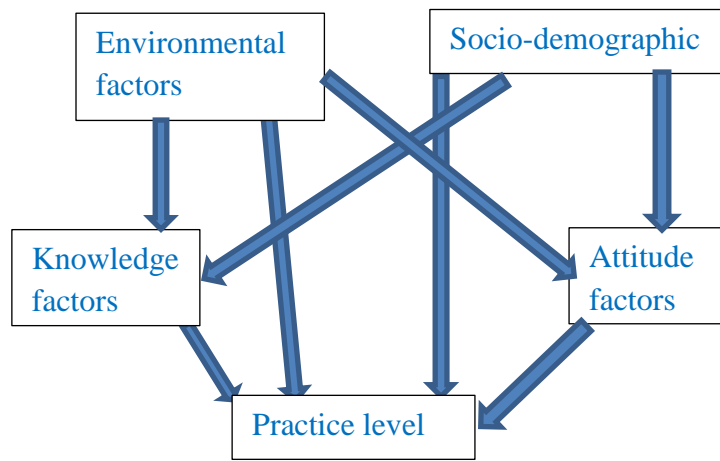


Figure 1: Conceptual Framework showing the relationship of practice on pain management and associated factors.

3. OBJECTIVE

3.1: General objective

To assess practice of health care professionals and to identify associated factors in pediatrics pain management

3.2 Specific objectives

to assess practice of health care professionals in pediatrics pain management.

to assess knowledge level of HCPs on pain management in pediatrics.

to assess attitude of HCPs on pain management in pediatrics.

to identify associated factors for pediatrics pain management practice.

4. STUDY METHOD

4.1. Study design and period

Institution based Cross-sectional study with structured questionnaire was conducted from August 1 to 30, 2020 to assess practice of health care professionals and to identify associated factors on practice of pain management in pediatrics in TGSH and FSHs in Bahirdar.

4.2. Study area

The study was conducted in Tibebe Ghion and Felegehiwot specialized hospitals in Bahirdar. The town is located 560km to the north from Addis Ababa. The annual estimated rainfall of the town is about 1498.7ml and the average daily temperature is 19.08 degree centigrade and the weather condition is Kolla. TGSH and FSH hospitals are teaching hospitals and are now the main teaching

hospitals for both clinical and preclinical training of most disciplines. In these hospitals the largest numbers of health care professionals have contact with variety patient with pain.

4.3. POPULATIONS

4.3.1. Source population/ Study population

All health care professionals working in pediatrics department and pharmacists working in TGSH and FSHH, in Bahirdar who fulfil inclusion criteria.

4.3.2. Inclusion criteria

Health care professionals working in pediatrics department, and pharmacists working in TGSH and FSHHs in Bahirdar during study period and stayed for 6 months and above in pediatrics department/in pharmacy serving pediatrics.

4.3.3. Exclusion criteria

All health care professionals who were not available on working place during study period, duration of stay in pediatrics department less than 6 months.

4.4. Sample size determination

The sample size was calculated using a single population proportion formula $[n = \frac{(Z_{\alpha/2})^2 P (1-P)}{d^2}]$ by assuming 95% confidence level ($Z_{\alpha/2} = 1.96$), margin of error 5%, prevalence of 50%, since there was limited research done in the same setting as this study), and a 10% addition for missing/incomplete data; gave the final sample size of 384 participants, but the total healthcare professionals are (200) less than 10,000, correction formula was used. $n_f = n_i \times \frac{N}{n_i + N} = 384 \times \frac{175}{384 + 175} = 120 + 10\% = 132$

Since the total population of the study subjects in 2 hospitals were 175, the researcher included all available health care professionals.

4.5. Sampling technique and procedure

This study involved sample of 175 healthcare professionals from two hospitals who met the inclusion criteria and 155 HCPs were involved in the study.

4.6. Study Variables

4.62. Dependent variables

Practice on pain management (good/poor)

4.61. Independent Variables

Socio demographic (age, sex, level education, work experience)

Environment (presence of protocol & assessment tool, having training in pain management)

Knowledge (good/poor)

Attitude (favorable/unfavorable)

4.7: Operational Definitions

Pediatrics: Neonates, infants and adolescents age less or equal to 18yrs.

Pain management: is the relieve of pain or reduction in pain to a level that is acceptable to the client.

Practice: HCPs' activities in relation to pain management.

Good practice: HCPs who answered 80% and above of practice questions.

Poor practice: HCPs who answered below 80% of practice questions.

Presence of protocol: Availability of standard pediatrics pain management guideline.

Presence of standard tool: Availability of children' pain assessment tool.

Knowledge: A familiarity, awareness or understanding of HCPs' regarding pain management

methods gained through experience or study.

Good knowledge: HCPs who answered 80% and above the knowledge questions

Poor knowledge: HCPs who answered below 80% of the knowledge questions

Attitude: Pattern of HCPs' mental views towards pain management methods

Favorable attitude: HCPs who answered mean and above the mean of the attitude questions

Unfavorable attitude: HCPs who answered below the mean of the attitude questions.

Non-pharmacological pain management: therapies that help to decrease pain without the use of medications

4.8.1. Data collection instrument

A structured self-administered questionnaire was used to collect data from participants. Our questionnaires were taken from questionnaires used in countries mentioned in literature reviews by compiling them. It was presented in English. It consisted of closed and open questions, and had four parts.

part one: socio-demographic and environmental factors: it included questions about the following data: age, gender, occupation, work experience, presence of protocol ,any course taken, training & assessment tool.

Part two: HCPs' knowledge assessment questionnaire: It included questions to assess HCPs' knowledge regarding pain management in pediatrics

Part three: HCPs' attitude assessment questionnaire: It included: questions to assess HCPs' attitude on pain management in pediatric patients.

Part four: HCPs' practice assessment questionnaire: Included questions to assess practice of HCPs' in pediatrics pain management.

4.8.2 Data collection methods and Quality control

The Data was collected by the principal investigator after the questionnaires were distributed for the HCPs'. Pre-test: was carried out on 5% from actual sample size HCPs who fulfill the criteria Prior to the actual data collection. They were chosen from other wards in the hospital who worked in pediatrics for 6 months and above. This initial study was conducted to test the content applicability,

clarity and arrangement of the items needed for each questionnaire. After pre -test un clear questions were changed and corrected.

4.8.3 Data processing and analysis

Data was checked, cleaned, entered and analyzed by SPSS version 23.0 software. The result was expressed as percentage and frequency. Binary logistic regression was used to show the associations between independent variables and dependent variable. Both crude and adjusted OR were used as measure of association. Level of significance also was checked at p-value 0.05.

4.8.4 ETHICAL STATEMENT

Before conducting the study, proposal was reviewed by independent College of Health and Medical Sciences Institutional Health Research Ethics Review Committee (IHRERC) for possible ethical issues.

The study used structured questionnaire by administering to the participants after taking verbal informed consent from the participant. Support letter was obtained from Bahirdar University Medical and Health science Collage.

5. Results

5.1: Socio-demographic Characteristics of the Participants

A total of 175 questionnaires were distributed among all HCPs working in pediatrics department pharmacy units in Tibebe-Ghion and Felege-hiwot specialized hospitals.

The response rate for distributed questionnaires was 88.6% from total of 175 questionnaires, but the response was 155 which is greater than calculated sample size which was 132. Most of participants' age was between 30 and 39 (42.6%) and the least 28 (18.1%) were ages 40 and above years. The majority of the participants were males 112 (72.3%).

Most of the respondents 70 (45.2%) were physicians by profession and the least 22 (14.2%) were pharmacists. The majority of the respondents 68 (43.9%) had work experience of 1 to 5yrs (table 1).

Table 1: sociodemographic characteristics of participants (N=155)

variables	Number (%)
Age in yrs: 20-29	61 (39.5)
30-39	66 (42.6)
>=40	28 (18.1)
Sex: male	112 (72.3)
female	43 (27.7)
Profession: physician	70 (45.2)
nurse	63 (40.6)
pharmacist	22 (14.2)
Work experience in yrs:	
<5	114 (73.5)
>=5	41 (28.5)

5.2: Environmental characteristics of participants (N=155)

Among all participants in the study, 86 (55.5%) said they took pain management course in their undergraduate study. Most of participants 95 (61.3%) said that there was no pain management protocol in their institution. Most of the participants 128 (82.6%) didn't take any in-service training in their institutions. The majority of respondents 102 (65.8%) didn't have any pain assessment tool in their institution (table 2).

Table 2 Environmental factors affecting pain management practice in pediatrics(N=155)

Variable	Number (%)
Presence of course on pain management:	
yes	86 (55.5)
No	69 (44.5)
Presence of pain management Protocol:	
yes	60 (38.7)
No	95 (61.3)
Having Inservice training:	
yes	27 (17.4)
No	128 (82.6)
Presence of pain assessment tool:	
yes	53 (34.2)
no	102 (65.8)

7.3: Knowledge of respondents on pediatrics pain management practice (N=155)

Among the respondents 114 (73.5%) had good knowledge (figure 3) and most of them 84 (75%) were male participants (table 3).

Most knowledgeable participants 50 (81.9%) were in the age group between 20 and 29 yrs and the least knowledgeable group were ages 40 and above years. Regarding to profession of the participants, physicians were the most knowledgeable 58 (82.9%), followed by nurses 43 (68.0%) and pharmacists 13 (59%). Majority of participants 85 (74.6%) with good knowledge had work experience of less than 5yrs.

Most of the participants who took pain management courses 66 (76.7%) had good knowledge.

Majority of the respondents who had in-service training in pain management 23 (85.2%) had good knowledge.

Most of the participants who had pain management protocol 50 (83.3) had good knowledge.

Majority of participants who had pain assessment tool 42 (79.2%) had good knowledge (Table 3).

Table 3: knowledge of respondents on pediatrics pain management practice (N=155)

variables	Knowledge: Number (%)	
	Good	Poor
Sex: male	84 (75.0)	28 (25.0)
female	30 (69.8)	13(30.2)
Age: 20-29	50 (81.9)	11 (18.1)
30-39	47 (71.2)	19 (28.8)
>=40	17 (60.7)	11 (39.3)
Profession: physician	58 (82.9)	12 (17.1)
Nurse	43 (68.0)	20 (32.0)
pharmacist	13 (59)	9 (41.0)
Work experience in		
yrs: <5	85 (74.6)	29 (25.4)
>=5	29 (70.7)	12 (29.3)
course taken:	66 (76.7)	20 (23.3)
yes	48 (69.6)	21 (30.4)
no		
In-service training: yes	23 (85.2)	4 (14.8)
no	91 (71.1)	37 (28.9)
pain protocol: yes	50 (83.3)	10 (16.7)
no	64 (67.4)	31 (32.6)

Pain assessment tool:	42 (79.2)	11 (20.8)
yes	72 (70.6)	30 (29.4)
no		

Table 4: distribution of respondents' knowledge on pain management practices in pediatrics (N=155)

Variables	Frequency	Percent
-----------	-----------	---------

Most of respondents 50 (75.8%) with favorable attitude were between the ages of 30 to 39 yrs and the least favorable attitude were ages 40 and above yrs. Regarding to the profession of the participants most of physicians 59 (84.5%) had favorable attitude and most of pharmacists 10 (45.5%) had unfavorable attitude. Most of respondent 87 (76.3%) with favorable attitude had work experience of less than 5yrs (table 5).

Table 5: attitude of respondents on pediatrics pain management practice (N=155)

variables	Attitude: Number (%)	
	Favorable	unfavorable
Age in yrs:20-29	46 (75.4)	15 (24.6)
30-39	50 (75.8)	16 (24.2)
>=40	17 (60.7)	11 (39.3)
Sex: male	81 (72.3)	11 (27.7)
female	32 (74.4)	11 (25.6)
Profession: physician	59 (84.3)	11 (15.7)
Nurse	42 (66.7)	21 (33.3)
pharmacist	12 (54.5)	10 (45.5)
Work experience in yrs:<5	87 (76.3)	27 (23.7)
>= 5	26 (63.4)	15 (36.6)

Table 6: distribution of respondents’ attitude on pediatrics pain management practices (N=155)

Variables	Frequency	percent	
Children under two years of age have decreased pain sensitivity and limited memory of painful experiences:	Agree	86	55.5%
	Disagree	69	45.5%
Usually children perceive pain less than adults:	Agree	105	67.7%
	Disagree	50	32.3%
Patients who can be distracted from pain usually do not have severe pain:	Agree	80	51.6%
	Disagree	75	48.4%
Infant patients cannot tolerate opioids for pain relief:	Agree	81	52.3%
	Disagree	74	47.7%
When children get pain, this will be reduced or disappear spontaneously:	Agree	74	47.7%
	Disagree	81	52.3%
Analgesics should not be administered continuously because children may develop addiction:	Agree	55	35.5%
	Disagree	100	64.5%
During minor procedures parents are better to be near by their children:	Agree	121	78.1%
	Disagree	34	21.9%
Information should be given for family about analgesic administration for their child:	Agree	144	92.9%
	Disagree	11	7.1%

7.5: Practices on pain management in pediatrics

Majority of respondents 94 (60.6%) had good practice on pain management in pediatrics (figure 5).

Table 7: distribution of respondents practice on pediatrics pain management (N=155)

Variables	always No (%)	nearly always No (%)	Sometimes No (%)	Very seldom No (%)	not at all No (%)
You give IV route opioids for patients with brief, severe pain of sudden onset	51 (32.9)	37 (23.9)	56 (36.1)	6 (3.9)	5 (3.2)
You use analgesia during procedures like bone marrow aspiration in children	66 (42.6)	26 (16.8)	31 (20.0)	10 (6.5)	22 (14.2)
You use analgesics in children during wound care	25 (16.1)	15 (9.1)	72 (46.5)	13 (8.4)	30 (19.4)
You use pain assessment scale to manage pain in children	59 (38.1)	18 (11.6)	32 (20.6)	25 (16.1)	21 (13.5)
You use WHO pain management ladder for pediatrics pain management	51 (32.9)	24 (15.5)	44 (28.4)	19 (12.3)	17 (11)
You use Iv/IM route of administration for severe pain in pediatrics	52 (33.5)	39 (25.2)	47 (30.3)	11 (7.1)	6 (3.9)
You use Paracetamol for pain management in pediatrics	70 (45.2)	47 (30.3)	31 (20.0)	4 (2.6)	3 (1.9)
You use NSAIDS (like ibuprofen) for pain management in pediatrics.	14 (9)	40 (25.8)	77(49.7)	16 (10.3)	8 (5.2)
You use morphine for pain management in pediatrics	5 (3.2)	11 (7.1)	94 (60.6)	33 (21.3)	12 (7.7)
You use non-pharmacological pain management (like music, distraction and diversion) in children to decrease pain	5 (3.2)	15 (9.7)	71 (45.8)	27 (17.4)	37 (23.9)

Most of the respondents 119 (76.8%) said that they used WHO pain management ladder to manage pain in pediatrics (table 8). Most of the respondents used paracetamol 148 (95.5%) followed by NSAIDs 131 (84.5%) for pain management in pediatrics (figure 6). Most of the participants 138

(89.0%) said that they used intravenous or intramuscular route of administration for severe pain in pediatrics.

Majority of the participants 123 (79.3% used analgesics during bone marrow aspiration and 112 (72.3%) during wound care.

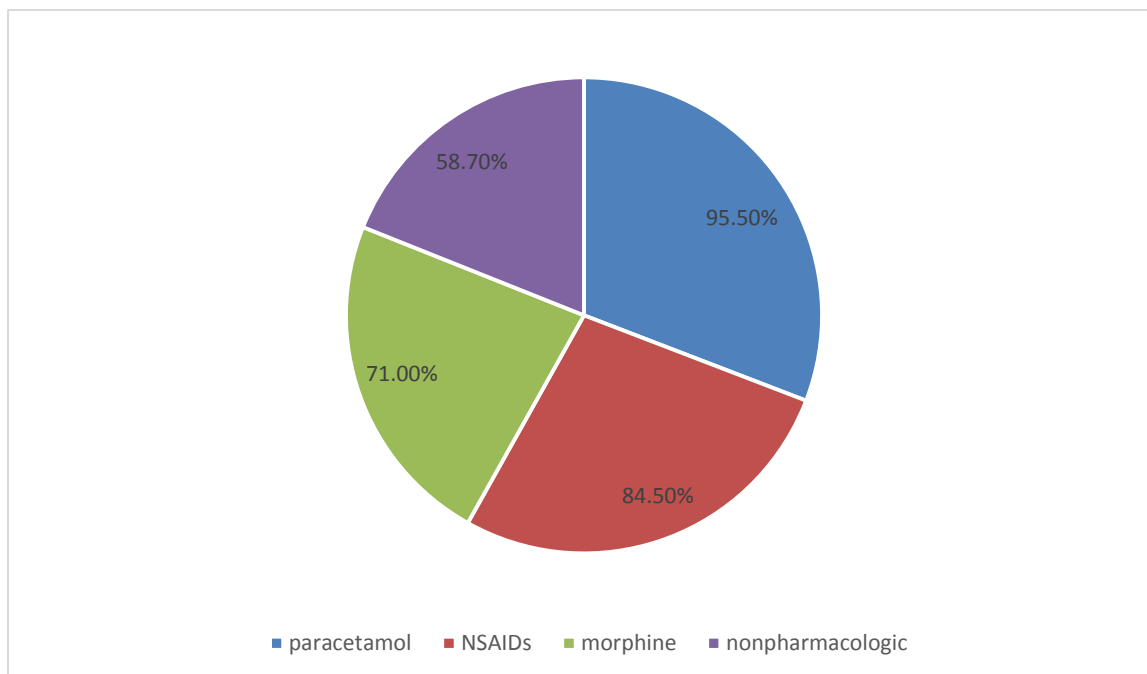


Figure 2: Commonly used analgesics in pediatrics.

7.6: Association of pain management practice and associated factors

Crude analysis and adjusted odds ratio both on binary logistic regression showed that pain management practices in participants was significantly associated with knowledge of health care professionals on pain management practices in pediatrics at p value 0.025 (Table 6).

The study also showed that HCPs who have good knowledge on pain management practice have 2.6-fold odds to practice pain management in pediatrics (AOR =2.59 (95% CI (1.10, 6.10) (table 6).

Adjusted odds ratio on binary logistic regression showed that attitude was not significantly associated with pain management practices in pediatrics (AOR=1.34 [95%CI, 0.60-3.00]) (table 6).

Similarly, age, sex, work experience, Inservice training, presence of pain management protocol and pain management tool have no significantly associated with pain management practices in pediatrics (table 6).

Table 8: Association of practice on pain management and associated factors (N=155)

Variables	Practice		COR (95%CI	AOR (95%CI
	Poor	good		
Age (in yrs): 20-29	24	37	1.001 (0.52-1.94)	1.25 (0.55-2.86)
>=30	37	57	1	1
Sex: male	48	64	1	1
Female	13	30	1.73 (0.83-3.67)	1.84 (0.83-4.07)
Profession: physician	32	38	1	1
nurse	24	39	1.37 (0.69-2.74)	1.29 (0.57-2.93)
pharmacist	5	17	2.86 (0.95-8.62)	2.23 (0.62-8.01)
Work experience in yrs: <5	46	68	1	1
>=5	15	26	1.17 (0.56-2.45)	1.08 (0.43-2.69)
Any course taken: yes	37	49	1	1
no	24	45	1.42 (0.74-2.72)	1.49 (0.74-3.02)
Having in-service training: yes	11	16	1	1
no	50	78	1.07 (0.46-2.98)	1.03 (0.41-2.58)
Presence of pain protocol: yes	20	40	1.52 (0.78-2.98)	1.87 (0.74-4.687)
no	41	54	1	1
Presence of Pain assessment tool: yes	19	34	1.25(0.63-2.49)	1.09 (0.43-2.76)
no	42	60	1	1
Knowledge: poor	10	31	2.51 (1.13-5.60)	2.59 (1.10-6.10) *
good	51	63	1	1
Attitude: unfavorable	14	28	1.42 (0.68-2.99)	1.34 (0.60-3.00)
Favorable	47	66	1	1

* at p-value of 0.025

6. DISCUSSION

The aim of this study was to assess the practice of health care professionals in pain management and associated factors in pediatrics. This study found that practice level of healthcare professionals is 60.6%.

This study is consistent with the study done in Cameroon Yaoundé University Hospital in 2019 shown that, concerning participants' practices towards pain, 62.1% administered an analgesic based on the patient's complaint.(13).

It is also consistent with the study done in Brazil in 2016, proper treatment was recognized by 65% of physicians and 45.5% of nurses (17).

Majority of participants (77%) in our study support parental presence during minor procedures which is consistent with the study done in India in 2009 that showed 76.6% support the presence of parents during minor procedures (LP and IV line insertions) (12).

The most commonly used anti-pain in our study is paracetamol 95.5% which is less than that of the study done in Cameroon which shows 98.3%, this difference might be probably pain reporting differences in two settings (17). Majority of the respondents 76.8% in our study use WHO ladder for pain management which is better from study done in Cameroon that shows 72.4% (17).

Regarding to Inservice training on pain management only 17.4% of participants take it which is much lower than that of the research done in Eritrea shows in-service training of 34.2%, this difference may probably be in our setup the research is done at teaching hospitals one of the hospital TGSH is new governmental teaching hospital may not have enough time to train HCPs (5).

In our study regarding to knowledge on pain management, 83% of physicians, 68% of nurses and 59% of pharmacists have good knowledge on pain management practice. This study shows HCPs in our study have better knowledge than the study done in Jordan regarding HCPs' knowledge revealed that, medical doctors were the most knowledgeable professionals 36.1%, followed by pharmacists 35.5% and nurses 24.1 % (17), this difference may be due to the reason that the pain in Jordan may be managed by pain and palliative care specialists and those HCPs may not have place to manage pain in pediatrics.

More than half of our participants 52.9% believe that children should endure much pain before giving analgesics. Which is better than the study done in Iran in 2016 showed that; among participants, 62.4% incorrectly believed that analgesics (opioids) were not good drugs and that it was better for patients to tolerate pain as much as possible before pain management (11).

The relationship between knowledge and practice of pain management was assessed.

Our study found that respondents with good knowledge have 2.6-fold odds to practice pain management than those who are with poor knowledge (AOR=2.59[95%CI: 1.10-6.10]).

We assessed age, sex, profession, duration of experience, and attitude relation with pain management practice and have no significant association with level of practice on pain management in pediatrics.

7: LIMITATIONS OF THE STUDY

The researcher acknowledges the following limitations of this study

1. The finding of this study might have been influenced by subject response bias because self-reporting nature of the questionnaire.
2. The study design used was a cross sectional, because of time constraint.

8: CONCLUSION

The study showed that there was strong association between the level of knowledge of health care professionals and level of practices on pediatrics pain management. Our study showed that 60.6% Of HCPs had good practice which was consistent with the study done in Brazil and Cameroon.

Majority of health care professionals had no in-service training after graduation, no pain management protocol in the institution, no previous course on pain management and no pain assessment tools.

Respondents who had pain management protocol, in-service training, taking pain management course and having pain assessment tool in the hospital had good knowledge. The findings of the present study also emphasized the need to improve the knowledge and practices of health care professionals in pain management in pediatrics.

9: RECOMMENDATIONS

Based on the finding in this study the following recommendations are forwarded:

- 1: It is recommended to have in-service training on pain management in pediatrics.
- 2: It is advisable to include pediatrics pain management contents in undergraduate courses..
- 3: It is recommended to avail pain management protocol and assessment tools in hospitals.
- 4: It is helpful to conduct further study in order to gain additional variables by observational cohort with mixed qualitative study design.

10: RERERRENCES AND ANNEXES

10.1: REFERENCES

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10.2: ANNEXES

Annex I: participant Information Sheet

How are you? My name is _____ and I am a graduate student at Bahirdar University, College of Medicine and Health Science; School of Medicine. You will participate if you give me consent after you have understood the following information sheet:

What the study is about: The purpose of this study is to assess health care professionals and to identify associated factors in practice of pediatrics pain management.

Study Design: Institutional based cross-sectional study

What I will ask you to do: If you agree to participate in this study, I will administer questionnaire.

The questionnaire will include questions about your socio demographic characteristic, knowledge, attitude and practice on pain management.

Risks and benefits: there is no payment and risk or discomfort you should fear as a result of participating in this study except that you lose time for filling questionnaire.

Confidentiality: you will be kept confidential since the questionnaire doesn't contain name.

If you have questions: You can contact the me and if you need to clarify the question you can ask me at any time of the interview.

Address of the principal investigator

NAME: Gezahegn Kasahun

PHONE: +251918469263

E-MAIL: Gezahegnkassahun2018@gmail.com.

Annex II: Questionnaire, English Version

Bahirdar University College of Medicine and Health Science; School of Medicine: English Version
Questionnaire for health care professionals (questionnaires were developed from WHO pain management protocol and from previous researches).

Direction: Please mark “X” in the box that is appropriate for you

I, Socio demographic and environmental factors

1 age: -----

2, sex: 1 male 2 female

3, profession:

1, Physician

2, Nurse

3, Pharmacist

4, Work experience in years:

< 1 yr. 1 - 5yrs 6 -10yrs 11– 15yrs > 15yrs

5, Is there pediatric pain management contents included in your curriculum when you studied.

Yes No

6, Have you undertaken any further continue education/training on pediatrics pain management

Yes No

7, Are there any pain management standards or protocols in your hospital? Yes
No

8, Is there any standard pain assessment tool in your hospital? Yes No

II. Knowledge Survey Regarding Pain

Vital signs are always reliable indicators of the intensity of a patient's pain:

yes --1

No---2

Patients should be encouraged to endure as much pain as possible before using analgesics: yes---1

No---2

During the caring of pediatrics patients, providing comfort and positioning reduce pain: yes---1

No---2

The most accurate judge of the intensity of the patient's pain is patient himself: yes---1

No---2

Paracetamol is the drug of choice for the treatment of severe pain in children: yes----1

No---2

Pain in children has no long-term neuro -cognitive effect, but disturbs them as pain occur: yes----1

No----2

Every crying child should be assessed for possible use of anti-pain:

Yes---1

No---2

The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is oral route: yes---1

No----2

III. Attitude Survey Regarding Pain

Children under two years of age have decreased pain sensitivity and limited memory of painful experiences:	Agree-- ---1
	Disagree-----2
Usually children perceive pain less than adults:	Agree ---1
	Disagree ----2
Patients who can be distracted from pain usually do not have severe pain:	
	Agree ----1
	Disagree ---2
Infant patients cannot tolerate opioids for pain relief:	Agree --1
	Disagree --2
When children get pain, this will be reduced or disappear spontaneously:	
	Agree ---1
	Disagree ---2
Analgesics should not be administered continuously because children may develop addiction:	Agree ----1
	Disagree ---2
During minor procedures parents are better to be near by their children:	
	Agree ----1
	Disagree ----2
Information should be given for family about analgesic administration for their child:	
	Agree ----1
	Disagree---2

II. Practice Survey Regarding Pain

Variables	always 1	nearly always 2	Sometimes 3	Very seldom 4	not at all 5
You give IV route opioids for patients with brief, severe pain of sudden onset					
You use analgesia during procedures like bone marrow aspiration in children					

You use analgesics in children during wound care					
You use pain assessment scale to manage pain in children					
You use WHO pain management ladder for pediatrics pain management					
You use Iv/IM route of administration for severe pain in pediatrics					
You use Paracetamol for pain management in pediatrics					
You use NSAIDS (like ibuprofen) for pain management in pediatrics.					
You use morphine for pain management in pediatrics					
You use non-pharmacological pain management (like music, distraction and diversion) in children to decrease pain					

THANK YOU.