ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCE

TIKUR ANBESSA SPECIALIZED HOSPITAL

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE OF GYNECOLOGY AND OBSTETERIC RESIDENTS ABOUT PAIN MANAGEMENT OF FIRST TRIMESTER SURGICAL ABORTION VIA SUCTION AND CURETTAGE IN TIKUR ANBESA SPECIALIZED HOSPITAL, GANDI MEMORIAL HOSPITAL AND ZEWDITU MEMORIAL HOSPITAL ADDIS ABABA, ETHIOPIA

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Title of the Study	Assessment of Knowledge, Attitude and Practice of Gynecology and Obstetrics Residents about Pain Management of First Trimester Surgical Abortion via Suction and Curettage in Tikur Anbesa Specialized Hospital, Ghandi Memorial Hospital and Zewditu Memorial Hospital Addis Ababa, Ethiopia, 2017
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Study period	October 2 – November 6, 2017
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List of abbreviations

AAUMF	Addis Ababa University Medical Faculty
FTSA	First trimester surgical abortion
GA	General Anaesthesia
GMH	Gandi Memorial Hospital
GOR	Gynaecology and Obstetrics Residents
LA	Local Anaesthesia
PCB	Para-cervical block
R1	First year resident
R2	Second year resident
R3	Third year resident
R4	Forth year resident
SPSS	Statistical Package for Social Science
TASH	Tikur Anbessa Specialized Hospital
ZMH	Zewditu Memorial Hospital
NSAID	Non-Steroidal Anti-Inflammatory Drugs

Abstract

Background: First Trimester Surgical Abortions (FTSA) especially cervical dilation and suction aspiration are associated with pain. Researchers estimated that in Ethiopia, in 2008, as many as 103,140 of induced abortions were performed in health facilities. Between 2008 and 2014, the proportion of abortions occurring in facilities rose from 27% to 53%.There is no available data or guideline to know the pain management practice during first trimester abortions In Ethiopia. There is also lack of available study done to assess the level of knowledge, attitude and practice of physicians toward pain management practice during First Trimester Surgical Abortion.

Objectives: The aim of this research is to assess knowledge, attitude and practice of Gynecology and Obstetrics Residents in the management of pain during First Trimester Surgical Abortion via Suction and curettage in TASH, GMH and ZMH.

Methods: Multi center cross-sectional study in three hospitals (TASH, GMH and ZMH) was conducted during the month of October 2 – November 6, 2017 to assess knowledge, attitude and practice of GOR in the management of FTSA. A total of 62 residents participated in this study from a total population of 76. Structured, self-administered questionnaire was used to collect the data. The collected data was analyzed through SPSS version 20 software.

***Results*:** The proportion of residents who had good knowledge regarding pain management during first trimester surgical abortion was found to be only 11%. The residents who had good practice of pain management were 6.5% and there were 83.5% of residents who had favorable attitude regarding pain management. There was significant association between the knowledge of the respondents and attaching in TASH with (n=7) and P value of 0.004. Attitude index of the respondents has also significant association with year of residency with a p value of 0.0329.

***Conclusion and Recommendations*:** There was very low measured knowledge and attitude level of the physicians. And also the physicians own assessment of the suboptimal pain management practice of their hospital leads us to recommend further training on pain management options suitable for our setup.

Keywords: Pain management, First trimester, Knowledge, Attitude, Practice.

1 Introduction

1.1 Background

Pain is subjective and can differ from one person to another. Pain assessment can be a simple process by assessing location and intensity of pain (1). Failing to assess pain may affect quality of life, and increase the length of stay of hospitalized clients (2). The International Association for the Study of Pain defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.” Pain has several classifications; common categories are: acute pain, chronic pain, and cancer pain (3).

Pain perception is a complex phenomenon comprised of both physical and psychosocial elements and their interaction, and varies considerable among women (4). The physical pain women experience with abortion most likely originates from the S2 to S4 parasympathetic fibers (The Franken Hauser plexus) that innervate the cervix and the lower part of the uterine body (5-6). In addition, the fundus and lower part of uterine body are innervated by sympathetic fibers from T10 to L1 via the inferior hypo-gastric nerve, and the ovarian plexus (7).

Psychological (affective, motivational, interpretive), and social (context, support) features play into pain perception [9].Increased pain with abortion has been associated with young age, nulliparity, less education, anxiety, depression, “moral problems” (with the procedure),a retroverted uterus and dysmenorrhea [10,11].Due to this complex nature, effective management of abortion-related pain requires a combination of pharmacological and non -pharmacological methods (8).

Pharmacological methods include local anesthetic, non-steroidal anti-inflammatory medications, narcotics, anxiolytics, sedatives and/or hypnotics. Concerns regarding GA arise from its association with greater costs, need for skilled personnel and increased morbidity and mortality based on observational data of cases until the mid-1980s (9-11). Therefore, GA is less frequently used in the United States compared to other countries, where abortions occur primarily in hospitals (12-13).

Non pharmacological aspects of pain have a considerable impact on pain perception (7). Active participation in one's own pain management and control over the life situation has been found to be beneficial [10]. Unfortunately, despite these advances, many patients in the developed world still find

surgical abortion extremely uncomfortable; 78–97% report at least moderate procedural pain (4,11,14). Therefore, optimizing pain control should be a goal in every procedure.

Although there have been significant improvements in post-abortion care programs around the world, improving pain management has remained a significant challenge. The introduction of manual vacuum aspiration (MVA) has led to many positive changes in programs, but the guidelines for pain control have generally been vague (15).

Women are often treated with no pain control or in some cases receive too much pain medication. There are many factors contributing to this situation, including: the belief that women who have induced an abortion should be punished, the idea that pain control is unnecessary, and the lack of availability of drugs and inadequate training and/or skills of providers (16). Opinions may vary on how much pain reduction is clinically relevant especially where there is lack of awareness of the health professional on how to manage abortion pain in the limited resource setting (15).

Researchers estimated that in Ethiopia, 382,000 induced abortion procedures were performed in 2008, and as many as 103,140 of them were performed in the designated heath facilities (17). Between 2008 and 2014, the proportion of abortions occurring in facilities rose from 27% to 53% (18). There is no available data available to know the pain management practice during first trimester abortions In Ethiopia.

Strategies designed to reduce abortion-related pain have great public health importance considering the large numbers of women who undergo first trimester surgical abortions.

1.2. Statement of the problem

Although there are various options of pain management modalities available in on our setup, (Tikur Anbessa Specialized Hospital, Zewditu Memorial Hospital and Ghandi Memorial Hospital), the pain that is experienced by the women undergoing surgical abortion is not managed according to the recommendations of the WHO safe abortion guideline. The issue of pain control during abortion is complicated not only by the psychosocial aspects of pain, but also by the context of a procedure so

deeply stigmatized as abortion. Because of this stigma and the limited knowledge and awareness about the pain that women experience, the effort done to relieve their pain is also very limited.

1.2. Significance of the study

Although nurses take the lion's share in the responsibility of assessment and management of pain in the postoperative period, The national guideline of safe abortion Ethiopia give the role of intraoperative pain management specifically administration of narcotics, sedatives and Para-Cervical block only for Gynecology and Obstetrics resident's, General Practitioners, Health Officers and Midwives. Nurses have partial role in the management of pain. This study is focused in assessing the knowledge, attitude and practice of those with the privilege of the highest training regarding this matter.

This study will create awareness about the knowledge, attitude and practice of pain management during FTSA via SC among GOR. The performance of the residents' in the management of pain experienced by women of child bearing age is a concern to the Gynecology and Obstetrics department and the officials who are concerned in improving the healthcare system of the country. On the basis of this research finding, the study will be expected to give some possible solution and recommendation to solve the existing problems. Researchers will use this study as a stepping stone to conduct in-depth searches in relation to this issue.

2. Literature review

Although SC is a minor surgery, it involves a great deal of pain. Managing surgical abortion pain is more of a neglected issue. There are no available local or international literatures done on the knowledge and attitude of physicians or other professionals on issues of intra-OP pain management when performing surgical abortions.

The Technical and Procedural Guidelines for Safe Abortion Services in Ethiopia, has no topic dedicated to pain management during surgical or medical abortion. It only mentions “pain medication” under essential and basic supplies. It also states the need for local or general anesthesia for surgical abortions done under dilation and curettage. Under this guideline narcotics and PCB is not given by nurses. Gynecologists & Obstetricians, General practitioners, Health officers and midwives are allowed to give narcotics and PCB.(19)

According to The WHO safe abortion guideline recommends the use of both pharmacologic and non-pharmacologic methods in pain management.

The non-pharmacologic methods of FTSA includes

- Respectful, non-judgmental communication,
- Verbal support and reassurance,
- Gentle smooth operative technique,
- Advance notice of each step of the procedure (if the woman desires it),
- The presence of a support person who can remain with her during the process (if the woman desires it),
- Encouraging deep, controlled breathing,
- Listening to music or
- Using Hot water bottle or heating pad.

The pharmacologic recommendation includes;

- Analgesia, NSAIDs (e.g. Ibuprofen 400–800 mg).
- Anxiolytics/ sedatives (e.g. Diazepam 5–10 mg),

- Local anaesthetic (Para-cervical block using Lidocaine (usually 10–20 mL of 0.5 to 1.0%),
- Conscious sedation or general anaesthesia in some cases, not routinely.
- And a detailed procedure on how to administer Para-Cervical block (PCB)

Paracetamol is not recommended to decrease pain during abortion. To ensure that oral medications will be most effective at the time of the procedure, administer those 30–45 minutes before the procedure (20).

A study done in 2015, on the knowledge, attitudes and management practices on post-operative pain among surgical nurses of Philippines relieved that the nurses had low knowledge on post-operative pain with an overall mean score of (51.97%). The low knowledge score concentrated on the concepts on pharmacology. However, they have a high level of post-operative pain management. No significant differences and relationship were observed on the nurses' knowledge, attitudes, and practices when they are grouped according to socio-demographic variables. Nurses' knowledge and attitudes do not influence their practices. Increasing nurses' experience and education will not guarantee improving knowledge and practice on post-operative pain management; (21)

A study done in the Middle Eastern on Physicians' Attitudes to Clinical Pain Management and Education over a period of six months included a total of 69 physicians; fifty-seven percent reported "very good to excellent" pain management skills; only 25% of them described the need for continuing professional development. When treating patients with pain, 52% of physicians refer to updated international guidelines, whereas 43% rely on their own judgment. Fear of adverse effects of analgesics was the most commonly reported barrier (45%) to pain control among physicians of different level of experience (22).

Another study on Physicians' knowledge about pharmacological management of cancer pain was done on 111 licensed physicians most of the physicians showed inadequate knowledge of the pharmacological management of cancer pain. Crucial knowledge deficits of principle were identified in the preferential analgesic route and schedule. The severe practice knowledge deficits were on the Meperidine, transdermal fentanyl, equi-analgesic dose-conversion as well as analgesics for different pain types (23).

Another study done on Opioid analgesics for pain control on Wisconsin physicians' knowledge, beliefs, attitudes, and prescribing practices of randomly selected licensed physicians showed that A majority considered addiction to be a combination of physiological and behavioral characteristics, rather than defining it solely as a behavioral syndrome. Most physicians felt it lawful and acceptable medical practice to prescribe opioids for chronic cancer pain, but only half held this view if the pain was not related to cancer (24).

Exploring beliefs and practice of opioid prescribing for persistent non-cancer pain by general practitioners prescribing opioids was predicted by moderate belief in the appropriateness of opioids within certain constraints, and to a lesser extent by younger age. While some beliefs distinguished prescribers from non-prescribers, predicting non-prescribing was poor. Both prescribers and non-prescribers expressed concern about the risks of opioids. In addition, most primary care doctors were dissatisfied with their training on pain; few had prescribing guidelines; and neither training nor guidelines influenced prescribing. In conclusion, whether or not GPs prescribe opioids for persistent non-cancer pain is mainly determined by their personal beliefs about appropriateness of opioids for this problem (25).

In the developing countries like Ethiopia, there is shortage of manpower and necessary infrastructure, equipment’s and drugs. This paper is aimed at assessing the knowledge attitude and practice of the current pain management during FTSA via SC.

3. OBJECTIVES:

1.2. General Objectives

To assess knowledge, attitude and practice of management of intraoperative pain during the first-trimester surgical abortion among Gynecology and Obstetrics residence work at TASH, GMH and ZMH, Addis Ababa, Ethiopia, 2017.

1.3. Specific Objectives

- To assess the knowledge of Gynecology and Obstetrics residents on the available pain management options at TASH, GMH and ZMH.
- To assess the attitude of Gynecology and Obstetrics residents on the available pain management options at TASH, GMH and ZMH.
- To assess the practice of Gynecology and Obstetrics residents on the available pain management options at TASH, GMH and ZMH.

4. Methodology

4.1. Study area and period

The study was conducted at three teaching hospitals namely Tikur Anbessa Specialized Hospital (TASH), Gandi Memorial Hospital (GMH) and Zewditu Memorial Hospital (ZMH). Addis Ababa University Medical Faculty Department of Gynecology and Obstetrics teach its residents in these three teaching hospitals. All the hospitals are residing in Addis Ababa, Ethiopia. The study was conducted from October 2 - November 6/2017.

4.2. Study design

A Multicenter, descriptive and analytical cross sectional study was conducted to assess knowledge, attitude and practice of GOR towards pain management during FTSA by suction and curettage in TASH, GMH and ZMH.

4.3. Source population

Residents from 1st year to final year in Addis Ababa University Medical Faculty

4.4. Study population

The study subjects were all residents specializing in Gynecology and Obstetrics who fulfill the inclusion criteria.

4.5. Inclusion and Exclusion criteria

4.5.1. Inclusion criteria

All Residents studying Gynecology and Obstetrics in AAUMF who was present during the study period.

4.5.2. Exclusion criteria

- Residents who have not yet done surgical abortion by themselves.
- Residents who are not present during the study period

- Residents who are not willing to participate

4.6. Sample size determination

All Gynecology and Obstetrics residence that were attaching at all three hospitals

4.7. Sampling technique

All residents available during time of data collection were participated.

4.8. Methods of data collection

The data was collected by a semi-structured self-administered questionnaire adapted from the American pain society. It was used with slight modification in our study. It consists of 3 parts. Part I was used to assess the knowledge of residents regarding pain management. Part II was used to assess the attitude of the participants towards pain management and part III assessed the pain management practice of the respondents.

4.9. Variables

4.9.1. Dependent variables

- Knowledge of pain management**.**
- Attitude towards pain management.
- Practice of pain management

4.9.2. Independent variables

- Socio demographic variables (Age, Sex, Nationality)
- Undergraduate training centre
- Current attachment Hospital
- Year of residency
- Number of procedures done

4.10. Operational definition

- **Favourable attitude:** respondents who answer >80 % of the attitude questions
- **Unfavourable attitude:** respondents who answer < 80% of the attitude questions
- **Optimal Knowledge**: respondents who answer >80% total knowledge question have sufficient knowledge and
- **Sub-optimal knowledge:** respondents who answer <80% has insufficient knowledge about pain management.
- **Good Practice:** respondents who have practiced >80% of the pain management practice questions during their whole practice period.
- **Poor Practice:** respondents who have practiced < 80% of the pain management practice questions during their whole practice period.

4.11. Data collection Instrument

The quality of data was assured by using the “Knowledge and Attitudes Survey Regarding Pain” tool (26). This tool was modified to meet the inquiry of this study. It was then pretested on 3 Gynecology and Obstetrics residents of St. Paul’s Millennium Medical College.

4.12. Data quality assurance

Three trained BSc Nurses was recruited for data collection and the principal investigator was assigned for supervision. The questionnaires were pre-tested in St. Paulos Hospital to assess clarity, sequence, consistency, understandability and for total time it takes before the actual data collection.

4.13. Methods data analysis and interpretation

Each completed questionnaire was checked manually for completeness before data entry. The data were coded and entered into EPI info version 3.5. Cleanup was made to check accuracy and consistency, and any error identified was corrected. Final data were exported to SPSS (Statistical Package for Social Science) version 20 for further clean up and analysis. Frequencies and cross tabulations were used to check for missing values and variables. An error identified was corrected after revising the original questionnaire. Descriptive statistics were computed.

Descriptive statistics such as frequency and proportion for categorical variables including cross-tabulations were used for data summarization. Finally, Fisher's exact test, Chi-Square test and bivariate Pearson Correlation analysis was used to identify determinant factors for knowledge, attitudes and practice towards pain and to test statistical significance of the associations between independent and dependent variables. All p values were two tailed with the significance level set at 0.05.

Type of measurements and method used for assessment of knowledge, attitude, and practice towards pain are described as follows:

- To generate the summarized level of knowledge, 16 questions were calculated and presented. Correct answers were given score 1 and incorrect answers 0. The sum was computed and those who scored above 80% were labelled as having "optimal" knowledge and those who scored below 80% were labelled to have "Sub-optimal knowledge'.
- Ten attitude indicators items of pain management were used to measure the overall attitudes of the respondents towards pain management. Six negative and four positive attitude items were included in order to maintain the balance of responses. The ten items were answered as either 'agreed strongly', 'agreed', 'neutral or no opinion about the statement under consideration', 'disagreed slightly', or 'disagreed strongly' (a five-point Likert scale). For statements that reflect good attitude ("Strongly agree" and "Agree"), are labelled 1 and if strongly disagreed up on ("Neutral", "Disagree" or "Strongly disagree") are labelled 0. For statements that reflect bad attitude if agreed up on ("Strongly agree" and "Agree"), are labelled 0 and if disagreed up on ("Neutral", "Disagree" or "Strongly disagree") are labelled 1. The responses on each attitude

items were scored and tallied then the total of each respondent's score was ranged from 0–10 (0% – 100%). A score of 80% and above was considered to be a '*favourable attitude'* whereas those scoring below 80% were thought of as having an '*unfavourable attitude'*.

- Pain management practice was assessed by using 14 practice items. Each practice items were measured as: "Never practiced", "sometimes," and "always" and the corresponding response were scored out of 2; by assigning 0 to "never", 1 to "sometimes" and 2 to "always". After computing a total score for individual respondent; (out of 100%), those participants who scored 80% and above were categorized as having "good Practice", while those participants who scored below 80% were categorized as having "Poor practice".

The measurements for Knowledge, attitude and practice were adopted from previous researchers [27].

4.14. Ethical considerations

Permission to carry out the study was obtained from the Institutional Review Board (IRB) of Addis Ababa University College of health science, school of medicine, department of anesthesiology. Oral informed consent was obtained from participants. Confidentiality of the collected information was maintained through coding and ensuring that they were only accessible to the research team.

4.15. Dissemination of the result

The result of this study will be disseminated to policy makers, Black Lion Specialized Hospital, AAU school of Medicine and other concerned bodies through presentations and publications.

5. Result

5.1. Socio-demographic characteristics of the respondent

From 71 Gynecology and Obstetrics residents who work at the three hospitals, 62 participated in the study with 87.3% response rate. The age of participant was between 23 and 36 years old with a mean age of 29.4 with SD of 2.7. 48.4% of the participants were between the age of 25 – 29 years and 85.5% of the respondents were male. Ethiopian nationals were 90.3% the rest were South Sudanese. Regarding school of under graduate training 7.1% studied at Addis Ababa University and 16.1% studied at Hawassa University.

Table1. Socio-demographic characteristics of gynecology and obstetrics residents

Variables	Frequency	Percentage (%)
Age		
<25 Years	2	3.2
25 - 29 Years	30	48.4
30 - 34 Years	25	40.3
>35 Years	5	8.1
Sex		
Male	53	85.5
Female	9	14.5
Year of Residency		
1st	13	21.0
2nd	14	22.6
3rd	19	30.6
4th	16	25.8
School of Undergraduate		
Addis Ababa University	23	37.1
University of Gondar	9	14.5
Haromaya University	2	3.2
Hawassa University	10	16.1
Hayat Medical College	6	9.7
Jimma University	4	6.5
Juba University	6	9.7
Mekele University	2	3.2
Nationality		
Ethiopia	56	90.3
South Sudan	6	9.7
Current attachment hospital		
TASH	26	41.9
GMH	19	30.6
ZMH	17	27.4

5.2 Respondents Knowledge about pain management

Knowledge score lie between 7 –14 with a mean score of 10.18 (SD ±1.9). Generally only 11.3% (7) of the respondents was knowledgeable about pain management. (Fig-1)

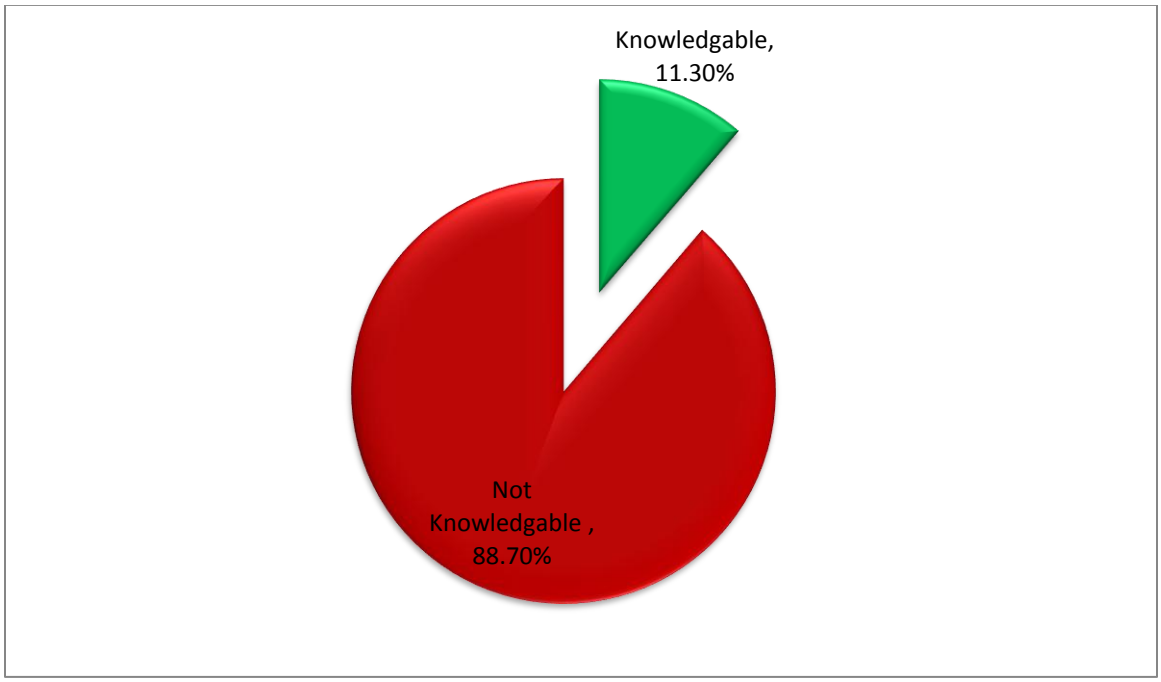

Figure 1 Gynecology and Obstetrics residents Knowledge category

From a total of 16 questions that measure respondents knowledge; 4.8% of the respondents chose to avoid opioids completely in patients with respiratory problems and 25.8% of them responded does not know opioid reversal. More than 80% of the respondent knew onset of diclofenac. (Table 2)

Table 2. Gynecology and Obstetrics residents Knowledge about pain management of surgical abortion.

Variables	**Response**			
	Correct		***Incorrect***	
	Frequency	***Percentage (%)***	***Frequency***	***Percentage (%)***
Vital sign are always reliable indicators	*48*	*77.4*	*14*	*22.6*
Benzodiazepines are effective pain reliever	*42*	*67.7*	*20*	*32.3*
IM Diclofenac onset of action starts after 15 min	*50*	*80.6*	*12*	*19.4*
NSAID agents are effective analgesia	*52*	*83.9*	*10*	*16.1*
Combining analgesics may result in better pain control	*43*	*69.4*	*19*	*30.6*
The recommended route of administration of opioid analgesics for trauma or postoperative pain is IV	*53*	*85.5*	*9*	*14.5*
Analgesics for post-operative pain should initially be given on PRN	*52*	*83.9*	*10*	*16.1*
Opioids should be avoided in patients with respiratory compromise	*3*	*4.8*	*59*	*95.2*
The time to peak effect for Pethidine given IV is 45 min	*28*	*45.2*	*34*	*54.8*
The time to peak effect for Diclofenac given IM is 5 min	*33*	*53.2*	*29*	*46.8*
The maximum dose of Tramadol given IV is 2mg/kg	*41*	*66.1*	*21*	*33.9*
Knowing things to do after giving 100 mg of IV Pethidine for 50 KG patient.	*52*	*83.9*	*10*	*16.1*
If a patient develop respiratory rate < 8 breath/ minute after giving IV morphine, we should not give flumazenil reversal.	*16*	*25.8*	*46*	*74.2*
Paracetamol is not recommended to decrease pain during abortion	*27*	*43.5*	*35*	*56.5*
To ensure that oral medications will be most effective at the time of the procedure, administer them 1- 2hrs before the procedure	*43*	*69.4*	*19*	*30.6*
After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.	*48*	*77.4*	*14*	*22.6*

5.2. Respondents Attitude about pain management

83.5% of the respondents have Favorable attitude about pain management. (Fig 2)

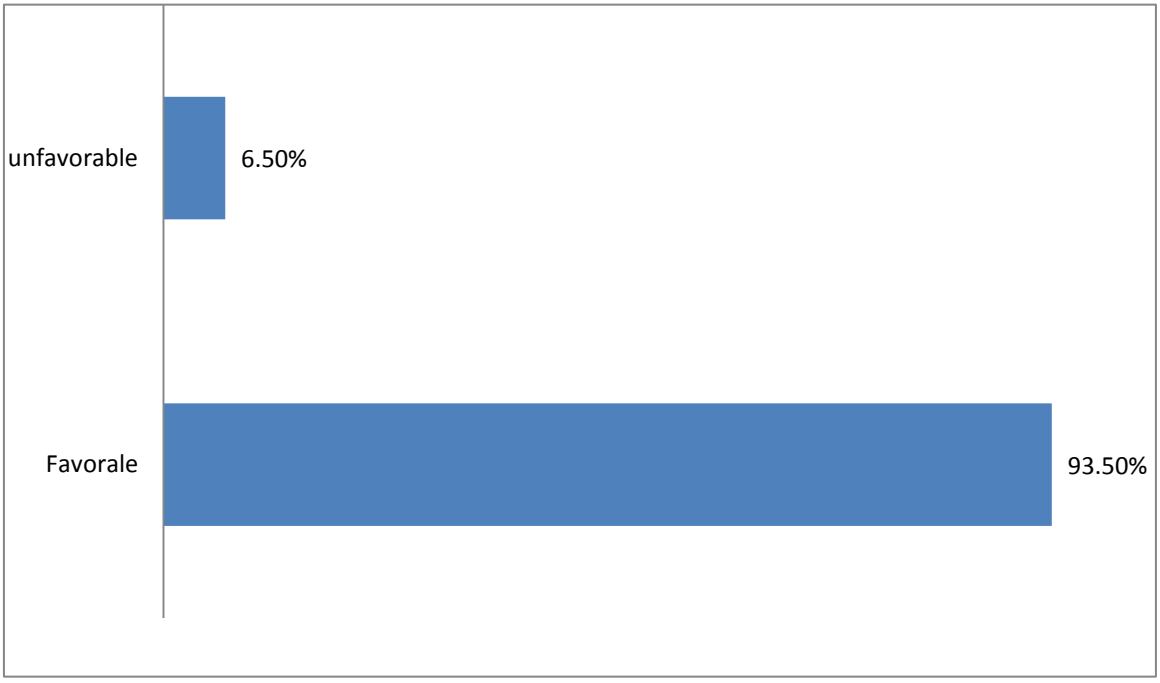

Figure 2. Gynecologic and Obstetric residents Attitude index

From the listed attitude questions, 100% of the respondents had favorable attitude by agreeing that surgical abortion is invasive and the pain needs to be managed. 83.9% of the respondent also had favorable attitude by disagreeing to encourage their client to endure as much pain as possible before administering opioid. 40.3% of residents did not have favorable attitude towards the use of local anesthesia routinely. 48% of the respondents had unfavorable attitude regarding the use of pain assessment tools. They agreed that using pain assessment tools usually creates unnecessary delay and consumes time for other activities (Table 3)

Table3. Gynecology and Obstetrics residents Attitude about pain management of surgical abortion

Negative questions	***Favourable attitude***	***Unfavourable attitude***
Surgical abortion is less invasive so it does not need to be managed.	62 (100%)	0 (0%)
Patients should be encouraged to endure as much pain as possible before using an opioids	52 (83.9%)	10 (16.1%)
Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real	48 (77.4%)	14 (22.6%)
Using pain assessment tools usually creates unnecessary delay and consumes time for other activities	33 (53.2%)	29 (46.8%)
Because patients are not medically educated, cannot give reliable report of their pain	59 (95.2%)	3 (4.8%)
Opioids should be avoided for fear of addiction	53 (83.9%)	9 (16.1%)
patients who are complaining of pain often, means he/she is seeking staff attention	57 (87.1%)	5 (12.9%)

Positive questions	***Favourable attitude***	***Unfavourable attitude***
Suction and curettage is a painful procedure	61 (98.4%)	1 (1.6%)
Strong Opioids like morphine should be added on NSAID if patient feels pain.	44 (71%)	18 (29%)
Local anaesthetic's are safe and simple and should be used routinely.	37 (59.7%)	25 (40.3%)

5.3. Respondents Practice about pain management

Gynecology and Obstetrics residents who were attaching in all three hospitals during the study period had very low practice of pain management 6.5%.while performing suction and curettage. (Fig

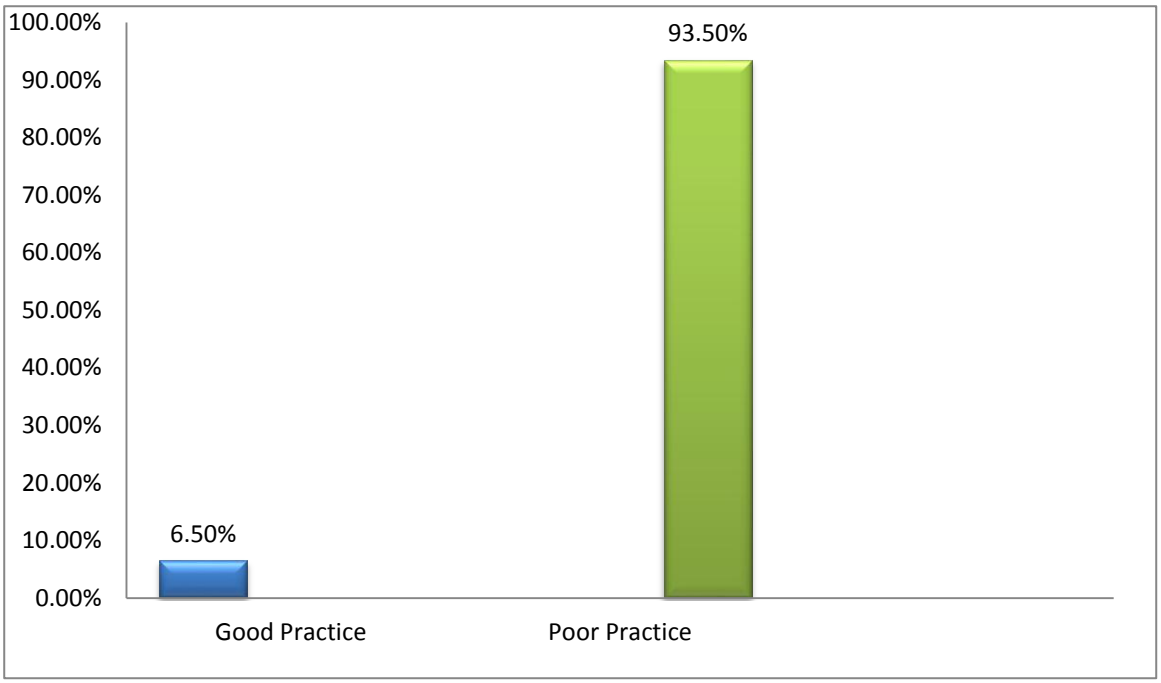

Figure 3. Gynecologic and Obstetric residents Practice index

96.8% of the respondents showed that they have exceedingly poor practice reflected by the patients' shouting or crying while suction and curettage being done. 91.9% of the residents do not assess and grade pain. 56.6% of the responders did not use analgesics routinely while doing suction and curettage, 82.3% of the residents does not allow the presence of a support person who can remain with her during the process when the woman desires it.

Majority of the respondent use NSAID and Opioid analgesia 98.4% and 71% respectively, but only 14.5% and 24.2% of the participants perform Para cervical Block using lidocaine and conscious sedation or General anesthesia respectively. (Table 4)

Table4. Gynecology and Obstetrics residents Practice about pain management of surgical abortion

Variables	***Good Practice***	***Poor Practice***
Have you ever done suction and curettage without analgesic drugs	35(56.5%)	27(43.5%)
Do you assess and grade pain before and after analgesia	5(8.1%)	57(91.9%)
Have you ever needed another personnel to calm or restrain the patient during the procedure	20(32.3%)	42(67.7%)
Have you ever faced a complication due to untreated pain? Eg uterine perforation …	53(85.5%)	9(14.5%)
Have you ever encountered a patient shout or cry during the procedure?	2(3.2%)	60(96.8%)
Do you use hot water bottle or heating pad.	8(13%)	54(87%)
Do you encourage deep, controlled breathing,	46(74.2%)	16(25.8%)
Do you provide soothing music during procedure	17(27.4%)	45(72.6%)
Do you have respectful, non-judgmental communication	43(69.4%)	19(30.6%)
Do you give verbal support and reassurance?	46(74.2%)	16(25.8%)
Do you give advance notice of each step of the procedure (if the woman desires it),	25(40.3%)	37(59.7%)
Do you allow the presence of a support person who can remain with her during the process (if the woman desires it),	11(17.7%)	51(82.3%)

Pharmacologic Techniques			Good Practice	Poor Practice
Frequency of Analgesia usage	NSAIDs	Ibuprofen Diclofenac	61(98.4%)	1(1.6%)
	Opioids	Tramadol Pethidine Morphine	44(71%)	18(29%)
Frequency of anxiolytics usage		Diazepam	24(38.7%)	38(61.3%)
Frequency of Local anaesthetic usage	Para cervical Block using lidocaine		9(14.5%)	53(85.5%)
Use of conscious sedation or General anaesthesia			15(24.2%)	47(75.8%)

Table 5 Respondents response about pain management of surgical abortion

Open questions	disagree	Neutral	Agree
Further trainings and avocation of using Local anaesthetics for PCB should be encouraged.	4 (6.5%)	2 (3.2%)	56 (90.3%)
Sedation and GA should be considered for patients who are <18.	12 (19.4%)	19 (30.6%)	31 (50%)
Most of the time optimal surgical condition is not met due to a moving patient due to pain.	13 (20.9%)	14 (22.6%)	35 (56.5%)
The pain management practice during surgical 1st trimester abortion is optimal in this hospital.	49 (79%)	9 (14.5%)	4 (6.5%)

Factors associated with knowledge of the respondent's about pain management during suction and curettage

Result of bivariate analysis showed that, of all the studied variables only one has a statistically significant association. Current attachment hospital of the respondents is associated with their knowledge of pain management. Attaching in TAS H (n=7) has 11 fold more chance of having optimal knowledge with a P- value of 0.004 compared to ZMH and GMH.

Table 6 Correlation between knowledge category and different variables of pain management

Variables	Knowledge Category		Total	Chi-Square Test		Pearson Correlation.		Fisher's exact test
	Sub optimal knowledge	Optimal knowledge		Value	P- value Sig (2-sided)	Correlation coefficient (R)	Sig. (2-tailed)	
Total year of res								
1	13 (100%)	0 (0%)	13	3.881	0.275	.033	0.797	0.2998
2	11 (75%)	3(21%)	14					
3	16 (84.2%)	3(16%)	19					
4	15 (93.7%)	1(6%)	16					
Sex								
Male	47(88%)	6 (11%)	53	0.000	0.985	0.002	0.986	0.7899
Female	8(89%)	1(11%)	9					
Respondents Nationality								0.1323
Ethiopia	50(89%)	6(11%)	56	0.192	0.661	0.056	0.668	
South Sudan	5(83%)	1(17%)	6					
Current Attachment								
TASH	19(73%)	7(27%)	26	10.926	0.004	0.372	0.003	0.00288
GMH	19(100%)	0(0%)	19					
ZMH	17(100%)	0(0%)	17					
Undergraduate training center								
AAU	17(77%)	5(23%)	22	9.695	0.207	0.213	0.097	
Mekele	1(50%)	1(50%)	2					
Hawassa	10 (100%)	0 (0%)	10					
Hayat	6 (100%)	0(0%)	6					
Jimma	4 (100%)	0(0%)	4					
Gondar	9 (100%)	0(0%)	9					
Haromaya	1 (100%)	0(0%)	1					
Juba	7 (100%)	1(13%)	8					
Number of Suction and Curettage								
0-5	0 (0%)	0(0%)	0	1.130	0.288	0.135	0.295	0.3234
6-20	20(83%)	4(17%)	24					
21	35(92%)	3(8%)	38					
Age category								
<25	2(100%)	0(0%)	2	2.027	0.567	0.128	0.323	0.629
25-29	25(83%)	5(17%)	30					
29-35	23(92%)	2(8%)	25					
>35	5(100%)	0(0%)	5					

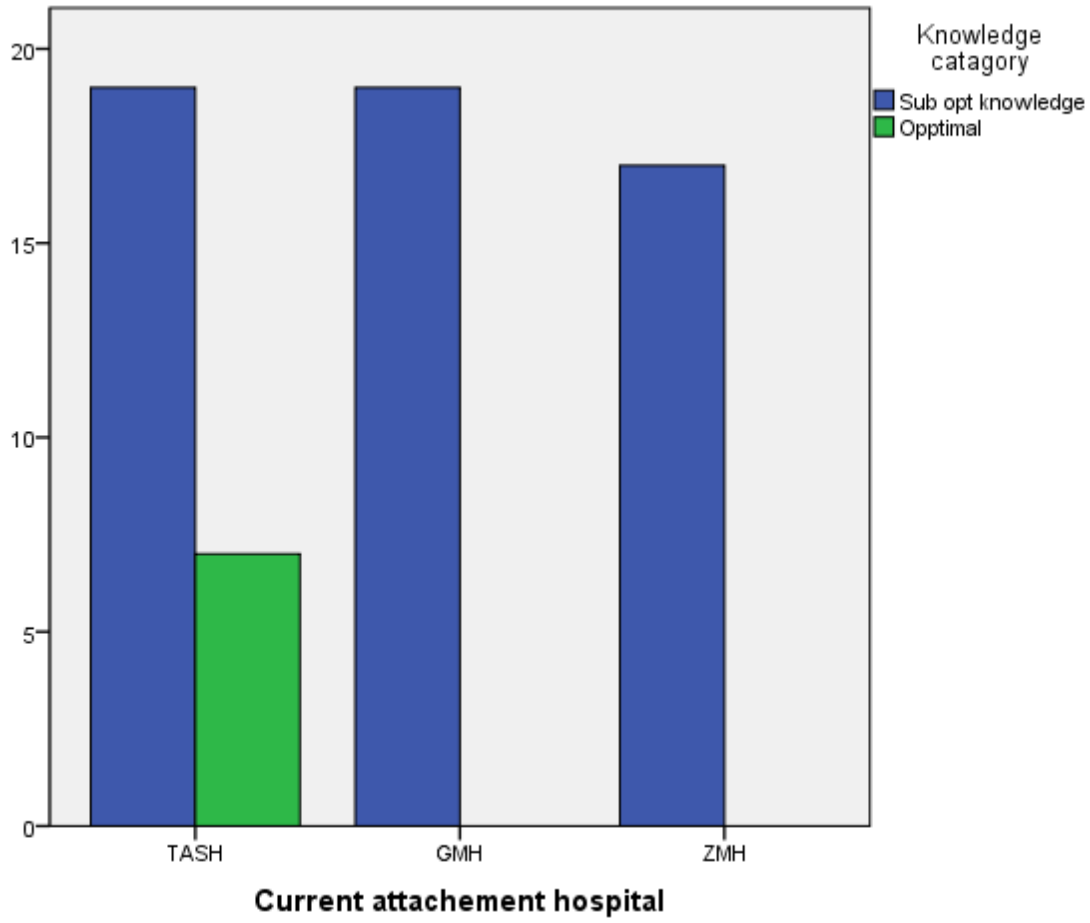

Figure 4. Association of knowledge category and Current attachment hospitals

Factors associated with Attitude of the respondent's about pain management during suction and curettage

Attitude index of the respondents with year of residency has significant association on fisher's exact test with a p value of 0.0329 .all other studied variables has no statistically significant association.

Table 7 Correlation between Attitude Index and different variables of pain management

Variables	Attitude Index		Total	Chi-Square Test		Pearson Correlation.		Fisher's exact test
	Unfavorable	Favorable		Value	P- value Sig (2-sided)	Correlation coefficient(R)	Sig. (2-tailed)	
Total year of res								
1	1(8%)	12(92%)	13					
2	3(21%)	11(79%)	14	7.650	0.054	0.0209	0.13	0.0329
3	0(0%)	19(100%)	19					
4	0(0%)	16(100%)	16					
Sex								
Male	4(75%)	49(92%)	53	0.726	0.394	0.108	0.402	0.7375
Female	0(0%)	9(100%)	9					
Respondents Nationality								
Ethiopia	3(54%)	53(95%)	56	1.149	0.284	0.136	0.292	0.1925
South Sudan	1(17%)	5(83%)	6					
Current Attachment								
TASH	2(7.6%)	24(92%)	26					
GMH	1(5%)	18(95%)	19	0.12	0.942	0.034	0.796	0.905
ZMH	1(6%)	16(94%)	17					
Undergraduate training center								
AAU	1(5%)	21(95%)	22					
Mekele	0(0%)	2(100%)	2					
Hawassa	0(0%)	10(100%)	10					
Hayat	0(0%)	6(100%)	6	4.532	0.717	0.145	0.262	
Jimma	1(25%)	3(75%)	4					
Gondar	1(11%)	8(89%)	9					
Haromaya	0(0%)	1(100%)	1					
Juba	1(13%)	7(88%)	8					
Number of Suction and Curettage								
0-5	3(13%)	21(88%)	24	2.374	0.123	0.196	0.127	0.2893
6-20	1(3%)	37(97%)	38					
>21	4(6%)	58(94%)	62					
Age category								
<25	*0(0%)*	*2(100%)*	*2*					
25-29	*3(10%)*	*27(90%)*	*30*	1.358	*0.716*	*0.108*	*0.405*	0.6751
29-35	*1(4%)*	*24(96%)*	*25*					
>35	*0(0%)*	*5(100%)*	*5*					

Factors associated with Practice of the respondent's about pain management during suction and curettage

Result of bivariate analysis showed that, All the studied variables has no statistically significant association. There were no variables having p-value <0.2 in bivariate analysis therefore multivariate analysis was not done.

Table 8: Correlation between Practice Index and different variables of pain management

Variables	Practice Index		Total	Chi-Square Test		Pierson's correlation		. Fisher's exact test
	Poor practice	Good practice		Value	P- value Sig (2-sided)	Correlation coefficient(R)	Sig. (2-tailed)	
Total year of res								
1	13(100%)	0(0%)	13					
2	14(100%)	0(0%)	14	4.608	0.203	0.154	0.231	0.2497
3	16(84%)	3(16%)	19					
4	15(94%)	1(6%)	16					
Sex								
Male	49(92%)	4(8%)	53	0.726	0.394	0.108	0.402	0.7375
Female	9(100%)	0(0%)	9					
Respondents Nationality								
Ethiopia	52(93%)	4(7%)	56	0.458	0.499	0.086	0.506	0.6708
South Sudan	6(100%)	0(0%)	6					
Current Attachment								
TASH	25(96%)	1(4%)	26					
GMH	17(89%)	2(11%)	19	0.824	0.662	0.046	0.720	0.7441
ZMH	16(94%)	1(6%)	17					
Undergraduate training center								
AAU	20(91%)	2(9%)	22					
Mekele	2(100%)	0(0%)	2					
Hawassa	9(90%)	1(10%)	10					
Hayat	6(100%)	0(0%)	6	4.536	0.716	0.119	0.357	
Jimma	3(75%)	1(25%)	4					
Gondar	9(100%)	0(0%)	9					
Haromaya	1(100%)	0(0%)	1					
Juba	8(100%)	0(0%)	8					
Number of Suction and Curettage								
0-5	0 (0%)	0(0%)	0	2.701	0.100	0.209	0.104	0.1514
6-20	24(100%)	0(0%)	24					
21	34(89%)	4(11%)	38					
Age category								
<25	2(100%)	0(0%)	2					
25-29	28 (93%)	2(7%)	30	0.584	0.900	0.012	0.924	0.8830
29-35	23(92%)	2(8%)	25					
>35	5(100%)	0(0%)	5					

Correlation between Practice and Knowledge

Result of bivariate analysis showed that, There was no statistically significant association between Practice index and Knowledge with a p value of 0.37 and (n=62)

All the studied variables have no statistically significant association. There were no variables having p-value <0.2 in bivariate analysis therefore multivariate analysis was not done.

Table 9 Correlation between Practice Index and Knowledge Category of pain management

Variables	Practice Index		Total	Chi-Square Test		Pearson Correlation .		Fisher's exact test
	Poor practice	Good practice		Value	P- value Sig (2-sided)	Correlation coefficient (R)	Sig. (2-tailed)	
Knowledge Category								
Sub-optimal knowledge	52(98%)	3(2%)	55	0.802	0.370	0.114	0.379	0.2240
Optimal knowledge	6(86%)	1(14%)	7					

Correlation between Practice Index and Attitude Index

Result of bivariate analysis showed that, There was no statistically significant association between Practice index and Knowledge with a p value of 0.587 and (n=62)

All the studied variables have no statistically significant association. There were no variables having p-value <0.2 in bivariate analysis therefore multivariate analysis was not done.

Table 10 Correlation between Practice Index and Attitude Index of pain management

Variables	Practice Index		Total	Chi-Square Test		Pearson Correlation .		Fisher's exact test
	Poor practice	Good practice		Value	P- value Sig (2-sided)	Correlation coefficient / R	Sig. (2-tailed)	
Attitude index								
Unfavorable	4(100%)	0(0%)	4	0.295	0.587	0.069	0.594	0.6197
Favorable	54(93%)	4 (7%)	58					

Correlation between Attitude and Knowledge

Result of bivariate analysis showed that, There was no statistically significant association between Practice index and Knowledge with a p value of 0.461 and (n=62). All the studied variables have no statistically significant association. There were no variables having p-value <0.2 in bivariate analysis therefore multivariate analysis was not done.

Table 11 Correlation between Attitude Index and Knowledge category

Variables	Attitude Index		Total	Chi-Square Test		Pearson Correlation .		Fisher's exact test
	Unfavorable	Favorable		Value	P- value Sig (2-sided)	Correlation coefficient (R)	Sig. (2-tailed)	
Knowledge Category								
Sub-optimal knowledge	4(7%)	51(93%)	55	0.544	0.461	0.094	0.469	0.6943
Optimal knowledge	0(0%)	7(100%)	7					

6. Discussion

This study has provided and insight into the knowledge, attitudes and practice of Gynecology and Obstetrics residents learning in three Addis Ababa University Medical Faculty teaching hospitals. The findings revealed that the respondents' knowledge of pain management was not ideal. Only 11% of them answered >80% the knowledge questions correctly.80% has been indicated as the minimum level at which is acceptable in order for nurses to deliver appropriate care to patients who are experiencing pain. Even if the study subjects of this research are doctors specializing in Gynecology and Obstetrics, The findings from this study reflect those of previously published studies on nurses caring for patients experiencing pain, which reinforce the universal concern of the significant problem of poor knowledge and attitudes held by health professionals. The major areas which showed the most substantial knowledge deficits and weaknesses revolved around pharmacology based knowledge and fear of respiratory depression.

There is a significant association between the resident's attachment centers with the level of knowledge about pain management. All of the residents (n=7) with the optimal knowledge regarding pain are the ones currently learning in TASH. Due to the small sample size, rotation of the residents in all three hospitals within a year and lack of variables targeted to assess the training centers' provision of pain management training, the researcher cannot attribute the knowledge scores to the institution's teaching method.

Another study on Physicians' knowledge about pharmacological management of cancer pain was done on 111 licensed physicians. Most of the physicians showed inadequate knowledge of the pharmacological management of cancer pain. Crucial knowledge deficits of principle were identified in the preferential analgesic route and schedule. But in this survey severe knowledge deficit was seen on both pharmacology of opioids and NSAIDs.

Only 6.5% of the respondent's unfavorable attitude towards surgical abortion pain management the rest 93.5% had favorable attitude. There is a significant association between the years of training of residents with attitude of pain management.

Those who had good practice only constituted only 6.5% of the total respondents and the remaining 93.5% had poor practice. There is a strikingly low level of pain management practice noticed in this study. The vast majority of the respondents (90.3%) agreed that further trainings on pain management and avocation of using LA for PCV should be encouraged. A study done in the Middle Eastern on Physicians' Attitudes to Clinical Pain Management and Education done on 69 physicians 25% of them described the need for continuing professional development**.**

91.9% of the residents have never assessed pain when they perform the procedure and 47.8% of the respondents have unfavorable attitude regarding the use of pain assessing tools. This will lead them to simply rely on their judgment whether to deem the patient as having pain or not.

The other issue was regarding the use of paracetamol 56.5% of them recommend its use for treating abortion pain while the WHO guideline clearly states its use to be not recommended.

43.5% of the respondents report to have not used analgesia at all in some occasions. And yet *69.3% of them abandon the procedure due to pain* and 67.7% of them have other personnel to restrain the moving patient due to pain. 96.8% of the respondents responded always or sometimes when asked if they encountered a patient shout or cry during the procedure time.

Regarding the use of non-pharmacologic techniques, 74.2% of the respondents encourage deep controlled breathing. Only 30.6% of the respondents stated to always have respectful and non-judgmental communication while 74% of the respondents claimed to give verbal support and reassurance. If the woman asks to have a support person to be with her during the procedure only 17.7% of the respondents are willing to allow it.

79.1% of the respondents responded to have poor pain management during FTSA in their respective hospital. 56.5% of the respondents agreed that most of the time optimal surgical condition is not met due to a moving patient due to pain. 22.6% of the respondents where neutral about it.

There was no relation between knowledge and attitude, knowledge and practice and Practice and attitude regarding pain management. The individual pain management practice of the respondents does not depend on the factors studied.

7. Strength and Limitation of the study

7.1. Strength of the study

The structured valid questionnaire was adopted and modified from Betty F, & Margo McC. to avail the data.

Lack of literature available in this area makes this study a stepping stone to various small and large scale studies on pain management during first trimester surgical aborion.

7.2. Limitation of the study

The possibility of having the sample of residents from three areas could have caused limitations. The findings in this study were based on quantitative method only that lacked triangulation with other methods like observation.

The lack of literature available in this area made it difficult to compare and discuss the result.

8. Conclusion and recommendation

8.1. Conclusion

Even though their attitude is mostly favorable the knowledge and practice of the residents in managing pain is very poor. The residents who were attaching in TASH at the time of this study scored eleven fold more in the knowledge questions than the residents who were working in ZMH and GMH. The strong statistically significant association between studying in TASH with knowledge (P value = 0.04) may lead to the hypothesis that TASH is a better teaching environment for our respondents in the management of pain that further needs to be tested.

Even if the respondents learning in TASH scored better than those learning in ZMH and GMH, the proportion of residents that assessed their training center as one having optimal pain management practice was very low. The vast majority of the respondents also agreed that there is a need for pain management training. Almost all (96%) of the respondents have encountered a women shout and cry during the procedure, which gives an insight to the extent of the poor pain management according to the Visual analog pain score. Furthermore, more than half of the respondents agreed that optimal

surgical condition is not met due to a moving patient. This can be explained by the poor pain management practice that makes the patient difficult and interferes with the surgical procedure.

8.2. Recommendation

Gynecology and obstetrics residents in current practice need to be trained on how to properly manage pain of patients who are undergoing suction and curettage.

A clear guideline on how to manage pain during outpatient minor gynecologic and obstetric procedures like suction and curettage should be established and put to action. Pain assessment should be made mandatory in doing any invasive procedure like suction and curettage and appropriate analgesia should be tailored to the patient's response.

Further large scale studies focusing on the healthcare provider, the patient and the medical center providing this service should be conducted to study the actual pain management practice, the patient's response to the pain management, and other variables affecting pain should be studied further.

A woman has the right to receive safe (legal) abortion without pain. Pain needs to be managed!

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10. Annexes

Annex 1:- Consent form

Addis Ababa University College of Health Sciences, school of medicine, Department of Anesthesiology and critical care

Individual consent form

This form is used to assess Knowledge and Attitude of GOR working in TASH, GMH and ZMH in the management of pain during FTSA via Suction and Curettage.

The information you provide is confidential and is crucial to the success of the study.

Dr Lina Tamrat

Tell. No 0931564175

Thank you for your response.

Name and signature of data collector ……

Annex 2:- Questionnaire

ADDIS ABABA UNIVERSITY SCHOOL OF MEDICINE COLLEGE HEALTH SCIENCE DEPERTEMENT OF ANESTHESIOLOGY

Assessment of Knowledge, attitude and practice of Gynecology and Obstetrics Residents towards pain management during 1st trimester surgical abortion via suction and curettage.

Instruction: Choose and Circle the answer that seems best for you from the alternatives that are under each question and for those that you give direct answer, write the answer in the space provided.

SOCIO DEMOGRAPHIC CHARACTERISTICS

1 Age ……..

2. Gender A. Male B. Female

3. Year of Residency A. 1st B. 2nd C.3rd D. 4th

4. Nationality A. Ethiopian B. Other ……

5. Undergraduate medical training center

……

6. Current attachment Hospital ……..

KNOWLEDGE

True or false circle your choice.

1. Vital sign are always reliable indicators of intensity of patients pain T/F
2. Benzodiazepines are effective pain reliever T/F
3. When given IM Diclofenac sodium onset of action starts after 15 min T/F
4. Non-steroidal anti-inflammatory (NSAID) agents are effective analgesia for pain management. T/F
5. Combining analgesics that work by different mechanisms may result in better pain control with fewer side effects than using single analgesic agent. T/F
6. The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is intravenous. T/F
7. Analgesics for post-operative pain should initially be given on PRN bases. T/F
8. Oipoids should be avoided in patients with respiratory compromise T/F
9. The time to peak effect for Pethidine given IV is 1hour. T/F
10. The time to peak effect for Diclofenac given IM is 5min T/F
11. After giving 100 mg of IV Pethidine for 50 KG patient, what things do you need to monitor respiratory rate. T/F
12. If a patient develop respiratory rate < 8 breath/minute after giving IV morphine, we should give flumazenil reversal. T/F
13. Paracetamol is not recommended to decrease pain during abortion. T/F
14. To ensure that oral medications will be most effective at the time of the procedure, administer them 1- 2hrs before the procedure. T/F
15. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response. T /F

ATTITUDE

	Attitude questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Surgical abortion is less invasive so it does not need to be managed.					
2	Patients should be encouraged to endure as much pain as possible before using an opioids					
3	Suction and curettage is a painful procedure					
4	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real					
5	Using pain assessment tools usually makes the procedure more complicated and consumes time for other activities					
6	Opioids should be avoided for fear of addiction					
7	Patients who are complaining of pain often, means he/she is seeking staff attention					
8	Strong Opioids like morphine should be added on NSAID if patient feels pain.					
9	Local anesthetics are safe and simple and should be used routinely.					
10	Further trainings and avocation of using Local anesthetics for PCB should be encouraged.					
11	Sedation and GA should be considered for patients who are <18.					
12	Most of the time optimal surgical condition is not met due to a moving patient due to pain.					
13	The pain management practice during surgical 1st trimester abortion is optimal in this hospital.					

PRACTICE

1. How many suction and curettage have you done till now? A. 1-5 B. 6-20 C. >20

The next Table is used to assess the pain management practice.

	Always	Sometimes	Never
1. Have you done suction and curettage without analgesic drugs			
2. Do you assess and grade pain before and after analgesia			
Have you abandoned a procedure due to pain.			
3. Have you ever encountered a patient shout or cry during the procedure?			
4. Have you needed another personnel to calm or restrain the patient during the procedure			
5. Have you faced a complication due to untreated pain? Eg uterine perforation …			
6. Do you use hot water bottle or heating pad.			
7. Do you encourage deep, controlled breathing,			
8. Do you provide soothing music during procedure			
9. Do you have respectful, non-judgmental communication			
10. Do you give verbal support and reassurance?			
11. Do you give advance notice of each step of the procedure (if the woman desires it),			
12. Do you allow the presence of a support person who can remain with her during the process (if the woman desires it),			

Pharmacologic Techniques			**Always**	**Sometimes**	**Never**
Frequency of Analgesia use	**13.** NSAIDs	Ibuprofen or Diclofenac			
	14. Opioids	Pethidine Morphine			
15. Frequency of anxiolytics usage		Diazepam			
16. Frequency of Local anesthetic usage	Para-cervical Block using lidocaine				
17. Use of conscious sedation or General anaesthesia					

Annex 3:- Document

Knowledge and Attitudes Survey Regarding Pain

October 2012

The “Knowledge and Attitudes Survey Regarding Pain” tool can be used to assess nurses and other professionals in your setting and as a pre and posttest evaluation measure for educational programs. The tool was developed in 1987 and has been used extensively from 1987 - present. The tool has been revised over the years to reflect changes in pain management practice.

Regarding issues of reliability and validity: This tool has been developed over several years. Content validity has been established by review of pain experts. The content of the tool is derived from current standards of pain management such as the American Pain Society, the World Health Organization and the National Comprehensive Cancer Network Pain Guidelines. Construct validity has been established by comparing scores of nurses at various levels of expertise such as students, new graduates, oncology nurses, graduate students, and senior pain experts. The tool was identified as discriminating between levels of expertise. Test-retest reliability was established ($r>.80$) by repeat testing in a continuing education class of staff nurses ($N=60$). Internal consistency reliability was established (alpha $r>.70$) with items reflecting both knowledge and attitude domains.

Regarding analysis of data: We have found that it is most helpful to avoid distinguishing items as measuring either knowledge or attitudes. Many items such as one measuring the incidence of addiction really measure both knowledge of addiction and attitude about addiction. Therefore, we have found the most benefit to be gained

from analyzing the data in terms of the percentage of complete scores as well as in analyzing individual items. For example, we have found it very helpful to isolate those items with the least number of correct responses and those items with the best scores to guide your educational needs.

Enclosed for your use is a copy of our instrument and an answer key. You may use and duplicate the tool for any purpose you desire in whole or in part. References to some of our studies which have included this tool or similar versions are included below. We have received hundreds of requests for the tool and additional use of the tool can be found in other published literature. We also acknowledge the assistance of several of our pain colleagues including Pam Kedziera, Judy Paice, Deb Gordon, June Dahl, Hob Osterlund, Chris Pasero, Pat Coyne and Nessa Coyle in the revisions over the years. If using or publishing the tool results please cite the reference as **"Knowledge and Attitudes Survey Regarding Pain" developed by Betty Ferrell, RN, PhD, FAAN and Margo McCaffery, RN, MS, FAAN, (http://prc.coh.org), revised 2012.**

We hope that our tool will be a useful aid in your efforts to improve pain management in your setting.

Sincerely,

Betty R. Ferrell, RN, PhD, FAAN Margo McCaffery, RN, MS, FAANResearch Scientist Lecturer and Consultant

Annex 4:- Declaration

I, the undersigned, graduating class of Anesthesiology residence student declared that this thesis is my original work in partial fulfillment of the requirement for postgraduate study in Anesthesiology.

Name:- _____ Signature:- _____

Place of submission: Addis Ababa University, College Health sciences, School Medicine, Department of Anesthesiology**.**

Date of Submission: _____

This thesis work has been submitted for examination with my/our approval as university advisor(s).

Advisors

Name Signature

_____ _____