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Research Article

Healthcare providers' knowledge, attitude, practice and associated factors towards pain management at Debremarkos referral hospital, Gojjam, Northwest Ethiopia.

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ABSTRACT

Background

Pain is one of the most common health problems worldwide, particularly in resource limited settings. Undertreated postoperative increases in the length of hospital stay of patients and perioperative complications, and patient dissatisfaction with medical care. This study aimed to assess the healthcare providers' knowledge, attitude, practice and associated factors towards pain management at Debremarkos referral hospital, 2019.

Methods

A quantitative cross-sectional study was conducted using a pretested self-administered questionnaire. After data was checked for completeness, coded, entered in to Epi data 3.1, and transformed to SPSS version20 statistical software for analysis. Both bivariate and multivariate logistic regression model used to identify the variables which had association with the dependent variable.

Result

Out of 381 healthcare workers (HCWs), 346 were included in the study with a response rate of 90.8%. The majority (n=185, 53.3%) of study participants had inadequate knowledge about pain management (Figure 3). Medical doctors (94.5%, n= 69/73) were the most knowledgeable professionals followed by anaesthetist (92.8%, n=13/14) and lastly pharmacist (21.4 %, n= 6/28). The majority of the respondents (n= 177, 51.3 %) had unfavourable attitude towards pain management. Additionally, most of the respondents (77.5 %) had poor pain management practice. Access for pain assessment tool (AOR= 11.02, CI=2.82-43.00) and workload (AOR= 12.50, CI=5.52-28.31) had association with pain management practice. Moreover, 217 (62.7%) of the respondents didn't assess the patients after analgesia drug administration.

BACKGROUND

Pain is one of the most common health problems worldwide, particularly in resource limited settings (1, 2). The International Association for the Study of Pain defines pain as "an unpleasant sensory and emotional experience associated with or resembling that associated with actual or potential tissue damage (3). The available evidence shows that pain is undertreated nearly in

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50-80% of patients due to various reasons (4). Poor pain management leads to an increase in the length of hospital stay of patients and perioperative complications, patient dissatisfaction with medical care and affects the quality of life of patients (5). Perioperative pain management can be affected by the knowledge, attitude and practice level of healthcare providers towards pain management (6). An adequate level of knowledge, attitude and practices are the most important aspects for effective perioperative patient assessment, communication with the clients and pain management (6). However, the knowledge, attitude and practice of pain management of healthcare providers can be affected the availability of analgesic drugs, refreshment courses, locally applicable hospital pain management guidelines and pain assessment tools (5). Moreover, good pain management practice can be affected by the level of training, work experience and the type of professional specialty (5). Perioperative pain remains undertreated both in the developing and developed worlds despite several efforts to improve it (2, 7, 8). The current study was designed to assess the knowledge, attitude and practice level of healthcare providers towards pain management at the university referral and teaching hospital of Northwest Ethiopia.

METHODS AND MATERIALS

Study design

A cross-sectional study was conducted by using standardized structured self-administered questionnaire.

Source population

All clinical healthcare workers who are currently working at Debre Markos Referral Hospital.

Study population

Clinical healthcare workers who were involving in pain management at Debremarkos referral hospital.

Inclusion criteria

All selected clinical healthcare workers who were working at Debremarkos referral hospital and available during the data collection period were included.

Exclusion criteria

Healthcare workers who were not directly involved in clinical practice, who were in annual leave; seriously ill and maternal leave during data collection period were excluded.

Sample size determination

All participants (n=346) who were directly involved in clinical practice on pain management at Debremarkos Referral Hospital (DMRH) were participated in this study (Figure 1). The study was conducted from Feburary12- March 30, 2019. Paper based survey was conducted. The questionnaire was given to the participants at the respective departments and enough time was provided to complete the survey. The participants were selected by census method. Twenty participants were on annual leave, 10 participants were on training and 5 participants were on maternity leave.

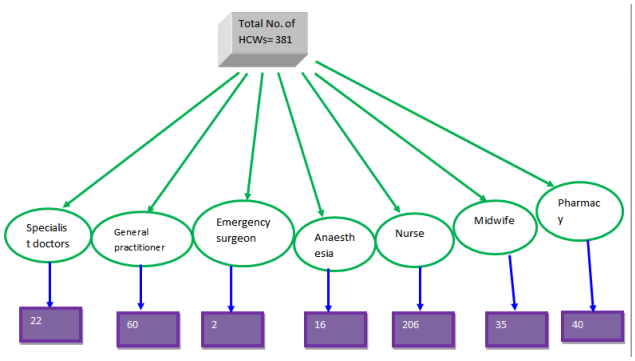

Figure 1. Showing the allocation of healthcare workers who were included in the study among the healthcare workers at Debremarkos Referral Hospital, Amhara regional state, Ethiopia 2019.

Data collection procedure

Pre-tested self- administered English version structured questionnaire was used. To ensure the validity and reliability of the questionnaire, the questionnaire was pre-tested on 5% of healthcare workers who were working in one none elected nearby hospital (Lumamie hospital). Training was provided for data collectors and supervisors regarding the objectives of the study, data collection method and the significance of the study. During data collection, data collectors were supervised for any difficulties and direction and necessary correction provided. Collected questionnaires were checked for completeness.

Study variables

Dependent

Knowledge, attitudes and practice level (adequate/ inadequate).

Independent

Socio demography

Age, sex, marital status, professions, level of education (qualification), monthly income, years of working experience, years of unit experience.

Knowledge

Source of information about pain assessment, responsible professional to assess pain, analgesic drugs for patients with renal & hepatic problem, knowledge about multimodal analgesia, routes of drug administration, factors to consider before analgesia administration, non-pharmacological methods to manage pain, advice for non-pharmacological pain management, vital sign of patient.

Attitude

Pain assessment tool, training on pain assessment tool, availability of local pain management guideline, managing pain

effectively, factors to consider before analgesia administration, pain management in PNR base, non-pharmacological pain management, balanced analgesia, pain is a problem.

Practice

Pain management experience, use of age specific pain assessment tool, frequency of pain assessment tool use, use of pharmacological pain management, type of analgesic drugs for pain management, use of non-pharmacological pain management, type of non-pharmacological pain management method used, preparation for adverse effect management before analgesia administration, frequency of analgesia provision,

Administration related variables

inefficient/lack of pain assessment too in the hospital, workload, inefficient/lack of drug at store, lack of short term trainings on pain assessment and management and pain in-service education.

HCWs factors

the numbers of patients who had been seen per day, attending seminars/ short or long term trainings, communication with staff & patients.

OPERATIONAL DEFINITIONS

Scoring of knowledge, attitude and practice questions

Eleven questions, with "Yes" (for correct answers) or "No" (for incorrect answers) response and choice, was prepared to assess the knowledge of respondents about pain management and those respondents who scored greater than or equal to 75 % were considered Knowledgeable, if below this inadequate knowledge (9).

Nine item questions were used to assess the participants' attitude towards pain management and those who scored 75% and above were considered as having favourable attitude (9).

To assess the practice of respondents' ten questions were prepared and those who scored more than or equal to 75% of the questions was considered as good practice, if below this score poor practice (9).

Data processing and analysis

All collected questionnaires were rechecked for completeness and coded. Then these data were entered and cleaned using Epi data software, and exported to SPSS version 20 for analysis. Bivariate and multivariate logistic regression analyses were performed to determine the association between dependent and independent variables. The variables having p-value less than 0.2 from the bivariate analysis was fitted in to the multivariate logistic regression model. Ninety five percent confidence interval with odd ratio was computed and the variables having p-value less than 0.05 from the multivariate logistic regression analysis was considered as determinant factors for pain management. Additionally, descriptive statistics such as frequencies and cross tabulation were performed. The results were presented using graphical presentation such as bar charts and pie charts, and tables.

Ethical clearance

Ethical clearance letter was obtained from the Ethical Review Committee of School of Medicine, Debremarkos University. Ethical clearance letter was also obtained from Debremarkos referral hospital. Written informed consent was obtained from the study participants prior to study commencement.

RESULT

Socio-demographic characteristics of the study participants

Out of 381 healthcare workers (HCWs), 346 were included in the study with a response rate of 90.8%. Thirty five HCWs were absent during data collection due to different reasons. The majority of HCWs (n=223, 64.5%) were males. The age of 59.8% of HCWs was in the range of 20-30, 32.9% in the range of 31-40 and 7.2% in the range of > 41 years old respectively (Table 1). Additionally, regarding the educational status, 298 (86.1 %) of the respondents were first degree holders. Moreover, the majority of the study participants were nurses 194 (56.1%) (Figure 2) and most of the participants (n=150, 43.4%) were from the inpatient ward. Two hundred fifty two (72.8%) had less than or equal to three years 'service. Furthermore, out of the total respondents, 197 (58.6 %) of the participants earn a monthly income of less than the mean value (6455.56 Birr) (Table 1).

Variable			Frequency	Percentage (%)
Sex		Male	223	64.5
		Female	123	35.5
AGE		20-30	207	59.8
		31-40	114	32.9
		≥ 41	25	7.2
Marital status	Single		158	45.7
	Married	182	52.6	
	Divorced	1	0.3	
	Separated	5	1.4	
Religion	Orthodox		333	96.2
	Protestant		6	1.7
	Muslim		7	2
Professions	Medical doctor		73	21.1

	Pharmacist	28	8.1
	Emergency surgeon	2	0.6
	Midwife	35	10.1
	Anesthesia	14	4
	Nurse	196	56.1
Educational Level	Diploma	4	1.2
	First Degree	298	86.1
	Master	25	7.2
	Specialist	19	5.5
Ethnicity	Amhara	334	96.5
	Oromo	11	3.2
	Other	1	0.3
Monthly income in Et. Birr	<6455.56(below mean)	197	58.6
	≥ 6455.56(Above mean)	139	41.4
Work experience	1-3 year	252	72.8
	>3-5 year	49	14.2
	>5- 10 year	13	3.8
	≥ 10 year	32	9.3

Table 1. Socio- demographic characteristics of healthcare workers who were working at Debremarkos referral hospital, 2019.

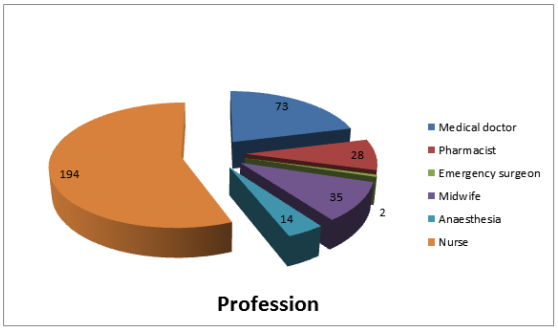

Figure 2. Types of profession of HCWs who were working at Debremarkos referral hospital, 2019.

Knowledge of healthcare workers towards pain management

The majority (n=185, 53.3%) of study participants had inadequate knowledge about pain management (Figure 3). Medical doctors (94.5%, n= 69/73) were the most knowledgeable professionals followed by anaesthetist (92.8%, n=13/14) and lastly pharmacist (21.4 %, n= 6/28). Regarding to the source of information about pain assessment tool, only 105 (39.5%) of the respondents heard about pain assessment tool from formal education (like regular class, including seminars). Only 159 (45.8 %)) of the healthcare workers correctly answered knowledge questions regarding basic pharmacology, which were the major drug groups for pain management for the inpatients who have renal and hepatic problem and previous history of allergy to local anaesthetics (Table2).

Knowledge questions	Responses	Frequency	Percentage (%)
Level of Knowledge towards pain management	Adequate knowledge	161	46.4
	Inadequate knowledge	185	53.3
Did you hear about pain assessment tool?	Yes	163	47.0
	No	183	53.0
If yes for the second question, from what source you got the information?	Training	17	4.9
	Friends	3	0.9
	Journals	8	2.3
	On education	137	39.5
	All		
If yes for the second question, from what source you got the information?	Facial expressions	37	10.7
	Verbal rating scale (VRS)	11	3.2
	Numerical rating scale (NRS)	4	1.2
	Visual analogue scale (VAS)	4	1.2
	All	109	31.4
The most accurate judge of the intensity of the patient's pain is?	The treating physician	63	18.2
	The patient's primary nurse	134	38.6
	The patient	147	42.4
	The patients spouse or family	2	.6
What are major drug groups for pain	Paracetamol	45	13.0
	NSAIDS	129	37.2

management using in patients who are renal and hepatic problem and has previous history of allergy to local anesthetics?	opioids	159	45.8
	local anesthetic agent	5	1.4
	all	8	2.3
Combining analgesics that work by different mechanisms may result in a better pain control with fewer side effects than using a single analgesics agent	True	182	52.4
	False	164	47.3
What are routs of drug administration, you know?	Parenteral	82	23.6
	Oral	9	2.6
	Epidural/spinal	62	17.9
	All	193	55.6
What are factors you know to consider for analgesics dosage?	Age	100	28.8
	Severity of pain	10	2.9
	Organ function	8	2.3
	Wight of patient	40	11.5
	All	188	54.2
What non pharmacological method about pain management?	Cold –Iced	68	19.6
	Acupuncture	6	1.7
	Relaxing therapy	126	36.3
	All	146	42.1
The patient should be advised to use non pharmacological means alone rather than use pain medications	True	217	62.5
	False	129	37.2
Vital sign of a patient may be an indicator of intensity of patients pain	True	337	97.1
	False	9	2.6

Table 2. The response of healthcare workers to knowledge questions on pain management, who were working at Debremarkos referral hospital, 2019.

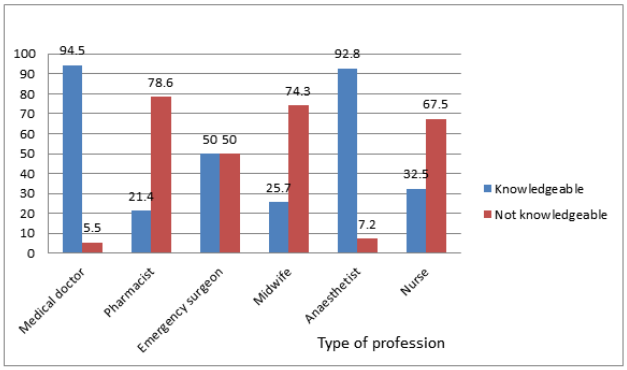

Figure 3. Knowledge status of HCWs who were working at Debremarkos referral hospital, 2019.

Factors associated with the knowledge level of healthcare workers

The factors that were significantly associated (P<0.05) with knowledge from the multivariate logistic regression analysis were medical doctor, anaesthetist, attending any seminar/ symposium /short term training on pain management, workload, availability of local guideline , media which talks about pain assessment and pain management. Medical doctors were 31.38 times more likely knowledgeable than nurses (AOR= 31.38, CI=10.8-90.9). Additionally, those who heard on media about pain assessment and pain management were 3.6 times knowledgeable than their counterparts (AOR= 3.6, CI= 1.1-11.5). Moreover, those HCWs who had seen less than thirty five patients per day were 2 times more knowledgeable than those who had seen more than or equal to thirty five patients per day (AOR= 2.04, CI= 1.20-3.50). Participants who attended seminar/symposium /short term training on pain management were 2.37 times more knowledgeable than their counterparts (AOR =2.37, CI=1.11-5.10) (Table 3).

Factors		**Knowledge status**	**COR(95%CI)**	**AOR(95%CI)**	**P value**
		Knowledgeable	**Not knowledgeable**			
Profession	Medical doctor	69	4	0.03 (0.01-0.08)	31.2 (9.8-90.9)	<0.001
	Pharmacy	6	22	-	-	0.131

	Emergency surgeon	1	1	-	-	0.469
	Midwife	9	26	-	-	0.295
	Anaesthetist	13	1		0.643(0.28-1.47)	0.003
	Nurse	63	131	1	1	1
Is there any local guideline on pain management available in your hospital?	YES	153	168	1.94 (.81-4.61)	4.2 (1.45-12.11)	0.008
	NO	8	17	1	1	1
How many pts on average you have seen within day?	< 35	102	72	2.71(1.75-4.20)	2.04 (1.20-3.50)	0.009
	≥ 35	59	113	1	1	1
Do you attend any seminar / symposium / short term training on pain management?	Yes	62	113	.399 (.259-.616)	2.37 (1.11-5.10)	0.027

Table 3. Multivariate logistic regression analysis of knowledge and associated factors of healthcare worker towards pain management at Debre Markos referral hospital, 2019.

Key: COR= Crude odds ratio; AOR=Adjusted odds ratio.

Attitude of healthcare workers towards pain management

The majority of the respondents (n= 177, 51.3 %) had unfavourable attitude towards pain management. Anaesthetists followed by medical doctors had the most positive attitude towards pain management compared to other professionals. Two hundred ninety six (85.3%) strongly agreed that pain is a priority problem, whereas two hundred eighteen (71.5%) respondents were strongly agree that pain management in PRN bases is important (Table 4).

Only 44.1% of the participants strongly agreed that considering the age, organ function, intensity of pain and weight of the patient is important during pain management (Table 4).

Variables	Attitude status			Frequency	Percentage (%)
	Favorable attitude			169	48.7
	Unfavorable attitude			177	51.3
	Total			346	100.0
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Do you think that pain assessment tool is important for better pain management?	10 (2.9%)	96 (27.7%)	3 (0.9%)	9 (2.6%)	228 (65.7%)
Do you think that training given to pain assessment tool important for better pain management?	10 (2.9%)	38 (11.0%)	1 (0.3%)	115 (33.1%)	182 (52.4%)
Do you think that there should be local guideline at our hospital regarding to pain assessment tool?	58 (16.7%)	110 (31.7%)	13 (3.7%)	18 (5.2%)	147 (42.4%)
Do you think you manage your patients' pain	28 (8.1%)	61 (17.6%)	55 (15.9%)	81 (23.3%)	121 (34.9%)

effectively ?					
Do you think that during pain management considering age of a patient, organ function of client, intensity of pain and weight of a patient is important ?	69 (19.9%)	78 (22.5%)	31 (8.9%)	15 (4.3%)	153 (44.1%)
Do you think pain management in PRN bases important ?	30 (8.6%)	32 (9.2%)	9 (2.6%)	27 (7.8%)	248 (71.5%)
Do you think non pharmacological pain management is important ?	48 (13.8%)	55 (15.9%)	15 (4.3%)	59 (17.0%)	169 (48.7%)
Do you think drug combination (balanced analgesia) is important than single agent usage?	118 (34.0%)	49 (14.1%)	6 (1.7%)	11 (3.2%)	162 (46.7%)
Do you think pain is a priority problem	29 (8.4%)	2 (0.6%)	6 (1.7%)	13 (3.7%)	296 (85.3%)

Profession	Favourable attitude n (%)	Unfavourable attitude n (%)
Medical doctor	45 (61.6%)	28 (38.4%)
Pharmacist	13 (46.4%)	15 (53.6%)
Emergency surgeon	1 (50%)	1 (50%)
Midwife	13 (37.1%)	22 (62.9%)
Anaesthesia	13 (92.9%)	1 (7.1%)
Nurse	84 (43.3%)	110 (56.7%)

Table 4. Attitude status of healthcare workers towards pain management who were working at Debremarkos referral hospital, 2019.

Factors associated with the attitude level of healthcare workers

The variables that showed association from the bivariate logistic regression analysis were: availability of local guideline on pain management in the hospital, attending seminar/symposium / short term training on pain management and attending long term training on pain management. However, long term training had significant association with positive attitude from the multivariate logistic regression analysis. Those who were attended long term training had 7.6 times more favourable attitude than their counterparts (AOR= 7.6, CI=3.3-17.4) (Table 5).

Variables		Attitude status		COR (95%CI)	AOR (95%CI)	P- value
		Favorable	Unfavorable			
Attend long term training	Yes	129	169	.153 (.069-.337)	7.6 (3.3-17.4)	<0.0001
	No	40	8	1	1	

Table 5. Multivariate logistic regression analysis of attitude and associated factors of healthcare workers towards pain management at Debremarkos referral hospital, 2019.

Key: COR= Crude odds ratio; AOR=Adjusted odds ratio.

Practice status of healthcare workers towards pain management

Among all the respondents, 268 (77.5 %) of them had poor pain management practice and only 78 (22.5 %) had good practice. Two hundred forty six (71.1%) of the respondents didn't prepare for the management of adverse effects before analgesic drug administration. Surprisingly, only 100 (28.9%) of the respondents were prepared for the management of adverse effects before analgesic drug administration. Additionally, 217 (62.7%) of the respondents didn't assess the patients after drug administration. Only 129 (37.3%) of the respondents assessed the patients after analgesic drug administration (Table 6). All anaesthetists and emergency surgeons had the poorest practice on pain management.

Practice questions	Responses	Frequency	Percentage (%)
Level of practices	Good practice	78	22.5
	Poor practice	268	77.5
	Total	346	100
Do you have previous experience in pain management?	Yes	328	94.8
	No	18	5.2
Do you use age appropriate pain assessment tool in your hospital?	Yes	33	9.5
	No	313	90.5
If you say yes Q402, how frequently do you use this pain assessment tool for your patients?	Always	27	7.8
	Usually	11	3.2
	Seldom	6	1.7
	Rarely	15	4.3
Do you use pharmacological pain management?	Yes	331	95.7
	No	15	4.3
If yes Q404, What pharmacological methods that you are most commonly prescribe in patients with hepatic diseases, risk of respiratory depression and who has allergy to local anesthetics as an outpatient pain management?	Paracetamol	104	30.1
	NSAIDS	209	60.4
	Opioids	14	4
	Local anesthetic agent	19	5.5
Do you use non pharmacological pain management options to your patient?	Yes	131	37.9
	No	215	62.1
If yes Q406, What non pharmacological method that you are commonly using?	Cold –Iced	35	10.1
	Distraction.	32	9.2
	Relaxing therapy	47	13.6
	All	56	16.2
Do you prepare management of adverse effects of pain medication before you administer?	Yes	100	28.9
	No	246	71.1
Do you assess the patient after you administer pain managements	Yes	129	37.3
	No	217	62.7
In what interval that you commonly administer analgesics?	PRN base	247	71.4
	Standing dose (fixed dosage time)	96	27.7
	Alternate dose	3	0.9

Profession	Good practice	Poor practice
Medical doctor	11 (15.1%)	62 (84.9%)
Pharmacist	1 (3.6%)	27 (96.4%)
Emergency surgeon	0 (0%)	2 (100%)
Midwife	2 (5.7%)	33 (94.3%)
Anaesthesia	0 (0%)	14 (100%)
Nurse	64 (32.9%)	130 (67.1%)

Table 6. Practice of HCWs towards pain management at Debremarkos referral hospital, 2019.

Factors associated with the practice of healthcare workers

The multivariate logistic regression analysis results showed that the availability of pain assessment tool, workload (numbers of patients treated per day), and information about pain management on media were significantly associated with the practice of HCWs. Those who had access for pain assessment tool in the institution were 11 times more practical on pain management than their counterparts (AOR= 11.02, CI=2.82-43.00). Additionally, those who had seen less than thirty five patients per day were 12.50 times more skilful than those who had seen more than or equal to thirty five patients per day (AOR= 12.50,CI=5.52-28.31). Moreover, participants who heard on media about pain management were 11.66 times more practical than their counter parts (AOR= 11.661, CI=2.86-47.62) (Table7).

		Level of practices			P value	
Variables		**Good practice**	**poor practice**	**COR (95% CI)**	**AOR (95% CI)**	
Availability pain assessment tool	Yes	53	260	.065(.028-.152)	11.018 (2.82-43.00)	0.001
	No	25	8	1	1	1
Work load	< 35	17	157	.197(.11-.36)	12.50(5.52-28.31)	<0.0001
	≥ 35	61	111	1	1	
Media	YES	62	263	.074(.026-.21)	11.661 (2.86-47.62)	0.001
	NO	16	5	1	1	

Table 7.Multivariate logistic regression analysis of practice and associated factors of healthcare workers who were working at Debremarkos referral hospital, 2019.

Key: COR= Crude odds ratio; AOR=Adjusted odds ratio.

DISCUSSION

This study showed that the knowledge level of the majority of healthcare providers towards pain management was substandard. Of the participants, 46.5% of healthcare providers in the current study had adequate knowledge. This was similar with a study conducted in Iran, where the percentage of HCWs with adequate knowledge in their study was 43.1% (10). Additionally, the current finding was relatively similar with a study conducted in Kenya, where the reported percentage of HCWs with adequate knowledge in their study was 43% (11). On the other hand, our finding was higher than Jordan study, where the overall percentage of HCWs with adequate knowledge was 28.7 % (12). The difference between the present and Jordan study could be due to the difference in training, practice and socio-cultural context.

In this study, only 159 (45.8 %)) of the healthcare workers are correctly answered knowledge questions regarding basic pharmacology, which were the major drug groups for pain management for the patients who have renal and hepatic problem and had also previous history of allergy to local anaesthetics. The current finding was low compared to a study conducted in public hospitals in Mekelle City, Northeast Ethiopia, where the majority of healthcare workers have adequate knowledge about the principles of pharmacological and non-pharmacological pain managements (58.6%) (13). The difference could be due the difference in the training and clinical practice on pain management.

In our study, medical doctor were the most knowledgeable with a total score of 94.2 %. However, this finding was higher than a study conducted done in Jordan, where the medical doctors' knowledge score level was 36.1% (12). The discrepancy might be due the difference on the availability of refreshing courses and training on pain management and as well as the availability of drugs for pain management.

In the present study, those who took short and long term training on pain assessment and management in the institution were 3.2 times more knowledgeable than their counterparts. On the other hand, lack of training is one of the main barriers for effective pain management. It was reported in Ugandan hospital study that lack of education on assessment tools and lack of familiarity with tools were the main barriers for pain management (14). Similarly, another study in Southeast Ethiopia showed that the barriers for pain management were lack of training on assessment tools, lack of availability of assessment tools, lack of familiarity with tools, lack of protocols and guidelines on pain management (15).

In the current study, only 48.7% of the participants had adequate positive attitude towards pain management. Our finding was low compared the study conducted in Zimbabwe, where the attitude level of nurses was 56% (9). This discrepancy could be to the difference in pain management facilities such as availability of drugs, training and courses. The majority of participants (n=218, 71.5%) strongly agreed that pain management should be as PRN bases. However, this is contradictory to the WHO pain management guideline, where it recommends that pain should be managed in standing (fixed dose) rather than giving analgesia as PRN base (16). Those who attended long term training had 7.6 times more favourable attitude towards pain management than their counterparts. It clear that refreshing courses and trainings are very vital to maintain positive attitude towards pain management

In the current study, the majority of respondents, (n=268, 77.5 %) had poor pain management practice. This finding was in line with the study conducted in Iran, where the practice of healthcare provider about pain management was insufficient

(10). In the present study, 246 (71.1%) of the respondents didn't prepare for the management of adverse effects

before analgesic drug administration. Only 100 (28.9%) of the respondents were prepared for the management of adverse effects before analgesic drug administration. This could lead to an increase medication related adverse effects and poor treatment outcome (16).

In this study, those who had access to pain assessment tool in the institution were 14 times more practical on pain management than their counterparts. This implies that the lack or minimal use of tools among the HCWs at Debremarkos referral hospital could contribute to poor pain assessment and management practice. This finding was supported by a study conducted at Mulago hospital, Uganda, where the majority of the healthcare worker reported that lack of education on assessment tools and lack of familiarity with tools were the main barriers for pain management (14). A large numbers of participants (n= 217, 62.7%) respondents didn't assess the patient after the administration of analgesic drugs. Surprisingly, a small numbers of the respondents (37.3%) assessed the patient after pain medication administration. Lack of patient monitoring after drug administration can lead to an increase in medication related patient morbidity and patient dissatisfaction with the medical service (16).

In the current study, the availability of pain assessment tool and workload had strong association with pain management practice ($P<0.001$). With regard to workload, those who had seen < 35 patients per day were 11.8 times more skilful or practical on pain management than those who had seen ≥ 35 patients per day. This shows that heavy workload limits the time given to the interaction between patients and professionals for adequate pain assessment and management. This finding was in accordance with the study conducted in Uganda, where pain assessment and management was affected negatively by heavy workload on the clinicians (14).

CONCLUSIONS AND RECOMMENDATIONS

The majority of healthcare providers had a significant deficit on knowledge, attitude and practice of healthcare providers towards pain management. Profession (medical doctor & anaesthetist), short term training, workload and the availability of local pain management guideline were associated with knowledge. Long term training was the only factor which was associated with positive attitude. Moreover, the availability of pain assessment tool and workload were associated with pain management practice. It is recommended that refreshing courses, seminars and short or long term training on pain assessment and management should be given to the HCWs. Moreover, training on the pharmacology of analgesic drugs, and patient evaluation or monitoring before and after analgesic drug administration, and as well as the management of adverse effects should be provided. Furthermore, locally applicable pain assessment tool and pain management guidelines should be developed at Debremarkos referral hospital.

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