Knowledge, attitude and practice of health care professionals towards adverse drug reaction reporting in public hospitals of harar town, eastern, Ethiopia.

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Abstract

Background: Adverse Drug Reaction is any noxious, unintended and undesired effect of a drug which resulted from inadequate monitoring of therapy or inappropriate dosing. It may be unexpected, unknown and/or rare. Adverse Drug Reactions (ADRs) are an important cause of mortality and morbidity worldwide. In some case it is life-threatening, and can be major determinants of treatment outcomes. All healthcare professionals are encouraged to report ADR But under-reporting remains a major draw-back of spontaneous reporting. Therefore this study aims to investigate the knowledge, attitudes and practices of healthcare professionals towards ADR reporting and try to fill the information gap in the study area.

Objective: To assess knowledge, attitude and practice of ADR reporting among health care professionals working at Public Hospitals in Harar Town Eastern Ethiopia.

Methodology: Health facility based cross sectional study was conducted on 238 Health professional who are working in Public Hospitals of Harar Town Eastern Ethiopia. Sample allocates proportionately and study participant was selected by systematic random sampling method. Collected and checked data were entered in to Epi Data software version 3.1 and analysis was done by SPSS version 21. Mean value were used to classify as good or poor knowledge, altitude and practice on ADR reporting. Finding was summarized and presented in forms of tables and statement.

Result: The overall prevalence of good knowledge, altitude and practice of ADR reporting was 42.9%, 34.5% and 39.9% respectively. Majority 158 (66.4%) of study participant does not feel that there are adequately trained on ADR reporting. While 206 (86.6%) and 208 (87.4%) of health professional agree that reporting drug safety is important for the public and health care system. One third of health professionals 74 (31.4%, P=0.002) significantly reported that there had encountered ADR.

Conclusion and Recommendation: On this study majority respondent had poor knowledge, altitude and ADR reporting practices. Therefore training provision, awareness creation, Strong and collaborative ADR reporting mechanisms, continuous monitoring and evaluation need to be established on each health institution.

Keywords: Adverse drug reaction, Knowledge on ADR, ADR Reporting, Harar Town.

Accepted on 18 May, 2021

Introduction

Adverse drug reaction is any noxious, unintended and undesired effect of a drug that occurs at doses used for prevention, diagnosis or treatment. ADRs are defined as type A, type B, type C and type D. Type A reaction (predictable) is related to dosage and is an extension to the normal pharmacology of the medication. Type B reaction (unpredictable) is unrelated to normal pharmacology. Type C reactions are associated with prolonged therapy eg. analgesic nephropathy. Type D reactions are delayed reactions eg. carcinogenesis and teratogenesis. Most ADRs resulted from inadequate monitoring of therapy or inappropriate dosing. All healthcare professionals including doctors, pharmacists, nurses and other healthcare professionals are encouraged to report ADR. All healthcare providers have roles to play in maintaining a balance between a medicine's benefits and risks [1].

Statement of the Problem

Adverse Drug Reactions (ADRs) are an important cause of mortality and morbidity worldwide. ADRs may be unexpected, unknown and/or rare. They are in some case life-threatening, and can be major determinants of treatment outcomes. Under-reporting remains a major draw-back of spontaneous reporting an estimated 6–10% of all ADRs are reported this can delay signal detection that will have negative impact on the public health. Under-reporting is not the problems of developing countries only, for instance ADRs reporting rate in USA to be as low as 1-6%. The situation is not different in Ethiopia where the level of ADR reporting is showed to be alarmingly very low even though the spontaneous reporting system has been put in place as and all health professionals are encouraged to report. There for this study investigated the knowledge, attitudes and practices of healthcare professionals towards ADR reporting and try to fill the information gap.

Significance of the Study

Assessment of knowledge, attitude and practice of health care professionals has many importances it will evaluate the factors that could possibly affect adverse drug reaction reporting by observing the present system in place so that suggestions to improve reporting among health professionals can be offered. The result of the study will help in improving ADR reporting procedure by highlighting the drawbacks in the system. It will also serve as a base line data for other researchers [2].

Objectives of the Study

General objective

To assess knowledge, attitude and practice of ADR reporting among health care professionals working at Public Hospitals in Harar Town Eastern Ethiopia.

Specific objective

- To assess ADR Reporting knowledge of health care professionals working at Public Hospitals in Harar Town Eastern Ethiopia from February 7-February 25/2020 G.C.
- To describe ADR Reporting altitudes of health care professionals working at Public Hospitals in Harar Town Eastern Ethiopia from February 7-February 25/2020 G.C.
- To identify ADR Reporting practice of health care professionals working at Public Hospitals in Harar Town Eastern Ethiopia from February 7-February 25/2020 G.C.

Method and Materials

Study area and period

The study was conducted in Harar Town, which is one of the ten regional states of the Federal Democratic Republic of Ethiopia located in the Eastern part of the country at 526 km away from Addis Ababa, the capital city of Ethiopia [3]. In the region, hospitals were found.

Study design

Quantitative Institutional based cross sectional study was utilized.

Population

Source population

All medical doctors, Nurses, Pharmacists and Health officer working at specialized university hospitals.

Study population

Randomly selected Medical doctors, Nurses, Pharmacists and Health officer who are available on work during the study period.

Inclusion and exclusion criteria

Inclusion criteria

Professional who was volunteer to participate and gave consent.

Exclusion criteria

- Health professionals not willing to participate in the study
- Health professionals who were absent at the time of the study.

Sample size determination

Sample size was calculated for the three variables using of p-value for knowledge 76.9%, altitude 93.8% and reporting practice 64.6% by comparing the three sample size the highest was taken which were 351. Sample was reduced by using sampling size estimation method and finite population correction formula and the total sample become 216 [4]. Then by adding 10% non-response rate, the final sample size was=238.

Sampling technique and procedure

Two governmental Health institutions were selected by simple random sampling method. After obtaining the total number of professional (Nurse, Medical Doctors, Pharmacist and Health officers) of both hospital sample was proportionately allocated. Individual study subjects at each health facility were selected by systematic random sampling.

Variables

Data collection tool and method

Data collection tool was developed after review of literature and using previous studies. It contains question that was assess socio demographic, knowledge, attitude and ADR reporting practice. Face to face interview method was used to collect data [5].

Data processing and analysis

After data collection each questionnaire was checked its completeness, consistency on daily bases. Epi-Data version 3.1 and SPSS version 21 were used for data entry and analysis. Data were analyzed using descriptive statistics such as proportions, percentages, ratios. Measures of central tendency and measures of dispersion were done. Mean value were used to classify as good or poor knowledge, altitude and practice on ADR reporting and respondent who score mean and above the mean value were considered as good while the rest as poor.

Data quality assurance

To assure data quality it was be pretested on 5% the total sample in Harar Federal Police Hospital. Based on the results of pre testing necessary modification was made. Data collector

and supervisor were trained for two day on objective of the study, method of data collection and discussed thoroughly on the tools and be for data collection they were allowed to fill the questionnaire and later discussion was made in all contents of the questioners and areas of difficulties were revised. The data was coded carefully in order to increase accuracy and quality of data [6].

Ethical considerations

Ethical clearance letter was obtained from Harar Health Science College Research Ethics Review Committee and it was submitted to the study organization and permission was secured from hospital CEO. All the participants were informed the purpose, advantages and disadvantages, there have the right to be involved or not as well as they can withdraw from the study any time they want. Informed consent was obtained. Confidentiality was maintained by avoiding names and other personal identification.

Results

A total of 238 Health professional were included on the study which makes the response rate 100%. The mean age of the study participants were 27.92 with ± 5.036 SD. Majority, 129 (54.2%) of the study participants were between 26 and 35 years. Regarding profession and year of experience majority 144 (60.5%) of the respondent had 0-4 year experience and 186 (78.2%) and Nurses with average mean monthly income of 4412.28 with ± 1623.21 SD ETB (Table 1).

Table 1. *Socio-demographic characteristics of respondents working at public hospitals in harar town, eastern, Ethiopia G.C.*

Variable	Category	Frequency	Percent
Age	18–25 yrs	86	37.4
	26–35 yrs	129	54.2
	36–45 yrs	17	7.1
	>45 yrs	3	1.3
Educational Level	Diploma	73	30.7
	Bachelor	115	48
	Others	50	21
Religion	Orthodox Christian	93	39.1
	Muslim	98	41.2
	Protestant	41	17.2
	Catholic	2	0.8
	Others	4	1.7
Sex	Male	137	57.6
	Female	101	42.4
Marital status	Single	129	54.2
	Married	107	45
	Divorce	2	0.8
Profession	Nurse	186	78.2
	Doctor	14	5.9
	Pharmacist	23	9.7
	Health officers	15	6.3
Year of Experience	0–4 yrs	144	60.5
	5–9 yrs	69	29
	10-14 yrs	21	8.8
	15–21 yrs	4	1.7

Knowledge of respondents on ADR reporting

Among study participant 102 (42.9%) had good knowledge while the rest 136 (57.1%) had not. Majority 139 (58.4%) of study participant replied that ADR is not the same with side effect and 158 (66.4%) study participant does not feel that there are adequately trained on ADR reporting. More than half of study participant 166 (69.7%) and 148 (62.2%) do not know the availability of national ADR reporting system and ADR reporting form. While 99 (41.6%) and 175 (73.5) respondent replied that ADR are not well documented at time drug is marketed and better ADR reporting should be integrated to professional duties [7]. More than half of professional 130 (54.6%) doesn't share ADR events to anyone (Table 2).

Table 2. *Knowledge regarding adverse drug reaction reporting among health professional in public hospitals of harar town, eastern, Ethiopia.*

Variable	Profession				Total	X^2	DF	P ≥ |Z|
	Nurse	Doctor	Pharmacist	Health officer	238 (%)			
	186(78.2%)	14(5.9%)	23 (9.7%)	15 (6.3%)				
Do you think ADR is the same with side effect?								
Yes	79 (42.5)	2 (14.3)	8 (34.8%)	10 (66.7%)	99 (41.6)	8.667	3	0.034
No	107 (57.5)	12(85.7)	15 (65.2)	5 (33.3)	139 (58.4)			
Do you feel that you are adequately trained in ADR reporting								
Yes	62 (33.3)	3 (21.4)	12 (52.2)	3 (20)	80(33.6)	5.734	3	0.125
No	124 (66.7)	11(78.6)	11(47.8)	12(80)	158 (66.4)			
Do you know national ADR reporting system?								
Yes	53(28.5)	3(21.4)	12 (52.2)	4 (26.7)	72 (30.3)	6.119	3	0.106
No	133(71.5)	11(71.5)	11 (47.8)	11 (73.3)	166(69.7)			
How are ADRs reported?								

Telephone	21 (11.3)	2 (14.3)	4 (17.4)	4 (26.7)	31 (13.0)	11.077	9	0.27
Post	21 (11.3)	0 (0.0%)	5 (21.7)	2 (13.3)	28 (11.8)			
Email	22 (11.8)	0(0.0 %)	3 (13.0)	2 (13.3)	27 (11.3)			
I Don't know	122 (65.6)	12(85.7)	11 (47.8 %)	7 (46.7 %)	152 (63.9)			
Do you know the availability of ADR reporting form								
Yes	72 (38.7)	1 (7.1)	12 (52.2)	5 (33.3)	90 (37.8)	7.809	3	0.05
No	114 (61.3)	13 (92.9)	11 (47.8 %)	10 (66.7)	148 (62.2)			
Do you think ADR are well documented at time drug is marketed?								
Yes	76 (40.9)	4 (28.6)	11 (47.8)	8 (53.3)	99 (41.6)	2.237	3	0.525
No	110 (59.1)	10 (71.4)	12 (52.2)	7 (46.7)	139 (58.4)			
Do you think ADR reporting should be integrated to professional duties?								
Yes	132 (71.0)	13 (92.9)	18 (78.3)	12 (80.0)	175 (73.5)	3.901	3	0.272
No	54 (29.0)	1 (7.1)	5 (21.7)	3 (20.0)	63 (26.5)			
Have you share ADR events to any one								
Yes	81 (43.5)	5 (35.7)	13 (56.5)	9 (60.0)	108 (45.4)	3.225	3	0.358
No	105 (56.5)	9 (64.3)	10 (43.5)	6 (40.0)	130 (54.6)			

Altitude of respondents on ADR reporting

The overall prevalence of good altitude was 82 (34.5%) and majority 156 (65.5%) had poor altitude towards ARD Reporting. More than half 171 (71.8%) of respondents agree that ADR should be reported spontaneously at regular base. While 206 (86.6%) and 208 (87.4%) of health professional agree that reporting drug safety is important for the public and health care system [8]. Among study participants 190 (79.8%) and 105 (44.1%) of respondent agree and disagreed that there is a need to be sure that ADR is related to drug before reporting and also only ADR that cause persistent disability should be reported (Table 3).

Table 3. *Altitude regarding adverse drug reaction reporting among health professional in public hospitals of harar town, eastern, Ethiopia.*

Variable	Profession					Total	X^2	DF	P ≥ |Z|
	Nurse	Doctor	Pharmacist	Health officer	238 (%)				
	186 (78.2%)	14 (5.9 %)	23 (9.7 %)	15 (6.3 %)					
ADR should be reported spontaneously at regular base									
Agree	136 (73.1)	13 (92.9)	10 (43.5)	12 (80.0)	171 (71.8)	16.242	6	0.013	
Neutral	30 (16.1)	1 (7.1)	10 (43.5)	3 (20.0)	44 (18.5)				
Disagree	20 (10.8)	0 (0.0)	3 (13.0)	0 (0.0)	23 (9.7)				
Reporting drug safety is important for the public									
Agree	159 (85.5)	14 (100.0)	21 (91.3)	12 (80.0)	206 (86.6)	5.249	6	0.512	
Neutral	20 (10.8)	0 (0.0)	2 (8.7)	3 (20.0)	25 (10.5)				
Disagree	7 (3.8)	0 (0.0)	0 (0.0)	0 (0.0)	7 (2.9)				
Reporting drug safety is important for the health care system									
Agree	163 (87.6)	14 (100.0)	20 (87.0)	11 (73.3)	208 (87.4)	6.826	6	0.337	
Neutral	19 (10.2)	0 (0.0)	3 (13.0)	4 (26.7)	26 (10.9)				
Disagree	4 (2.2)	0 (0.0)	0 (0.0)	0 (0.0)	4 (1.7)				
Agree	142 (76.3)	13 (92.9)	22 (95.7)	13 (86.7)	190 (79.8)	10.776	6	0.096	
Neutral	33 (17.7)	1 (7.1)	1 (4.3)	0 (0.0)	35 (14.7)				
Disagree	11 (5.9)	0 (0.0)	0 (0.0)	2 (13.3)	13 (5.5)				
Only ADR that cause persistent disability should be reported									
Agree	54 (29.0)	2 (14.3)	14 (60.9)	5 (33.3)	75 (31.5)	17.542	6	0.007	
Neutral	48 (25.8)	1 (7.1)	5 (21.7)	4 (26.7)	58 (24.4)				
Disagree	84 (45.2)	11 (78.6)	4 (17.4)	6 (40.0)	105 (44.1)				
Reporting creates additional work load									
Agree	71 (38.2)	6 (42.9)	13 (56.5)	8 (53.3)	98 (41.2)	12.129	6	0.059	
Neutral	43 (23.1)	2 (14.3)	8 (34.8)	5 (33.3)	58 (24.4)				

Disagree	72 (38.7)	6 (42.9)	2 (8.7)	2 (13.3)	82 (34.5)				

Practice of the respondents on ADR reporting

The overall prevalence of good ADR reporting practice was 95 (39.9%) while majority 143(60.1%) had poor ARD Reporting practice. One third 174 (73.1%) and 173 (72.7%) of health professional reported that they does not have encountered ADR and also do not noted the ADR their encounter. One third of health professionals 74 (31.4%, P=0.002) significantly reported that ADR their encountered. And 102 (42.9) of health professional reported that they give advice sometimes on possible adverse effects of drugs they prescribed. Majority 196 (71.0%) and 164 (68.9%) of respondent reported that their don't know the presence of ADR reporting system in their work place and also their institution (Work place) does not provide information regarding ADR reporting (Table 4).

Table 4. *Practice regarding adverse drug reaction reporting among health professional in public hospitals of harar town, eastern, Ethiopia.*

Variable	**Profession**				**Total**	**X2**	**DF**	**P≥|Z|**
	Nurse	Doctor	Pharmacist	Health officer	238 (%)			
	186 (78.2%)	14 (5.9%)	23 (9.7%)	15 (6.3%)				
Have you encountered patient with ADR in last 12 months								
Yes	45 (24.2)	3 (21.4)	8 (34.8)	8 (53.3)	64 (26.9)	6.964	3	0.073
No	141 (75.8)	11 (78.6)	15 (65.2)	7 (46.7)	174 (73.1)			
Have you noted the ADR you encountered								
Yes	47 (25.3)	3 (21.4)	8 (34.8)	7 (46.7)	65 (27.3)	4.112	3	0.25
No	139 (74.7)	11 (78.6)	15 (65.2)	8 (53.3)	173 (72.7)			
Have you ever reported the ADR								
Yes	52 (28.0)	1 (7.1)	13 (56.5)	8 (53.3)	74 (31.4)	15.007	3	0.002
No	134 (72.0)	13 (92.9)	10 (43.5)	7 (46.7)	164 (68.9)			
Where did you report the reaction								
Hospital	21 (11.3)	1 (7.1)	8 (34.8)	4 (26.7)	34 (14.3)	23.437	12	0.024
Pharmaceutical company	4 (2.2)	0 (0.0)	0 (0.0)	0 (0.0)	4 (14.7)			
FMHACA	4 (2.2)	0 (0.0)	3 (13.0)	1 (6.7)	8 (3.4)			
Doctor	20 (10.8)	1 (7.1)	2 (8.7)	2 (33.2)	25 (10.5)			
Never reported	137 (73.7)	12 (85.7)	10 (43.5)	8 (53.3)	167 (70.2)			
How often do you give advice about ADR to the patients								
Usually	64 (34.4)	3 (21.4)	5 (21.7)	3 (20.0)	56 (23.5)	1.647	6	0.949
Sometimes	77 (41.4)	8 (57.1)	10 (43.5)	7 (46.7)	102 (42.9)			
Never	45 (24.2)	3 (21.4)	5 (21.7)	3 (20.0)	56 (23.5)			
Did you know that ADR reporting system is present at your workplace								
Yes	51 (27.4)	4 (28.3)	12 (52.2)	5 (33.3)	69 (29.0)	8.015	3	0.046
I don't know	136 (73.1)	12 (85.7)	11 (47.8)	10 (66.7)	169 (71.0)			
Does your institution(Work place) provide information regarding ADR reporting								
Yes	51 (27.4)	4 (28.6)	11 (47.8)	8 (53.3)	74 (31.1)	7.682	3	0.053
No	135 (72.6)	10 (71.4)	12 (52.2)	7 (46.7)	164 (68.9)			
How Many ADR patients will you encountered per Weeks								
Zero	6 (21.4)	1 (33.3)	0 (0.0)	0 (0.0)	7 (16.3)	9.344	12	0.673
One	13 (46.4)	1 (33.3)	4 (44.4)	1 (33.3)	19 (44.2)			
Two	4 (14.3)	1 (22.2)	2 (22.2)	1 (33.3)	8 (18.6)			
Four	1 (3.6)	0 (0.0)	2 (22.2)	0 (0.0)	3 (7.0)			
5 and	4 (14.3)	0 (0.0)	1 (11.1)	1 (33.3)	6 (14.0)			

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Discussion

The overall prevalence of good knowledge, Altitude and practice on this study was low which was (42.9%), (34.5%) and (39.9%) respectively. The study was conducted in Harar town and 238 health professional were participated and majority were 186 (78.2%) Nurse followed by Pharmacist 23 (9.7%), health officer 15 (6.3%) and physicians 14 (5.9%). In this study majority (58.4%) of respondents replied that ADR is not the same with side effect which is lower than (76.9%) study conducted. This discrepancy might be due to difference in study area [9]. In this study 80 (33.6%) respondents felt that they are adequately trained in ADR reporting which was higher than study conducted (16.9%). In this study (71.8%) of respondent agree that ADR should be reported spontaneously at regular base this finding in line (70.6%) with study conducted [10]. Regarding the presence of ADR reporting system in our study (71%) of respondent did not know presence of ADR reporting system which was higher than study conducted (53.4%). This difference might be due to study setting variation. Regarding ADR training in this study (66.4%) feel that there are not adequately trained in ADR reporting which was lower than study conducted in (86.9%) and (83.1%) this difference might be due to variation in sample size and study population.

Conclusion and Recommendations

On this study majority respondent had poor knowledge, Altitude and ADR Reporting Practices this may showed that ADR reporting would not give emphasis as a duty of health professionals and it was neglected. Even if ADR encounter during their practice on daily based, majority of professional does not know the presence of national ADR reporting system and the availability of ADR reporting form. Therefore in order to improve ADR reporting Knowledge Altitudes and practice of health Professionals Training provision, awareness creation, Strong and collaborative ADR reporting mechanisms, continuous monitoring and evaluation need to be established on each health institution. Finally health care tires needs to give emphasis and established functional structure that strongly maintains ADR reporting activities.

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