Research Article
Attitude and knowledge of health care professionals towards pharmaceutical care services in adama hospital medical college, East shoa, Adama, Ethiopia

Mohammed godana iro[1*], Gobezie temesgen tegegne[1] ,Belayneh kefale gelaw[1] ,Amsalu degu defersha[1], Minyahil alebachew[1], Woldu, Jimma likisa linjesa[1], Girumu tesfaye[1], Hunduma dinsa[1]

[1]Department of Pharmacy, College of Medicine and Health Science, Ambo University, Ambo, Ethiopia
Corresponding Author : *gmammeshumb@yahoo.com*

Abstract

Keywords

Attitude,
Knowledge,
Pharmaceutical Care,
Health Care Profession

Background: The practice of pharmaceutical care is new in contrast to what pharmacists have been doing for many years. Ten to thirty percent of all acute hospital admissions are thought to be caused by drug related problems and 50-70% of these are considered to be preventable. PC is patient centered and outcome oriented pharmacy practice with the goal to optimize health related quality of life and to achieve positive outcomes within realistic economic expenditures, but it apparently a theoretical statements still in Ethiopia in many setting. Objective: To assess the attitude and knowledge of healthcare professionals towards pharmaceutical care service in Adama Hospital Medical College. Methods: Cross-sectional questionnaire based study was conducted. Proportional study design was used. Data were entered, coded and analyzed by using SPSS 16.0. Linear regression and correlation was done. P value less than 0.05 was considered to be significant. Results: There were a total of 130 participants. The response rate was 90.3%. Seventy one (54.6%) of the respondents was male. Almost half had good (53.1%) knowledge. Type of profession (p=0.03, CI [-0.305, -0.015], AOR=-0.191) had significant association with knowledge of pharmaceutical care while years of experience not (p=0.305). Type of profession (p=0.002, CI [-0.35, -0.084], AOR=-0.271) and year of experience (p=0.028, CI [0.023, 0.401], AOR=0.187) had significant association with the attitude of the respondents. There was strong correlation between knowledge and attitude (r=0.728). Conclusion: Despite the fact that the practices of pharmaceutical care services were newly emerging in Ethiopian hospital settings, the level of knowledge of healthcare professionals towards the service was appreciable. As the HCPs' working experience increases, they were having good attitude. There were correlation between attitude and knowledge towards PC services.

Introduction

Pharmaceutical care (PC) is defined as responsible provision of drug therapy for the purpose of achieving definite outcomes that improve patient's quality of life. PC is a ground-breaking concept in the practice of pharmacy and it emerged in the mid 1970s (1). It is patient centered and outcome oriented pharmacy practice with the goal to optimize health related quality of life of the patients and to achieve positive outcomes within realistic economic expenditures (2).

The shift of pharmacy practice from product oriented to patient oriented results in greater interaction between pharmacists and other medical professionals and thus has culminated in safer, more effective and less costly therapy in new era of patient care. PC is new concepts in Ethiopia. Thus,a step wise process has expected to be followed in implementing the concept and education of clinical pharmacy (3, 4).

Recently the duration of undergraduate pharmacy education has increased to five years, consisting of more clinical contents making a good opportunity for further implementation of the concept (5). The discipline of PC arose with the dissatisfaction of older practice norms and pressing need for a competent health professional with a comprehensive knowledge in therapeutic use of drugs (6).

The PC framework assume a patient-pharmacist professional relationship that is based up on caring, trust, communication, corporation and mutual decision making in which the pharmacists work very closely with the patient to promote health, to prevent disease and to insure that drug therapy safe and effective (7). So level of interaction between clinical pharmacists and other medical professionals is a key for the establishment and development of PC

Statement of the Problem

Ten to thirty percent of all acute hospital admissions are thought to be caused by drug related problems (DRPs) and 50-70% of these are considered to be preventable by effective implementation of pharmaceutical care services. Clinical pharmacist involvement in inpatients care can significantly help to identify, resolve and prevent the DRPs among patients in the hospital (8,9).

More than 50% of all prescriptions are incorrect while 50%–90% of medicines purchased are paid for out-of-pocket in developing countries and more than 50% of the people involved fail to take them correctly which makes non compliance a major issue. For every dollar spent by hospitals or health systems to provide clinical pharmacy services, $4.81 was saved through lower drug costs, reductions in adverse drug events and medication errors and other savings. According to report of Institute of Medicine (2000) an estimated of 44,000-98,000 death per year are caused by medical error of which, 7,000 are by medication errors (10, 11).

Even though Adama Hospital Medical College serves large population, clinical pharmacy services are not yet implemented in the hospital. This implies that all society that is expected to be served by the hospital is directly or indirectly affected by unavailability of Clinical pharmacy service. Thus, in order to implement clinical pharmacy services in the hospitals knowing the level of knowledge and nature of attitude of HCPs plays a crucial role.

Significances of the Study

The finding about level of knowledge and attitude of HCPs will be an important input for concerned governmental or non governmental institutions to strengthen PC. The higher number of drug related problems will be solved with the establishment of PC. Moreover, the study is expected to identify the existing problems to the reality and invite the

concerned bodies who are responsible for mitigation of the problems. The study may identify the challenges that may face clinical pharmacists when they assigned to the hospital to practice their ward based clinical pharmacy services. The results of the finding are expected to call the policy makers to prepare and implement ward based clinical pharmacy job description. The study may actually identify the level of interest of HCPs to welcome the newly assigned clinical pharmacists to their hospital. The study may serves as benchmark for other studies in this area.

Objectives

General Objective

To assess the attitude and knowledge of healthcare professionals towards newly emerging pharmaceutical care in Adama Hospital Medical College.

Specific Objectives

To determine factors responsible for good attitude towards PC
To find out factors associated with good knowledge towards PC
To describe the correlation of knowledge and attitude of HCPs towards PC

Materials and Methods

Methods

The Study Area and Period

The study was conducted in Adama Hospital Medical College. The hospital is located in Central Ethiopia, Oromia regional state, in Adama town 99 km from Addis Ababa on Ethio-Djibuti main road. It was established in 1942 by Italian Missionaries. The hospital was named as Hailemariam Mammo memorial hospital little bit after establishment but its name was changed to Adama Referral Hospital in mean time and now it renamed as Adama Hospital Medical College by Oromia regional state health bureau after it enrolled students in different programs like accelerated medicine, emergency surgery and some specialty in 2012. Currently the college hospital has catchment population of about 5 million serving as referral hospital for all nearby hospitals and the adjacent regions. It has capacity of 200 beds for inpatient with five disciplines (Surgery, Internal medicine, pediatrics, Gynecology/Obstetrics and ophthalmology) with four pharmacies (OPD, ward, emergency and ART pharmacy) and serves about 850 patients per day at OPD during working hours and on average 52 patients per day after working time in private wing clinic. The hospital has about 465 workers of which 257 were health professionals and the remaining are administrative workers and teachers. The hospital is now working in collaboration with Adama General Hospital and

Medical College (AGHMC). The study was undertaken from 01 March – 01 June, 2014.

Study Design

Cross-sectional questionnaire based study was conducted.

Source Population

All HCPs who are the staff members of AHMC and currently working in the hospital.

Inclusion criteria

All healthcare professionals in AHMC especially those have opportunity to attend inpatient (wards) and outpatient department (OPD)

HCPs on administrative levels like medical director of the hospital were also a candidate of the study.

Exclusion criteria

Laboratory technicians, radiologists were excluded.

HCPs who leave the hospital for training or other reasons temporarily during the study period.

Who were not willing to participate in the study?
Sample Size and Sampling Technique

Sample size is calculated from the total study population that fulfill in inclusion criteria by the following formula:

$$n = \frac{Z^2 P (1-P)}{D^2}$$

Where:

n- Sample size
Z- Confidence level = 95% (1.96)
P- Anticipated proportion = 50% (0.5) to allow maximum sample size
D- Margin of errors = 5% (0.05)

There was no study done on attitude and knowledge of health care professionals towards pharmaceutical care services in Adama Hospital Medical College in the past. So the sample size will be:

$$n = \frac{(1.96)^2 (0.5) (1-0.5)}{(0.05)^2}$$

n= 384
There were 215 healthcare professionals who fulfill inclusion criteria.

N =215

Therefore the corrected sample size was calculated as:

$$Nf = n/ (1+n/N)$$
$$Nf = 384/ (1+384/215) = 137$$
Allowance of 5% =0.05x137 = 7

Therefore total sample size = 144

Proportional sampling technique was used. The proportion of the candidates of the study from their respective profession is calculated as follows:
Physician = 59, then the sample taken was 144/215 (59) =40

Pharmacists & druggists =15, then the sample taken was 144/215(15) =10
Nurse in all type =116, then 144/215(116) = 77
Midwives = 16, then 144/215(16) =11
Health officer = 9, then 144/215(9) =6
Total =144

Study Variables
Dependent variables:
-Knowledge and attitude of other HCPs towards PC services
Independent variables
-Demographic characteristics (age, sex)
-profession with current qualification
-year of experience

Data Collection Procedure
Structured questionnaire which contains three parts: demographic, knowledge and attitude part was used. Questionnaires were randomly distributed to HCPs in their respective wards. Open ended interview was also used for pharmacists/druggists. The participants were informed the highlight of the study during questionnaire distribution. The participants were also provided a time to fill the questionnaires and after certain period of time the filled questionnaires were collected carefully by principal investigator.

Data Quality Control

Pretest was done to check the completeness, uniformity and validity of the questionnaire. Every time the questionnaire was checked and then after, completed by data collectors. Incomplete and incorrectly filled questionnaires were excluded from entry.
Data Analysis Procedures

The collected data were compiled, processed, entered and analyzed using SPSS software version 16. Tables and graphs were used to illustrate the results. Co-relation and linear regression was done to examine the relationship between outcome variables and selected determinant factors. P less than 0.05 were considered to be statistically significant.

Ethical Consideration

The study was approved by ethical clearance committee of Ambo University. The formal letter was written to AHMC research director. Moreover, the benefits of the study were explained to the concerned body that the data were required only to identify the obstacles concerning implementation of newly emerging clinical pharmacy services in AHMC and to invite concerned body to tackle the obstacle that could be revealed by the study. The issue of confidentiality was discussed with the participants before going to collect data. Thus, the confidentiality was ensured by avoiding personal identification, restriction of data access to the third party.

Operational Definitions

Knowledge- is accordingly the concepts and information that HCPs have regarding PC services.

Attitude- is the perception and internal feeling that HCPs possess towards PC services which may be positive or negative.

Pharmaceutical care (PC) - is responsible provision of drug therapy for the purpose of achieving definite outcomes that improve patient's quality of life.

Clinical pharmacy services (CPSs) - are set of services provided by well trained clinical pharmacists to improve quality of life (QoL) of patients.

Healthcare professionals (HCPs)- in this regards it mean that any healthcare providers.

Clinical pharmacists (CPs)- are HCPs that were trained under clinical pharmacy curriculum in bachelor or master degree from recognized institution and can perform PC and CPSs well.

Highly positive- when the respondents agree on >70% of the statements of attitude.
Positive- when the respondents agree on 50-70% of the statements of attitude.
Less positive- when the respondents agree on <50% of the statements of attitude
Very good- when the respondents agree on >70% of the statement of knowledge.
Good- when the respondents agree on 50-70% of the statement of knowledge.
Poor- when the respondents agree on <50% of the statement of knowledge.

Results

Socio demographic characteristics of study participants

There were a total of 130 participants. The response rate was 90.3%. Seventy one (54.6%) of the respondents was male. About half (65, 50%) of the respondents were less than 30 years. Regard to profession of the respondents, 34(26.1%) were physicians of which 25(19.2%) were general physician (GP) and 9(6.9%) were specialists in different disciplines (3 internists, 2 pediatricians, 1 surgeon, 2 gynecologists and 1 in infectious diseases), and 10(7.7%) were pharmacy professionals of which 4(3.1%) were druggists while 6(4.6%) were pharmacists. Greater than half of the respondents (55, 42.3%) had less than three years of experiences

Knowledge of health care professionals towards PC

Almost half of HCP had good (53.1%) knowledge while others had poor (31.5%). About 125(96.2%) respondents agreed with the statements "I have heard about clinical pharmacy services in Ethiopia". 96(72.8%) knew that there were two clinical pharmacists in their institution and the same number of respondents were agreed that clinical pharmacists were integral part of medical teams.

Below half (45.4%) knew that clinical pharmacists attend ward round and morning session. 83(63.8%) respondents said agree on the statement "I know that clinical pharmacists improve the patients health related quality of life".

Slightly more than half (53.8%) knew that clinical pharmacists are capable of offering primary care to the patients. 115(88.5%) of the respondents agree "I know that involvement of clinical pharmacists can reduce adverse drug reaction" while 99(76.2%) knew that involvement of clinical pharmacists can reduce health care costs. Slightly more than half (50.8%) of the respondents didn't know the term pharmaceutical care. Significantly greater than half (54.6%) of the respondents had no information regarding pharmacists role in ambulatory cases and majority of them had no information regarding to clinical pharmacists role in intensive care unit.

Factors affecting knowledge of HCP

Type of profession (p=0.03, CI [-0.305, -0.015], AOR=-0.191) had significant association with knowledge of PC while years of experience not (p=0.305).

Attitude of HCP towards PC

Concerning the attitude of HCPs towards CPSs in Adama hospital medical college, 63.1% of HCP had highly positive attitude towards PC. Majority of the respondents appreciated the incorporation of clinical pharmacy service in health care delivery system and 94(72.3%) were highly interested to know more about clinical pharmacy services.

About 100(79.6%) respondents agreed with the statement "I think that clinical pharmacy services are very important for health care system of Ethiopia" and 83(64.8%) appreciated

Table 1: Demographic characteristics of healthcare professionals in Adama Hospital Medical College from March-June, 2014 (N=130)

Variables		Frequency (%)
Sex	Male	71 (54.6)
	Female	59 (45.4)
Age	<30	65 (50)
	30-50	52 (40)
	>50	13 (10)
Physicians	GP	25 (19.2)
	Specialists	9 (6.9)
	Total	34 (26.1)
Pharmacists	Druggists	4 (3.1)
	Pharmacists	6 (4.6)
	Total	10 (7.7)
Nurses	Diploma	28 (21.5)
	Bsc nurse	44 (33.8)
	Total	72 (55.3)
Midwives	Diploma	1 (0.8)
	Bsc	8 (6.2)
	Total	9 (7.0)
Health officer	Bsc	5 (3.8)
Years of experiences (year)		
Experience	<3	45 (34.6)
	3-6	55 (42.3)
	>6	30 (23.1)

Table 2: Results of assessment of knowledge of HCPs towards CPSs, Adama Hospital Medical College from March-June, 2014 (N=130)

No	Statements	Yes/agree frequency (%)	No/disagree frequency (%)	Neutral Frequency (%)
1	I have heard about clinical pharmacy services in Ethiopia	125 (96.2)	5 (3.8)	-
2	I know that there are clinical pharmacists in our hospital	96 (72.8)	29 (22.3)	5 (3.8)
3	I know that clinical pharmacists are integral part of medical teams	96 (72.8)	19 (14.6)	15 (11.5)
4	I know that clinical pharmacists attend ward round and morning session	59(45.4%)	57(43.8)	14(10.8)
5	I know that clinical pharmacists improve the patients health related quality of life	83 (63.8)	20 (15.4)	27 (20.8)
6	I know that clinical pharmacists are capable of offering primary care to the patients	70 (53.8)	31 (23.8)	29 (22.3)
7	I know that involvement of clinical pharmacists can reduce adverse drug reaction	115 (88.5)	10 (7.7)	5 (3.8)
8	I know that involvement of clinical pharmacists can reduce health care costs	99 (76.2)	15 (11.5)	16 (12.3)
9	Do you know pharmaceutical care?	64 (49.2)	66 (50.8)	-
10	Do you know pharmacist can do their care in different wards?	61 (46.9)	69 (53.1)	-
11	Do you have information regarding to pharmacists role in ambulatory cases?	59 (45.4)	71 (54.6)	-
12	Do you have information regarding to pharmacists role in intensive care unit?	45 (34.6)	85 (65.4)	-

Table 3: Results of assessment of the attitude of HCPs towards CPSs in Adama Hospital Medical College from March-June, 2014 (n=130)

No	Yes/agree Frequency (%)	No/disagree Frequency (%)	Neutral Frequency (%)
1. I appreciate the incorporation of clinical pharmacy service in health care delivery system	107 (82.3)	6 (4.6)	17 (13.1)
2. I am highly interested to know more about clinical pharmacy services	94 (72.3)	14 (10.8)	22 (16.9)
3. I think that clinical pharmacy services are very important for health care system of Ethiopia	100 (79.6)	6 (4.6)	24 (18.5)
4.Iappreciate the presence of clinical pharmacists in the wards	83 (64.8)	19 (14.6)	28 21.5)
5.If your patient needs pharmacist for his/her case, are you willing to call him	115 (88.5)	15 (11.5)	-
6.There should be clinical pharmacists in the ward at all times to provide clinical advices about rational drug use	91 (70)	14 (10.8)	25 (19.2)
7. Do you feel confidence when there is clinical pharmacist in the ward/OPD?	95 (73.1)	35 (26.9)	-
8. Do you ask the clinical pharmacist about any medication related problems pertaining to specific patient?	97 (74.6)	33 (25.4)	-

the presence of clinical pharmacists in the wards. 115(88.5%) agreed on the statement "If your patient needs pharmacist for his/her case, are you willing to call him" and at the same time 91(70%) confirm that there should be clinical pharmacists in the ward at all times to provide clinical advices about rational drug use. 95(73.1%) of the respondents said that they felt confidence when there is clinical pharmacist in the ward/OPD and 97(74.6%) agreed that they asked the clinical pharmacist about any medication related problems pertaining to specific patient.

Factors affecting attitude of HCPs towards PC

Type of profession (p=0.002, CI [-0.35, -0.084], AOR=-0.271) and year of experience (p=0.028, CI [0.023, 0.401], AOR=0.187) had significant association with attitude of HCPs towards PC.

Correlation between knowledge and attitude

There were correlation between knowledge and attitude (r=0.728, p=0.021).

Pharmacists' attitude towards PC

Special interview was done for pharmacists only to assess their interest in expansion and implementation of CPSs. Nearly all respondents (94.5%) agreed on the entire questions they have been asked with nearly similar reasons during the interview. On the question "Do you appreciating the need for incorporation of PC into practice", majority (90%) the respondents said "yes" and the reasons of majority of them were "PC is the practice in which pharmacists play his/her crucial role in patient care." All were willing to incorporate PC in to practice. All of the respondents need more information regarding to PC "because it is relatively new concept". 97%) of them prefer to engage in PC practice than dispensing because majority of them require clinical knowledge in addition to drug knowledge.

Discussion

Pharmaceutical care practice is at the infant stage in Ethiopia. Accordingly, the survey had response rate of 90.3% which was sufficient enough when compared to study conducted in Jimma University which is 87% (3).

The level of knowledge of the respondents showed that slightly more than half (53.1%) had good knowledge, which was not appreciable when compared with one study conducted in UAE. About 96.2% of the respondents heard about clinical pharmacy services in 2013/2014 GC when some students that have been studying clinical pharmacy came to the hospital for practice. 72.8% witnessed that clinical pharmacists are integral part of medical teams and it was in line with the study conducted in United Arab Emirates which was 75%. 63.8% agreed that they knew that clinical pharmacists improve the patients health related quality of life and they were less knowledgeable on this statement when compared with one study done in United Arab Emirate which was 82%.

Among twelve statements to assess the knowledge of HCPs toward clinical pharmacy the majority of the respondents agreed on two third of the statements which was in line with study conducted in Kuwait which was 75% (12).

The nature of attitude of the respondents came up with that, majority (75.4%) of them had positive attitude towards PC services which was little bit lower than that of the study done in Jimma University specialized hospital. This difference was that AHMC had no students learning in this new curriculum so far but Jimma University specialized hospital inaugurated many students in master for about five years. The proportion of agreements on almost all of the statements to assess attitude were greater than 70% and this showed that HCPs are willing to incorporate clinical pharmacy services in to practice but only 64.8% appreciated the presence of clinical pharmacists in the wards which was possibly due to lack of knowledge about role of clinical pharmacists in the wards. Maximum number (88.5%) of the respondents supported that they had willing to call clinical pharmacists if patients need his/her. Therefore the overall attitude of HCPs towards newly emerging clinical pharmacy services in Adama hospital medical college, observed that majority of the respondents expressed their positive attitude on almost all of the statements or questions and this indicated that the HCPs in the hospital were interested to implement the practice which was in line with study done in Japan (13) but less positive when compared to other study done in Nigeria. (14).

There is no significant association between age, gender with on both the attitude and knowledge of the respondent which was similar with study done in Pakistan. (15)

Existence of Pearson correlation between knowledge and attitude indicated that one who had good knowledge obviously develop positive internal feeling towards CP services and those who had positive attitude to know about PC can acquire the knowledge towards PC easily.

The type of profession significantly affects the level of knowledge of the respondents about PC services such that physician knew more about clinical pharmacy services than pharmacists and in turn pharmacists than nurses and so forth which was in line with study done in Turkey. This may be as result that the CPSs were provided in the ward by interacting with physician and in case of pharmacists, because they were the candidates of the services. In contrast there was no significant association between knowledge of HCPs about CPSs and year of experience of the respondents which was contradicted with the study done in Kuwait. (12) .

Both type of profession and years of experience of the HCPs significantly affect the attitude of the respondents such that the attitude of physician was more positive than pharmacists than
nurses and so forth and it was in line with the study done in Turkey. Similarly between attitude of HCPs towards CPSs and year of experience of the respondents, significant association was seen such that as years experience increased the respondent attitude increase, which was contradicted with study done in Japan (13) and regardless of this literature it was due to the fact that more experienced HCPs were expected to have information related to health delivery of developed nations than newly employed HCPs.

In particular, special interview was done for pharmacists to assess their willingness to be engaged pharmaceutical care practices. Almost all of the respondents were highly interested to participate in CPSs which was in line when compared to the study done in Nigeria and Kuwait. (2,12,14) .

This was due to higher need of the respondents to know more about PC practices than merely dispensing as revealed by the respondents themselves during interview.

Conclusion

Despite the fact that the practices of pharmaceutical care services were newly emerging in Ethiopian hospital settings, the level of knowledge of healthcare professionals towards the service was appreciable. There was significant association between level of knowledge among different professions but not in years of experience. Similarly majority of the respondents expressed their positive attitude towards PC services, though the responses varied with respect to both type of profession and years of experiences. As the HCPs' working experience increases, they were

having good attitude. There were correlation between attitude and knowledge towards PC services

Recommendation

Based on the result the following recommendations were forwarded.

Ministry of health in collaboration to Universities: to provide progressive training to further improve the attitude and knowledge of healthcare professionals towards pharmaceutical care services.

Ministry of health and NGOs: to promote pharmaceutical care services in the hospitals.

Ministry of education: to implement harmonized curriculum in all governmental and non-governmental academic institutions so that enough man power in this discipline will bring about the changes.

Hospitals: to implement ward based clinical pharmacy services well.

Acknowledgements

Acronyms and Abbreviations

ADRs- Adverse Drug Reactions
AHMC- Adama Hospital Medical College
AOR- Adjusted Odd Ratio
ART- Anti Retroviral Therapy
AU- Ambo University
CEP- Continuing Education Program
CPSs- Clinical Pharmacy Services
CPs- Clinical Pharmacists
DRPs- Drug Related Problems
ED- Emergency Department
EPJ- Ethiopian Pharmaceutical Journal
HCPs- Health Care Professional
HOs- Health Officers
NGOs- Non Governmental Organization
OPD- Out Patient Department
PC- Pharmaceutical Care
PharmD- Doctor of Pharmacy
QoL- Quality of Life
SD- Standard Deviation
SPSS- Statistical Package for Social Sciences
USA- United States of America
UAE- United Arab Emirates

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