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Dagmawit Awoke Erke
Addis Ababa University,
College of Health Sciences,
School of Pharmacy, Addis
Ababa, Ethiopia

Alemu Tadesse Feroche
Addis Ababa University,
College of Health Sciences,
School of Pharmacy, Addis
Ababa, Ethiopia

Ermias Alemayehu
Addis Ababa University,
College of Health Sciences,
School of Pharmacy, Addis
Ababa, Ethiopia

Corresponding Author:
Dagmawit Awoke Erke
Addis Ababa University,
College of Health Sciences,
School of Pharmacy, Addis
Ababa, Ethiopia

The attitude of Addis Ababa university undergraduate pharmacy student's toward pharmaceutical care and perceived barriers for the provision of pharmaceutical care

Dagmawit Awoke Erke, Alemu Tadesse Feroche and Ermias Alemayehu

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Abstract

Background: Pharmaceutical care plays a pivotal role starting from effective medication utilization to overall improvements in health-related quality of life of the patient by working closely with the patients and other health care providers.

In many developed countries, the provision of pharmaceutical care is highly advocated but when we come to developing countries like Ethiopia even though students can acquire knowledge related to pharmaceutical care its applicability in practical settings is still in its infant age, hence it should be integrated with other health care system so that students can apply the knowledge they acquired in enhancing pharmacotherapy and improving patients' quality of life.

Objective: To assess the attitude of undergraduate Addis Ababa University pharmacy students toward pharmaceutical care and perceived barriers for provision of pharmaceutical care.

Methods: An online descriptive cross-sectional study was conducted from July 17 2021 to August 30, 2021 in the college of health sciences, among 4th and 5th-year undergraduate pharmacy students to assess their attitude toward pharmaceutical care and perceived barriers to its implementation using a 13-item- standard pharmaceutical care attitude survey (PCAS) questionnaire and 12-items pharmaceutical care barrier questionnaires.

Result: Over a seven-week study period, among 105 students, 94 students completed the online survey; achieved overall response rate was 89.5%. Response rate was 85% for 4th year students and 94% for 5th year students.

Conclusion: Addis Ababa University Undergraduate pharmacy students showed positive attitude toward pharmaceutical care. Inadequate training in pharmaceutical care, poor image of pharmacist's role in society, very limited workplace in government and private hospitals, lack of access to the patient medical record in the pharmacy and inadequate internship period (hospital and community pharmacy) were the top perceived barriers by students for provision of pharmaceutical care.

Keywords: Attitude, Addis Ababa University, pharmaceutical care, pharmacy students

Introduction

Globally over the few decades, the role of pharmacists has been recasting persistently to meet the fluctuating needs of society [1]. Within the last decades, the role of the pharmacist and pharmacy practice has paradigmatically shifted from that of drug manufacturing and technical dispensing to a more cognitive role with patient orientation [2]. An increase in health demand with a complex range of chronic medicines and poor adherence to prescribed medications forces the pharmacy profession to continue to move toward a patient-centered practice [3]. In many developed countries, the provision of PC is highly advocated but when we come to developing countries like Ethiopia even though students can acquire knowledge related to pharmaceutical care its applicability in practical settings is still in its infant age due to several reasons.

Pharmacy students at university of Georgia taught pharmaceutical care (PC) as "the responsible provision of medication therapy for achieving outcomes that improve a patient's quality of life and involves pharmacists working with patients and other health care professionals in designing, implementing, and monitoring a therapeutic plan for the purpose of achieving definite outcomes" [4]. More recently, the Pharmaceutical Care Network Europe

promulgated the definition of PC as “the pharmacist’s contribution to care of individuals in order to optimize medicines use and improve health outcomes”^[5].

Several studies revealed that implementing pharmaceutical care in health institutions has several advantages starting from effective utilization of pharmaceuticals to overall improvements which are related to adherence, compliance and health-related quality of life especially in diabetes⁽⁶⁾, heart failure, asthma, hypertension, breast and ovarian cancer, cardiovascular diseases, asthma and chronic obstructive pulmonary diseases^[5]. Additionally studies done in the University of Gondar^[7], Nigeria^[8], Qatar^[9], Pakistan^[10], Cuban^[11] and USA^[4] revealed as students had a positive attitude toward PC. Further students also identified most perceived barriers that tackle the implementation of PC such as inadequate drug information sources, lack of access to patient information and workplace for counseling, time constraint, insufficient professional skills, poor image of the pharmacist, and economic incentive^[5]. Other studies also showed the earlier pharmacy students are exposed to actual patients; the more likely they are to develop PC skills and positive pharmaceutical care attitudes^[12].

In Ethiopia, pharmacy school started 60 years back in Addis Ababa University (AAU) with the vision to be the center of excellence in pharmaceutical education, research, and practice in Africa. In March 2009, the School of Pharmacy of Jimma University launched the country's first graduate program in clinical pharmacy with the objective of training patient-centered pharmacy practitioners as well as training faculty members for the new undergraduate clinical pharmacy programs^[13].

To date, there are no studies conducted in AAU that assess student's attitudes toward PC and perceived barriers toward its provision, the findings of this study will help to identify the attitude of pharmacy students toward PC and their perceptions about barriers that tackle its applicability in practical settings, which in turn helps institutional policymakers, pharmaceutical practitioners, researchers, the government and the society in general to find solutions for the perceived barriers.

Recognizing the global change in pharmaceutical care, various efforts have been made in Ethiopia to introduce clinical pharmacy services (CPS) in the health care system. They include: revision of the undergraduate pharmacy curriculum in public universities in 2008; establishment of drug information center at Tikur Anbessa Specialized Hospital (TASH) in 2009 by AAU School of Pharmacy with a technical support from Howard University College of Pharmacy and financial support from PEPFAR/CDC through the American International Health Alliance-Twinning Center; launching of the clinical pharmacy post-graduate program at Jimma University in 2009 and pharmacy practice postgraduate program at AAU in 2010; inclusion of clinical pharmacy services as one operational standard in the Pharmacy chapter of the Ethiopian Hospital Reform Implementation Guidelines (EHRIG) by the Federal Ministry of Health (FMOH) in 2010 and inclusion of CPS as one standard in the health facilities minimum regulatory standards prepared by the Ethiopian Standards Agency (ESA), Ethiopian Food, Medicines and Health Care Administration and Control Authority (FMHACA) in 2012^[1].

Attitude of undergraduate pharmacy students toward the provision of pharmaceutical care

Over the few recent years, many pieces of research have been conducted to assess the attitude of pharmacy students toward pharmaceutical care in both developing and developed countries. Qatar pharmacy students had a positive attitude toward the provision of PC. All respondents agreed that the primary responsibility of pharmacists in the health care setting should be to prevent and solve medication-related problems, that the practice of PC is valuable, and that the PC movement will improve patient health. However, 76% of respondents believed that providing PC takes too much time and effort^[9].

According to a cross-sectional study conducted among Nepal undergraduate pharmacy students, more than 80% of the students agreed or strongly agreed that PC practice is the primary responsibility of the pharmacists (83.1%) and it should be practiced by all pharmacists (88.8%).

Nearly all the students agreed or strongly agreed that the practice of PC is valuable (94.8%) and the primary responsibility of pharmacists in the healthcare setting should be to prevent and solve medication-related problems (94%). The majority of the students expressed their interest in performing a PC as a pharmacist practitioner (87.1%) and considered it to be professionally rewarding (84.9%) or beneficial to their professional pharmacy career as a pharmacy practitioner (90.1%)^[5].

Perceived barriers for implementation of pharmaceutical care

Studies conducted among Nepal among undergraduate pharmacy students revealed that the potential barriers to PC provision as perceived by the students were inadequate training in PC (75.9%), inadequate drug information resources in the pharmacy (73.3%), lack of access to the patient medical record in the pharmacy (71.1%) and lack of limited workspace in government and private hospitals (69.3%) were perceived as the main barriers to PC provision by most of the students^[5].

According to a cross-sectional study conducted among final year, University of Gondar pharmacy students the barriers perceived highly by students as that prevented them from providing PC included lack of workplace for counseling in the pharmacy (75.4%), a poor image of pharmacist's role inwards (67.7%), inadequate technology in the pharmacy (64.6%), inadequate drug information resources in the pharmacy (53.8%), lack of access to patient medical records in the pharmacy (50.8%), and inadequate training in PC (50.8%)^[7].

Methods

Study Area

The study was conducted in Tikur Anbessa Specialized Hospital (TASH) which is found in Addis Ababa, Ethiopia. It offers a diagnosis and treatment for approximately 370,000-400,000 patients a year. The hospital has 800 beds, with 130 specialists, 50 non-teaching doctors. It serves as a training center for undergraduate and post graduate medical students, dentists, nurses, midwives, pharmacists, medical laboratory technologists, radiology technologists.

Study Design and Study Period

An online descriptive cross-sectional study was conducted from July 17, 2021 to August 30, 2021 AAU, in the college of health sciences, TASH, among 4th and 5th year undergraduate pharmacy students.

Source and Study Population

All undergraduate AAU pharmacy students in the college of health sciences were the source population. Officially registered and actively attending their classes 4th and 5th year undergraduate pharmacy students available during the study time were the study population.

Eligibility Criteria

Inclusion criteria: All 4th and 5th year undergraduate pharmacy students who are available during the study period and actively attending their classes in the College of health sciences, AAU, were included.

Exclusion criteria: Those who refused to fill the online questionnaire were excluded from the study.

Sample Size Determination

All undergraduate 4th and 5th year pharmacy students were included considering their willingness and presence during the study period. From the total of 105, 4th and 5th year students, 58 were males and 36 were females. And, among 36 female students, 27 were from 4th year, 9 were from 5th year, additionally among 58 male students 19 were 4th year and 39 were 5th year. This study considered all 94 students as its sample size.

Data Collection and Management

Data Collection Instruments

A self-administered questionnaire that was developed from previous works of literature was used to assess their attitude toward pharmaceutical care and perceived toward its implementation using a 13-item-standard PC attitude survey (PCAS), which is initially validated in USA [14] and has already been used in different studies conducted in Nepal [5], Nigeria [8], Qatar [9], Gondar University, Ethiopia [7], Cuban [11], and similar studies Pakistan [15] and 12-items PC barrier questionnaires was used. The questionnaire was reviewed by the clinical advisor for content, readability, and comprehensiveness.

Data Collection

Ethical Considerations

Ethical Review Board (ERB) Committee of AAU, College of health sciences, School of Pharmacy was asked for ethical approval of this study before conducting the study. Informed consent was obtained from the study participant prior to data collection after the objective of the study made clear, assurance of confidentiality and permission for corporation was asked politely. A letter of ethical approval was obtained from the Ethical review board of the School of Pharmacy, AAU [Ref. No. ERB/SOP/297/13/2021].

No information obtained from the health students were recorded for a specific purpose with an intention that violates privacy, and no reference was made in oral or written reports that could link the specific health student in this study.

Data Quality Assurance

The data collection instrument (The self-administered questionnaire) was pre-tested among 5 students to ensure the validity of the questionnaire. Regular cross-checking, inspection and scrutinizing of information on the data collection instrument were done to ensure completeness of the data.

Data Analysis

The collected online data were downloaded to an Excel® spreadsheet, and imported to SPSS statistical software version 23. Descriptive statistics such as frequency and percentage were used to present the students' demographics and their attitude towards PC and perceived barriers for provision in the form of graphs and tables.

Results

Over a seven-week study period, among 105 students, 94 students completed the online survey; achieved overall response rate was 89.5%. Response rate was 85% for 4th year students and 94% for 5th year students.

Students' Socio-Demographic Characteristics

The socio-demographic characteristics of respondents are summarized in Table 1. Most of the students are aged between 22 and 24 (85.2%). Additionally, most of them were males (61.7%), single (98.9%), 5th year (51.1%), joined pharmacy school by self-motivation (45.7%), and their preferred career after graduation is pharmaceutical marketing (61%). Furthermore, majority of the students had no work experience (83%), and 11.7% of students had grade that delays their graduation.

Attitude of Students toward Pharmaceutical Care

Regarding the attitude of the students toward PC Table 2 summarizes the responses of participants to each PCAS item. 86.2% agreed or strongly agreed Pharmacists in all health care settings primary responsibility should be to prevent and solve medication-related problems. More than 70% of the students agreed or strongly agreed that PC practice is the primary responsibility of the pharmacists (83.1%) and it should be practiced by all pharmacists (63.8%). 11.7% of students disagreed or strongly disagreed as providing PC takes too much time and effort. Less than half of the students disagreed or strongly disagreed providing PC is not worth the additional work load that it places on the pharmacist (34.1%). 86.1% of the students agreed or strongly agreed as the practice of PC is valuable. 71.3 % of students would like to perform PC as a pharmacist practitioner and 79.8% showed similar attitude as providing PC is professionally rewarding. 80.9% of students agreed or strongly agreed as they have to perform PC during their clerkships. Greater than half the students agreed or strongly agreed as PC is the right direction for the profession to be headed (74.5%). A total of 84.3% and 86.3% felt the PC movement will benefit pharmacists and practicing PC would benefit professional career as a pharmacy practitioner respectively. Further, majority of the students felt that the PC movement will improve patient health (92.5%).

Students Perceived Barriers for Provision of Pharmaceutical Care

The potential barriers to PC provision as perceived by the students are depicted in Table 3. The students perceived barrier for provision of pharmaceutical care by descending order were adequate training in PC (72.3%), Poor image of pharmacist's role in society (66%), very limited workplaces in government and private hospitals (60.6%). Lack of access to the patient medical record in the pharmacy (51.1%), inadequate internship period (hospital and community pharmacy) (46.8%), lack of understanding of PC (37.2%), time constraints (36.2%), lack of workforce for counseling

in the pharmacy (35.1%), inadequate drug information resources in the pharmacy (34%), inadequate technology in the pharmacy (33%), lack of therapeutic knowledge (31.9%), lack of self-confidence (24.5%).

Discussion

This is the first online survey to assess the attitude of AAU undergraduate pharmacy students toward PC and perceived barriers for the provision of PC. The study results indicated that pharmacists' attitudes to pharmaceutical care are very promising as more than 50% responded positively to most of the statements in Table 2. The results of this study are consistent with previous studies done among undergraduate pharmacy students of Nepal [5], Nigeria [8], Qatar [9], Gondar University, Ethiopia [7], Cuban [11] and similar studies in Pakistan [15]. The majority of pharmacy students have a positive attitude, which should make it easier to implement pharmaceutical care in Ethiopia; despite the preferred professional career of most students (61%) after is pharmaceutical marketing.

Both 4th and 5th year pharmacy students of AAU had positive attitude toward PC with 76.8% and 74% respectively. Among these students only 23.9% from 4th year and 14.6% from 5th year want to work in community and hospital pharmacy after graduation as their professional career where PC is applied. The majority of the students want to join the world of pharmaceutical marketing (67.4% of 4th year and 62.5% of 5th year) this is might be mainly due to most health facilities do not employ a clinical pharmacist for the purpose of integrated drug prescribing and drug therapy problem identification with physicians, meaning the position isn't even applicable on majority of health centers, hospitals and clinics. And in a country where doctors with basic knowledge about drugs are given more respect and a better platform than pharmacists who have dedicated their careers to study drugs getting the motive to work as a clinical pharmacist is a lot more challenging than the rest of well-established working areas. The other thing is pharmacists are only viewed as dispensers, hence most of the inclined toward continuing their profession as a pharmaceutical marketer despite having positive attitude for PC.

In study compared to female (71.6%) male (78.3%) undergraduate pharmacy students had positive attitude toward provision of pharmaceutical care, which is the opposite of studies done among Nigerian undergraduate pharmacy students [8], additionally in comparison to male (58.6%) females preferred professional care after graduation is pharmaceutical marketing (75%). This could indicate that females have a lower proclivity for pharmaceutical treatment. It may be necessary to pay additional attention to this group during their pharmacy education.

Overall, AAU undergraduate pharmacy students in this study had positive attitude toward PC. The results of this study are in line with previous studies conducted in other developing and developed countries. Similar to studies done in Nigeria High scores obtained in this study may be due to compliance response bias i.e., the respondents agreed with statements as presented. It could also be that they tried to portray themselves in a more favorable light [8].

The majorities of the students were self-motivated to pursue pharmacy study and did not have any previous incomplete grade that delays their graduation. The pharmacy profession has versatile practice sectors, which includes working at

clinical settings, dispensing at hospital and/or community pharmacies and working with different medicine importing companies on marketing and promotion area. And according to the professional's interest and expertise joining one of these fields is expected. In this study, their preference of interest to start a professional career after graduation in pharmaceutical marketing followed by the academician, hospital pharmacy, community pharmacy and pharmaceutical industry reflects the current scenario of job opportunities and preference in Ethiopia for graduate pharmacists. The availability of more than 200 pharmaceutical importers in the country and inapplicability of the PC in most hospitals of Ethiopia might have influenced the career preference of students towards marketing sector. Students secondary preferences after graduation were to be Academician, community pharmacist and hospital pharmacist this also might due to job opportunities in these areas is also is high.

The major perceived barrier was inadequate training in PC. Ethiopia currently lacks proper training of pharmacists in non-communicable disease prevention and management, furthermore most the years were theory based rather than practical which could have acted as a barrier to PC.

Another perceived barrier for provision of PC in this study was poor image of pharmacist's role in society. This is unfortunate; because multiple studies have shown that pharmacist-delivered PC services can improve clinical, humanistic, and financial outcomes [7]. Very limited workplace in government and private hospitals was another top perceived barrier by students. This real scenario in the current practice of Ethiopia because most of the pharmacists that work in the community as well as hospital are mainly engaged in dispensing of pharmaceuticals rather benefiting the patient via pharmaceutical care.

Conclusion

In current study, AAU undergraduate pharmacy students showed positive attitude toward PC despite their preferred professional career of most students after graduation is pharmaceutical marketing. Inadequate training in PC, Poor image of pharmacist's role in society, very limited work place in government and private hospitals, Lack of access to the patient medical record in the pharmacy and inadequate internship period (Hospital and Community pharmacy) were the top perceived barriers by students for provision of pharmaceutical care.

Recommendations

To obtain improved PC practice in Ethiopia, it is critical to remove the perceived barriers. There should adequately training in PC; there should be enough work places in both government and private hospitals so that the patient benefited by applying pharmaceutical care. Pharmacists should have access to patient medical records to better understand individual needs.

Although completion of clerkship does not guarantee the level of PC skills learned by pharmacy students, a well-organized PC practice and training system provided by a hosting institute will have a significant impact. The changes may not be obvious right away, but the burden for establishing a standard training program for the future is in the hands of academics, policymakers, and pharmacy practitioners. To create competent graduates, the standard training program should be applied nationally by all

universities as clerkship model for undergraduate pharmacy students. It could be beneficial to make some changes to the current curriculum to include more PC-related subjects. Designing a pre/post study (i.e., before and after the clerkship) could aid in evaluating the clerkship's impact, and it should be pursued as a future research topic.

List of Acronyms and Abbreviations

AAU: Addis Ababa University

CDC: Center for Disease Prevention and Control

CPS: Clinical Pharmacy Service

EHRIG: Ethiopian Hospital Reform Implementation Guidelines

ERB: Ethical Review Board

ESA: Ethiopian Standards Agency

FMHACA: Ethiopian Food, Medicines and Health Care Administration and Control Authority

FMOH: Federal Ministry of Health

PC: Pharmaceutical Care

PCAS: Pharmaceutical Care Attitude Survey

SPSS: Statistical Package for Social Sciences

PEPFAR: President's Emergency Plan for AIDS Relief

TASH: Tikur Anbessa Specialized Hospital

USA: United States of America

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