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Systematic Review

Attitudes and impediments of the implementation of clinical pharmacy services and pharmaceutical care in Ethiopia: a systematic review

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ABSTRACT

Clinical pharmacy services are firmly established in many countries, associated with reduced adverse drug events, medication errors, length of hospital stay, mortality rates, and costs. However, implementation of clinical pharmacy is in its infancy in many developing countries including Ethiopia. The aim of this systematic review was to identify attitudes and factors influencing the implementation of clinical pharmacy services and pharmaceutical care in Ethiopia. A systematic review of published articles was conducted using databases such as PubMed, EMBASE, Scopus and Google scholar. A search was conducted from 01 July 2021 to 11 October 2021. The studies published in peer-reviewed journals in the English language, their full texts available and those done in Ethiopia were included. For this review, eleven articles were accepted and considered. From the included studies, about 52.6% of physicians and half of other health care professionals were of the opinion that pharmacists should concentrate on drug product and patient care should be left to other health care providers. Lack of clearly defined roles and responsibilities for the clinical pharmacists, lack of a support from the hospital management, lack of awareness, hesitance to have clinical pharmacists in the health care team, lack of proper communication and lack of incentives for the service are common factors influencing the implementation of clinical pharmacy services and pharmaceutical care.

Keywords: Clinical pharmacy, Pharmaceutical care, Drug therapy problem, Health care professional, Patient care

INTRODUCTION

Historical perspective: clinical pharmacy services and pharmaceutical care

The clinical pharmacy movement was started at the University of Michigan and University of Kentucky in the 1960s, and the philosophy of pharmaceutical care was introduced by Hepler and Strand in 1990.[1,2] One of the students at Michigan David Burkholder and two other Kentucky staff members (Paul Parker and Charles Walton) played a vital part in the development of the clinical pharmacy.[3] Clinical pharmacy became a unique and separate entity at the University of Kentucky in the late 1960s.[3] In the mid-1970s, pharmaceutical care is emerged as one of the dimensions of pharmacy practice.[4] In 1998, a Statement of Professional Standards in Pharmaceutical Care was adopted by International Pharmaceutical Federation.[5] Pharmaceutical care that involves direct interaction between the patient and the pharmacist, with responsible provision of drug therapy to achieve definite outcomes that promote disease management and improve patients' quality of life were described by Hepler and Strand in 1990.[5] Later, in 2004, Cipolle improved the philosophy of Hepler and Strand and said that "it is a patient-centered practice".[4]

Definition, similarities and difference

Clinical pharmacy and pharmaceutical care are ideas that help and supplement each other.[6] Clinical pharmacy is part of the practice of pharmacy that contributes directly to

patient care, which develops and promotes the appropriate and rational use of medicinal products and medical devices.[7] Pharmaceutical care is the patient focused care, which aim of improve the outcomes of therapy.[7]

Clinical pharmacy is crucial component in pharmaceutical care delivery.[8] Clinical pharmacy clearly comprises processes carried out by pharmacists without specific reference to outcomes, but the definition of pharmaceutical care explicitly mentions outcomes.[8] Clinical pharmacy is more in science than in relationship ethics, while the premise of pharmaceutical care is more in relationship ethics than in science.[6] Pharmaceutical care depicts the first reason of clinical pharmacy when it was described as a professional practice instead of a wellbeing science.[6]

Benefit

Medication related morbidity and mortality result in huge costs which may exceed the costs of the medications themselves and adverse drug reactions are a major cause of hospital admissions and of increased hospital stay.[9] Over the last few years, many studies have demonstrated that the provision of pharmaceutical care services by pharmacists can improve the patients' clinical status and health care outcomes, and can entail cost savings.[9] Including a pharmacist in the healthcare team for managing inpatients were significant lowered their economic burden and decreased total length of stay in hospitals.[4]

The pharmacist's participation in ambulatory patient care helped the patients in managing their blood pressure, cholesterol level, and glycated hemoglobin in addition to declining adverse drug reactions.[10] Similarly, another systematic review was also summarized the advantage of pharmacist's participation in improving various markers of lipid control among hyperlipidemic patients.[11]

Pharmaceutical care interventions (PCI) provided in Australian to patients addressing their drug related problems and found 39 percent of PCI prevented or needed a physician's visit or hospital admission.[12] Pharmacists' intervention reduced medication errors in general practices because of regular pharmacists' visits to the general practice prescriber and provided them educational intervention, regular feedback, and support related to prescriptions.[13]

The contribution of clinical pharmacists in developing an antimicrobial prescribing protocol encouraged the prescription of antimicrobials on inpatients as defined criteria in the protocol that significantly reduced the patients' duration of hospital stay, decreased the need and term of intravenous medication therapies, and resulted in the reduction in treatment failure.[14] Practice pharmacist-led medication reviews may reduce polypharmacy and drug expenditure.[15]

Pharmaceutical care and clinical pharmacy in developed countries

In the United Kingdom (UK), clinical pharmacy services have evolved from rarely providing therapeutic drug monitoring and medication history-taking to the introduction of supplementary prescribing in 2003 and independent prescribing in 2006.[16] Certain states of U.S allow pharmacists to adjust drug therapy, prescribe medications, perform lab tests and administer vaccines.[17] But in 7 states of U.S, pharmacists have more authority than the above, like to treat minor acute conditions, to prescribe additional medications: California, Idaho, Florida, Montana, New Mexico, North Carolina, Oregon.[17] Pharmacist prescribers play a vital role in the delivery of high-quality healthcare services and in the improvement of person-centered care across many healthcare sectors in England, Scotland and Wales.[18] They are well placed to use their knowledge of medicines, and their skills as prescribers, in the existing and various new roles which are being developed and integrated into care models.[18]

The majority of literature evaluating pharmacist prescribers' practice demonstrates safety, the achievement of clinical outcomes comparable to physicians and acceptability by a range of key health stakeholders.[16] Gerard et al (discrete choice experiment; a choice between three alternatives - novel pharmacist independent prescribing service ("prescribing pharmacist"), "own (family) doctor" service, and "available (family) doctor"), patients' preferences suggested that about 16% of consultations with a patient's own doctor can be switched to a prescribing pharmacist instead.[17] Although there is a stronger preference for seeing own doctor, alternative combinations of attribute levels can be used to compensate and reconfigure a more preferred prescribing pharmacist service.[19]

Maximizing acceptance of clinical pharmacy interventions reduced the length of hospital stay, practicing clinical pharmacists may qualify for further privileges including promotion to a fully independent prescriber status.[20] Pharmacists reported significant positives to the use of independent prescribing in critical care both in patient care and job satisfaction.[21] Independently, prescribing was routine in: dose adjustment for multi-organ failure, change in route or formulation, correction prescribing errors, therapeutic drug monitoring and chronic medication.[21]

Pharmaceutical care and clinical pharmacy in developing countries

Clinical pharmacy services are firmly established in many countries, associated with reduced adverse drug events, medication errors, patients' length of stay, mortality rates, and costs. However, implementation of clinical pharmacy is in its infancy in many developing countries.[22] Numerous studies have demonstrated the positive impact of clinical pharmacy services on clinical, economic and humanistic outcomes.[23] In developing countries, the situation of

pharmacy practice is generally more product-oriented rather than patient-oriented.[4] The extended role of community pharmacists in developing countries is largely inclined to dispense medications.[24] On the other hand, pharmacist's role in direct patient care is a relatively new concept in Ethiopia, and it is only recently that pharmacy education in Ethiopia has undergone a shift from product to patient-oriented curriculum.[25] There is a national interest in the expansion of pharmacists' role beyond the traditional roles of medication dispensing and distribution to clinical pharmacy services in Ethiopia.[26] Many Ethiopian pharmacists are very much enthusiastic for these expanded services although there have been many barriers affecting service utilization.[27]

To date, there has very limited review done regarding barriers to the provision of pharmaceutical care and clinical pharmacy services. Due to that, this systematic review aims to identify attitudes and factors influencing the implementation of clinical pharmacy services and pharmaceutical care in Ethiopia.

METHODS

The aim of this review was to summarize the attitudes and factors influencing the implementation of clinical pharmacy services and pharmaceutical care in Ethiopia based on available literatures. According to the preferred reporting items for systematic reviews and meta-analyses (PRISMA) statement, a review protocol was developed, objectives were specified, and a search strategy was built.[28] Based on inclusion and exclusion criteria, the study selection process is illustrated in the adapted PRISMA flow diagram (Figure 1).

Search strategy and database

We carried out a comprehensive literature search. The data bases such as Google scholar, PubMed, EMBASE and Scopus were employed to identify all relevant articles published on the theme of this review. All data sources were searched from 01 July 2021 to 11 October 2022. Several free-text and MeSH terms were tested and the search strategy was continuously refined. These terms were searched with relevant subject headings, then searched again as their respective keywords and synonyms. All studies identified during the database search were assessed for relevance to the review based on the information available in the abstract and title. The full texts of eligible articles were then downloaded for further screening and final inclusion.

Eligibility criteria and study selection

The studies published in the English language and their full texts available were included. Studies were included if they were published in peer-reviewed journals and done in Ethiopia. Studies were excluded on any one of the following conditions: a duplicate citation, outcomes were not well-defined, the full article was not available, and the studies did not report attitudes and factors influencing the implementation of clinical pharmacy services and pharmaceutical care. After duplicated removed, the abstract and title were used to screen the results of the primary search. For the inclusion and exclusion criteria, the full texts of relevant articles were assessed.

Data items and data collection process

A standardized data abstraction sheet was used after data was extracted from eligible studies. The studies were extracted using author, year of publication, study area, study subjects, sample size, study design, sampling technique, and attitudes and factors influencing the implementation of clinical pharmacy services and pharmaceutical care.

Quality assessment

Quality assessment tools were used for the specific method(s) employed in the reviewed studies. Core criteria for bias such as ethical conduct, relevance to inform practice and policy, appropriate and rigorous methods, and clarity and coherence of reporting were assessed by applying the critical appraisal skills programme (CASP) checklist for qualitative research.[24] For purposes of better comparability, we consistently used critical appraisal skills programme (CASP) checklist for qualitative research. Two researchers independently assessed the quality of each included study. Disagreements were resolved with a third reviewer and discussion.

RESULTS

Study selection

A total of 2805 studies were identified from the literature search. After removal of duplicates and irrelevant articles, about 42 articles obtained. Full texts of these 42 articles were accessed and 31 records excluded due to insufficient data and did not address the research question. finally, 11 articles were accepted and considered for final review (Figure 1).

Characteristics of included studies

Two of the included studies was published in 2013 (n=169) and 2014 (n=37). the rest of them was published from 2016 onwards. All articles were originated from different location in Ethiopia: central Ethiopia, Eastern Ethiopia, Western Ethiopia, north western part of Ethiopia and South west Ethiopia (Table 1).

Main findings per article

Attitudes

Majority of physicians 87.8% expected clinical pharmacists to be knowledgeable drug therapy experts and 85% to educate patients about the safe and appropriate use

of medications.[29] However, physicians were less receptive to any kind of recommendations regarding prescribing medications to patients.[29] About 50% of the health professionals were of the opinion that patient care should be left to other health care providers and pharmacists should concentrate on drug products.[33] Most of health professionals had adequate positive attitudes towards clinical pharmacy services but their practice with clinical pharmacists was found poor (Table 2).[35]

Other impediments of the implementation of clinical pharmacy services and pharmaceutical care

Lack of clearly defined roles and responsibilities for the clinical pharmacists, lack of a support from the hospital management, lack of awareness, reluctance to accept the pharmacists in the health care team, lack of proper communication and lack of incentives for the service are common factors influencing the implementation of clinical pharmacy services and pharmaceutical care (Table 3).

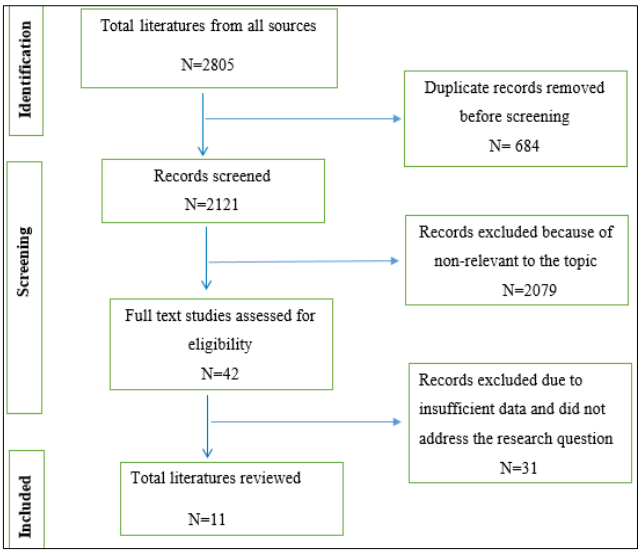

Figure 1: PRISMA flow chart of included studies.

Table 1: Detailed description of study characteristics.

S. no.	Author	Study area	Setting	Study design	Subjects	Sampling technique	Sample size	Year
1	Berhane et al[29]	Jimma, South west Ethiopia	Jimma University Specialized Hospital	A cross-sectional study design	Physicians	Census	169	2013
2	Nasir et al[30]	Addis Ababa, Ethiopia	Tikur Anbessa Specialized Hospital	An institution based cross-sectional survey	Physicians and pharmacists	Convenie-nce sampling	299	2020
3	Fekadu et al[31]	Nedjo, Western Ethiopia	Nedjo General Hospital	A cross sectional study design	Nurses, midwifes, physicians, medical laboratory technologist/MLT, pharmacist, X-ray technicians, anesthetics, dentists, health officers	Volunteer sampling	110	2019
4	Bereket et al[32]	Haramaya, Eastern Ethiopia	Haramaya University School of pharmacy	A prospective cross-sectional study	Graduating class of clinical pharmacy students	Census	37	2014
5	Bilal et al[33]	Ethiopia	32 General hospitals, 14 referral hospitals and 5 specialized hospitals	A cross-sectional survey	Physicians, health officers, nurses and pharmacists	Purposive	650	2016
6	Bilal et al[34]	Ethiopia	32 General hospitals, 14 referral hospitals and 5 specialized hospitals	A cross sectional survey	Pharmacists (new graduates from the public schools of pharmacy and heads of the pharmacy service)	Purposive	211	2017

Continued.

S. no.	Author	Study area	Setting	Study design	Subjects	Sampling technique	Sample size	Year
7	Tadesse et al[35]	West Shoa Zone, Ethiopia	3 Selected public hospitals	A facility based cross sectional survey	Specialist, general practitioner, pharmacy, nurse, laboratory, midwifery, anesthesia, physiotherapy	Convenie-nce sampling techniques	150	2020
8	Gelaw et al[36]	Oromia Regional State, Ethiopia	Ten Public Hospitals	Cross sectional study design	Physicians	Simple random sampling technique	93	2017
9	Kirubel et al[37]	Harar and Dire Dawa town, Eastern Ethiopia	Hospital and community pharmacies	A descriptive cross-sectional study	Pharmacists	A purposive sampling technique	46	2020
10	Mekonnen et al[38]	Amhara Regional State, north western part of Ethiopia	Eight public hospitals	focus group discussions	Pharmacists	Convenie-nce	61	2018
11	Solomon et al[39]	Mizan-Teferi, Southwest Ethiopia	Mizan-Tepi University Teaching Hospital	A cross-sectional study	Physicians, nurses, pharmacy, professionals, and public health officers	Census	119	2020

Table 2: Attitudes of health professionals on clinical pharmacy services and pharmaceutical care.

S. no.	Author	Attitudes
1	Berhane et al[29]	Majority of physicians 87.8% expected clinical pharmacists to be knowledgeable drug therapy experts and 85% to educate patients about the safe and appropriate use of medications. However, physicians were less receptive to any kind of recommendations regarding prescribing medications to patients.
2	Bereket et al[32]	Instructors and graduating class of clinical pharmacy students believe that there are no sufficient reference materials and the prescribers are not cooperative to deliver clinical pharmacy service. Majority of students about 73.0% were strongly disagreed that the school had a well-organized laboratory. 32.4% and 43.2% of students were strongly disagreed and disagreed that prescribers were willing to hear their comments while 37.8% and 32.4% of them strongly disagreed and disagreed that prescribers were accepting their comment.
3	Bilal et al[33]	In all items of attitude measurement, nurses and health officers tend to agree more negatively than physicians. About fifty percent of the health professionals were of the attitude that pharmacists should concentrate on drug products and patient care should be left to other health care professionals.
4	Tadesse et al[35]	74.8% of health professionals had adequate positive attitudes towards clinical pharmacy services but their practice with clinical pharmacists was found poor.
5	Fekadu et al[31]	The perception of clinical pharmacy services in patient management varied among the different professions. 73.6% of the nurses, 56.5% midwifes and 77.8% medical lab technologists have a good attitude as compared with 47.4% of physicians. However, there was no significant difference between attitude on the clinical pharmacy services and profession of health care professionals (p=0.059).
6	Gelaw et al[36]	More than 74% of the respondents were highly satisfied by the role of clinical pharmacists in counseling of patients regarding to safe and appropriate use of medications, prevention, detection and management adverse drug reactions. Physicians undoubtedly considered that pharmacists are drug information experts. Nevertheless, their anticipation of pharmacists as providers of quality clinically-focused pharmacy services was little.
7	Mishore et al[37]	Majority of pharmacists are knowledgeable about pharmaceutical care and 80.8% study participants strongly agreed that providing pharmaceutical care will increase the patient's confidence in the profession.
8	Hambisa et al[39]	More than 80% of the study respondents appreciated the integration of clinical pharmacy services into the health care delivery system. Similarly, more than 88% of the study respondents agreed on the item "clinical pharmacy services are important in the Ethiopian health care system."

Table 3: Other factors influencing the implementation of clinical pharmacy services and pharmaceutical care in Ethiopia.

S. no.	Author	Factors influencing the implementation
1	Nasir et al[30]	Requires too much time, lack of face to face communication, need to deal with multiple healthcare professional, lack of compensation, concern regarding liability over shared information, concern regarding liability over shared responsibilities, and involvement of multiple healthcare providers resulting in fragmentation of care
2	Bilal et al[34]	Factors related to pharmacists - 22% of the key informants indicated that there is poor communication skill, lack of interest and commitment as well as lack of confidence to provide clinical pharmacy service. Factors related to other health professionals - Reluctance to have the pharmacists in the health care team, Lack of awareness, and lack of proper communication were among the factors that negatively affect to the growth of the clinical pharmacy service. Pharmacy heads narrated the condition as follows: "Some prescribers perceive the pharmacists as fault finders and Pharmacists believe that the physicians' perceive them as "fault finders" and are hesitant to accept the pharmacists in the clinical practice". Factors related to hospital management - Lack of additional benefits and incentives, absence of clear job description of practice, lack of proper monitoring and supervision, poor hospital management support, lack of standard documentation formats, lack of appropriate setup for the service, and absence of pre-established system in the hospital was among the challenges of implementation of clinical pharmacy service
3	Gelaw et al[36]	Lack of support from administration (70%); shortage of staff (63.4%) and lack of adequate support by the health care team (62.4%) were the major limitations to practice clinical pharmacy service in the hospitals.
4	Mekonnen et al[38]	Knowledge and skills, environmental context and resources, motivation and goals, social influences and social/professional role.
5	Hambisa et al[39]	Lack of a support from the hospital management (74.79%), lack of clearly defined roles and responsibilities for the clinical pharmacists (69.75%), shortage of pharmacy workforce and staff turnover (62.18%), lack of a follow-up from the responsible bodies (59.6%), lack of enough salaries and incentives (45.38%), and lack of a support from pharmacy professionals (27.73%)

DISCUSSION

According to two studies included in this systematic review about 50% of the health care professionals and 52.6% of physicians were of the opinion that patient care should be left to other health care providers and pharmacists should concentrate on drug products. This finding was in line with some of previous studies.[40-42] But, according to studies done in Qatar, health-related stakeholders have positive perceptions of current clinical pharmacy services and support the expansion of pharmacist's roles.[16] Vinterflod et al also concluded that, all physicians were positive regarding clinical pharmacy services and were satisfied with the collaboration with the clinical pharmacists.[43]

Three studies included in this systematic review state that majority of health professionals had positive attitudes towards clinical pharmacy services but their practice with clinical pharmacists was found poor. Their anticipation of pharmacists as providers of quality clinically-focused pharmacy services was little. And the physicians were less receptive to any kind of recommendations regarding prescribing medications to patients. This finding was not in congruence with study done in Belgium, which found that, the clinical pharmacist identified a high number of potential drug-related problems in older patients and most of the recommendations were accepted by the treating physician.[44]

This study found that lack of enough salaries and incentives, absence of clear job description/scope of practice, lack of appropriate setup for the service, lack of proper monitoring and supervision, and absence of pre-established system in the hospital was a challenges for implementing pharmaceutical care and clinical pharmacy service. This was commonly reported in previous studies, national health care structure in general and inappropriate system for assessment and encourage pharmacies toward pharmaceutical care was barriers for implementing clinical pharmacy service.[9,40-42]

Reluctance to have the pharmacists in the health care team, lack of awareness, and lack of proper communication were among the factors that negatively contributed to the growth of the pharmaceutical care and clinical pharmacy service. This was revealed by a set of previous studies, barriers for implementing clinical pharmacy service and pharmaceutical care were lack of time and need of effort, lack of collaboration, deficiency in staff strength, as well as resource and system-related constraints.[9,40-42,45-48]

CONCLUSION

Majority of health professionals had positive attitudes towards clinical pharmacy services and pharmaceutical care but their practice with clinical pharmacists was found poor. Their anticipation of pharmacists as providers of quality clinically-focused pharmacy services was little.

And the physicians were less receptive to any kind of recommendations regarding prescribing medications to patients. About 50% of the health professionals were of the opinion that patient care should be left to other health care providers and pharmacists should concentrate on drug products.

Lack of clearly defined roles and responsibilities for the clinical pharmacists, lack of a support from the hospital management, reluctance to accept the pharmacists in the health care team and lack of incentives for the service are common factors influencing the implementation of clinical pharmacy services and pharmaceutical care.

Recommendations

Based on the findings of this study, recommendations that have implications for intervention are forwarded for Ethiopian ministry of health, higher education and Clinical pharmacist as follows.

Ethiopian ministry of health

A clearly defined roles and responsibilities for the clinical pharmacists should be established and also there should be some incentive for the roles. It's challenging to deliver Clinical pharmacy service in conditions where other health care professional is not cooperative. Therefore, a progressive and continuous training should be a provided to improve the attitude and knowledge of health care professional towards clinical pharmacy service and pharmaceutical care.

Higher educations

Clinical pharmacy and pharmaceutical care education curriculum needs an upgrade. And also, proper strategies should be in place to improve clinical pharmacy service and pharmaceutical care. There should be continuous and progressive training to improve the attitude and knowledge of health care professional towards clinical pharmacy service and pharmaceutical care.

Clinical pharmacists

Pharmacists should influence and overcome the impediments to implement clinical pharmacy service and pharmaceutical care. We should have to enforce to see the rules and regulations that allow clinical pharmacist to prescribe and administer medication like that of developed countries. Because we know more about the drug, we should prescribe and administer drugs.

It is recommended that a proper communication and collaborative working relationship should be established with other health care professional to deliver clinical pharmacy service and pharmaceutical care

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