Assessment of role of pharmacists in managing ailments and ensuring medication safety at Dire Dawa town, East Ethiopia.

Zeray Deresse[1], Teshome Sosengo[1*], Eyassu Mathewos[2]

[1]School of Pharmacy, College of Health and Medical Sciences, Haramaya University, Ethiopia

[2]Department of Nursing, Durame Campus, Wachemo University, Ethiopia

Abstract

Background: Community pharmacists are the most accessible health professionals to the general public and pharmacists are increasingly being recognized as a source of professional health-related advice.

Objective: The aim of the study is to assess role of pharmacists in managing ailments and ensuring medication safety at Dire Dawa town, East Ethiopia from Feb 20, 2021 to Mar 20, 2021.

Method: Community pharmacy based cross-sectional study was conducted with interview and structured self-administered questionnaires. All community pharmacists found in Dire Dawa town and willing to participate in the study were included. Data was collected from Feb 20, 2021 to Mar 20, 2021. The data is analyzed and presented using tables.

Result: In the current study 50 study participants was included. The 87% of the respondents are graduated with first degree and 13% are graduated with masters. All of the respondents replied that they respond effectively to patient's disease symptoms in their pharmacy and have responsibility to respond to patient's symptom. The 67% of the respondents replied that that lack of knowledge and influence of pharmaceutical industry is the main factor for inappropriate symptom management in community pharmacy. Disease symptoms managed by the community pharmacists were cold/flue 37[73%], cough 20[40%], diarrhea 14[27%], and inflammation 10[20%]. The 33[67%] of respondents manage disease symptoms by giving medication, while 33[67%] and 14[27%] manage symptoms by advising the patient to visit doctor and to use home remedies respectively. The 33[67%] of respondents replied that they ask if the patient have adverse drug reaction before they dispense medication.

Keywords: Community pharmacy, Community pharmacist, Counseling, Dispensing, Symptom.

Introduction

Community pharmacy, also known as retail pharmacy or retail drug outlets, is places where medicines are stored and dispensed, supplied and/or sold and allows the public to access medications. Traditionally, the role of community pharmacists is to provide medications to patients based on prescription from their doctor [1]. Community pharmacists are the most accessible health professionals to the general public and are increasingly being recognized as a source of professional health-related advice [2]. Community pharmacists are uniquely placed to provide support and advice to the general public compared with other health care professionals [3].

Majority of developed nations has successfully integrated community pharmacy professionals into a variety of public-health programs including providing treatment and advice for managing minor ailments. Pharmacists are expected to respond for minor alignments and for more serious condition and recommend appropriate action such as counseling on non-pharmacologic treatment, or advising to visit other a health care practitioner such as physicians [4].

In the past, traditional role of community pharmacists was only to dispense medication, but nowadays community pharmacist's role has been modified to responding to symptoms. Currently pharmacists are playing a major role in the management plan of diseases such as heart failure, anticoagulation, lipid, hepatitis, pain asthma and renal diseases management. Pharmacists' intervention in patients with cardio vascular disease has been associated with a decrease in the risk of adverse drug events and medication errors [5-6]. Community pharmacists are well positioned to identify patients with poorly controlled disease like asthma and are trained to optimize therapy. Pharmacist's

services improve the health of patients with asthma [7-9].

Community pharmacist plays a vital role in management of minor ailments. Community pharmacist can judge in right time to refer and provide appropriate treatment to prevent further complications [10,11]. A cross-sectional simulated-client based mixed study conducted in Gondar town, Northwest Ethiopia in 2018 in 60 community pharmacy shows 64.7% of participants manage headache symptomatically. The 78.4% of participants recommended acetaminophen for a non-examined headache, and about 40% of them added diclofenac, tramadol, and ibuprofen to paracetamol for better treatment [12].

The role of community pharmacists in developing countries is confined to dispensing medications. More than 50% of all medicines in developing countries are prescribe and dispense inappropriately and 50% of community pharmacists does not respond to symptoms [13-15].

In a study done in Zimbabwe in 2008, the 39 % of the respondents reported that the pharmacists did not give them enough time to discuss their physical health problems. In the study, 30% of the respondents reported that they did not ask pharmacist for advice and 37% of them reported that they usually cannot get a chance to speak to the pharmacist [16].

In Ethiopia there exists a great gap in community pharmacist's knowledge and skill in responding to symptoms and the role community pharmacists in the country is confined to traditional role of dispensing drugs [17,18].

To date there has been very few studies conducted globally and locally that assess the role of community pharmacists in responding to symptoms. In Dire Dawa no study has been done that assess that assess the role of pharmacists in managing ailments and ensuring medication safety. Therefore, this study assesses the role of pharmacists in managing ailments and ensuring medication safety in Dire Dawa city administration.

Methodology

Study area and period

This study was conducted in community pharmacies located in Dire Dawa city administration. Dire Dawa is located about 515 km from Addis Ababa in eastern part of Ethiopia. In Dire Dawa city administration there were 2 governmental hospitals, 5 private hospitals, 80 private clinics, 50 community pharmacies. The study was conducted from Feb 20, 2021 to Mar 20, 2021.

Study design

Community pharmacy based cross-sectional study was conducted using interview and structured self-administered questionnaires.

Population

Source population

Pharmacyprofessionals working in communitypharmacies in Dire Dawa city administration.

Study population

All pharmacy professionals working in community pharmacy during data collection.

Inclusion criteria and Exclusion criteria

Inclusion criteria

All community pharmacy professionals found in Dire Dawa town and willing to participate in the study was included in the study.

Exclusion criteria

Pharmacy professionals working government pharmacies and unregistered community pharmacy without up dated license was excluded from the study.

Sample size determination

All community pharmacists found in Dire Dawa and willing to participate in the study were included in the study.

Sampling procedure

All of the study populations were covered.

Data collection method

Data was collected using structured self-administered questionnaire prepared in English.

Data quality control

In order to assure data quality, high emphasis was given to minimize errors using the following strategies: the questionnaire was pretested and subsequent correction and modification was done, and proper instruction was given before the survey was started. The collected data was reviewed and checked for completeness before data entry.

Data processing and analysis

The collected data was coded, entered and analyzed with SPSS version 20 program and the result is presented by tables and figures.

Ethical consideration

Ethical approval letter was obtained from Ethical Review Board of Haramaya University College of health and Medical Science and submitted to concerned body in Dire Dawa health bureau. Appropriate privacy and confidentiality of study participants was maintained.

Operational definitions

Community pharmacy: Type of pharmacy that allows the public access to their medication and advice about their health.

Dispensing: Translation of medication order (prescription) into an individualized medication supply that is both safe and appropriate.

Medication resistance: The reduction in effectiveness of a medication to cure a disease or condition.

Pharmacist: A health professional graduated by pharmacy profession with qualification of university degree or above.

Pharmaceutical care: Is the responsible provision of drug therapy for the purpose of achieving, definite outcomes that improve the patient's quality of life.

Responding to symptom: Reacting in response to call for help by patient with a physical or mental feature which indicate condition of disease.

Symptoms: A physical or mental feature which is regarded as indicating a condition of disease, particularly such a feature that is apparent to the patient.

Result

Socio-demographic characteristics

A total of 51 Pharmacy professional was invited for participation in this study. The 50 respondents were willing to participate on the study, with a response rate of 98%. The 80% and the 30% of the study participants were male and female respectively. The majority 70%, of the respondents was married.

With regard to education status, the majority (87%) is Pharmacists graduated with first degree and 13% of the respondents are graduates of master's science in Pharmacy. The 47% of the respondents have working experience between 5-10 years and 33% of the respondents have work experience between 0-5 years of experience (Table 1).

Table 1. *Socio-demographic characteristics of the study participants, Dire Dawa town, Eastern Ethiopia, April 2021.*

Demographic variables	Frequency	Percentage
Gender		
Male	40	80
Female	10	20
Age		
20-30	20	40
31-40	24	47
41-50	6	13
Marital status		
Single	15	30
Married	35	70
Educational background		
First degree	44	87
Masters	6	13
Year of experience		
0-5	17	33
05-Oct	23	47
Oct-15	3	7
>15	7	13

Responding to disease symptoms

The majority of respondents, 40 (80%), replied that there is a problem in community pharmacy in responding to disease symptoms in Ethiopia. All of the respondents, 50 (100%), replied that they respond effectively to patient's disease symptoms in their pharmacy and have responsibility to respond to patient's symptom.

The 47% of respondents replied that responding to symptom by community pharmacy is a cause for irrational prescription. The 18% of the respondents reply that a reason for irrational prescription is targeting of gaining a better profit by pharmacists. And 5 (10%) of pharmacists replied that lack of knowledge is a reason for irrational prescription (Table 2).

Table 2. *Responding to disease symptoms among study participants, Dire Dawa town, Eastern Ethiopia, April 2021.*

Variable	Response	Frequency	(%)
Is there a problem in community pharmacy in responding to symptom in Ethiopia?	Yes	40	80
	No	10	20
Effective response to patient's disease symptom?	Yes	50	100
	No	-	-
Having a responsibility to respond to patient's symptom?	Yes	50	100
	No	-	-
Responding to symptom by community pharmacists can be a cause for irrational prescription practice?	Yes	23	47
	No	27	53
Reason for irrational prescription practice	Gaining profit	9	18
	knowledge gap	5	10

Management of disease symptoms

In this study disease symptoms managed by community pharmacists were cold/flue 37(73%), cough 20(40%), diarrhea 14(27%), and inflammation 10(20%). The 33(67%) of respondents manage disease symptoms by giving medication, while 33(67%) and 14(27%) manage symptoms by advising the patient to visit doctor and to use home remedies respectively. Majority, 80%, of the

respondents ask female patient if they are pregnant or breast feeding before giving medication for symptom management. The 33(67%) of respondents ask if the patient have adverse drug reaction before they dispense medication for symptom management.

More than half of study participants, 30(67%), replied that lack of knowledge and influence of pharmaceutical industry is the main factor for ineffective symptom management in community pharmacy. While significant proportion of study participants, 13(20%) and 7(13%), replied that patient influence on treatment and failure of identifying past treatment history respectively is the causes for inadequate response to disease symptom by the Pharmacy professional.

With respect to ways to reduce inappropriate response to disease symptoms, the majority of respondents, 67%, replied that adequate training programs can reduces inappropriate response to disease symptoms by community pharmacists but the 33% of the respondents disagree on the issue. And 40(80%) pharmacists responded that they don't get any formal training and 10(20%) pharmacists say that thy get formal training on role of community pharmacy in responding to symptoms.

With regard to advice on disease symptoms, all the respondents (100%), gives advice to patient about their disease symptoms. Each 30(60%) of the respondents give advice on cold/flue and diarrhea, 27(53%) on cough, and 23(47%) on inflammation.

Majority of pharmacists, 36(73%), replied that responding of community pharmacist to symptom cannot result in drug resistance, while the 14(27%) pharmacists replied that responding to symptom results in drug resistance (Table 3).

Drugs used for symptom Management

The most common medications used by the respondents for disease symptoms were analgesics 30(60%), antiemetic 17(33%), and antibiotics 10(20%). The respondents give advice mostly for antibiotics (73%), antipsychotics (53%) and 17(33%) for topical agents. The 80% of the respondents give advice on drug-food interaction and the 53% on drug-drug interaction and the 40% on adverse drug reaction. Most of the respondents, 80%, replied that that they take more time to explain in detail how medication should be used (Table 4).

Table 3. Management of disease symptoms by the study participants, Dire Dawa town, Eastern Ethiopia, April 2021.

Variable	Response	Frequency	(%)
Common symptom managed by community pharmacy?	Diarrhea	14	27
	Cold/flue	37	73
	Inflammation	10	20
	Cough	20	40
How common symptom is managed in community pharmacy?	Giving medication	33	67
	Advising to go to doctor	14	27
	Advising using remedies	14	27
Do you ask female patients whether they pregnant or not before dispensing medication?	Yes	40	80
	No	10	20
Do you ask patients if they have adverse drug reaction (ADR)?	Yes	33	67
	No	17	33
Factors for unnecessary symptom management in community pharmacy?	Lack of knowledge.	30	67
	Influence of industry	30	67
	Patient influence	13	20
	Failure of identifying past treatment history	7	13
Adequate training programs reduce inappropriate response to disease symptoms?	Yes	30	67
	No	20	23
Have you get any formal training on responding to symptom in community pharmacy?	Yes	10	20
	No	40	80
Do you give advice to patient about their disease symptoms?	Yes	50	100
	No	-	-
Most of the time advice is given for?	Cough	27	53
	Inflammation	23	47
	Cold/flue	30	60
	Diarrhea	30	60
Responding of community pharmacy to disease symptom result in drug resistance?	Yes	14	27
	No	36	73

Table 4. Drug used for symptom management in community pharmacy, Dire Dawa town, Eastern Ethiopia, April 2021.

Variable	Response	Frequency	(%)
Most common medications used for symptom management of disease symptoms?	Analgesic	30	60
	Antiemetic's	17	33
	Antibiotics	10	20
Giving advice mostly for which medication?	Antibiotics	36	73
	Antipsychotics	27	53
	Topical agent	17	33
Giving advice on drug-food interaction?	Yes	40	80
	No	10	20
Giving advice on drug-drug interaction?	Yes	27	53
	No	23	47

Discussion

Out of the total 51 community pharmacists invited to fill the questionnaire, the 50 respondents participated in the study with a response rate of 98%. The majority of the study participants were male.

All the respondents replied that they respond effectively to disease symptoms. This result is better than study report of study done in Nigeria, in which 94% of the study participants replied that they respond to diseases symptom management [19]. The probable for the difference may be implementation of clinical pharmacy practice in the current study area, Dire Dawa. All community pharmacists have to be aware of their role to be participant in solving community health problem, as they are front line for community for the management of common ailments.

The 10% of respondents replied that lack of knowledge is a reason for not responding to symptoms by the community Pharmacists. This result is by far better than study conducted in Gondar town, Ethiopia which is 41.2% of respondent reported there is lack of confidence and the 31% reported that lack of updated medical information is a barrier to responding to patient's disease symptoms management [18]. The variation may be due to difference in design and scope of the two studies. Since knowledge of Pharmacists is a key factor for effective management of disease symptoms, the pharmacist should update his/her knowledge with current development with sciences of diseases symptoms management.

In the current study the 67% of respondents manage disease symptoms by giving medication and by advising the patients to visit doctors. In line with this, study done in Pakistan on 371 simulated patients who visited the pharmacies, show that 72.8% subjects were given medicines for management of their disease symptom by the pharmacists, while the 24.3% of the subjects were referred to the doctor [20]. This difference is may be due to variation in number of study participant.

In the present study the most common medications used by the respondents for symptom management of disease symptoms were analgesics 30(60%), and antibiotics 10(20%). This result is in concordance with study conducted in India, in which the most common medication used by pharmacists for management of minor alignment were analgesics (83%) and antibiotics (96%) [7]. This indicates that there is practice of dispensing antibiotics without prescription which is promoting factor for emergence of drug resistance. As is in the present study, in study undertaken in Sri Lanka in 41% of interactions antibiotics are supplied illegally [21]. Since inappropriate antibiotic dispensing results ineffective disease treatment and emergence of drug resistance, community pharmacists should take appropriate professional responsibility in antibiotic dispensing.

The 27% of the respondents replied that responding to disease symptom by community pharmacists is a cause for drug resistance. Since drug resistance is deleterious problem that results miss-trust in health system and loss of economy of the patient and the government, community pharmacist should respond to disease symptoms relying on current development on science in the issue.

The majority of the respondents, 80%, ask female patients if they are pregnant and/or breast feeding before managing symptoms by giving medication. To prevent the problems caused by medications that should be avoided during pregnancy and/or breast-feeding community pharmacist should take more emphasis on the issue to prevent deleterious effects of such drugs on the offspring.

In the present study the 67% of respondents replied that lack of knowledge and pharmaceutical industry influence is the cause for inappropriate management of symptom by community pharmacy professionals. The community Pharmacist should have adequate knowledge and also should be free from any influence to manage diseases in practice setting. The Pharmacist should only rely in current development in science in the issue to manage diseases.

The majority of pharmacists, 67%, replied that adequate training program be given to community pharmacists to respond effectively to symptom management. Appropriate training that equips pharmacist with up-to date knowledge on management of diseases should be given to community pharmacists for effective management of ailments in community pharmacies [22]. As indicated in Study report in Benin City Nigeria, majority of the respondents (94%) believe that further training is important [23]. This

similarity is indicating that most of pharmacists in both studies need more training this means learning they get from school is not enough to respond to patient's symptom.

Conclusion and Recommendation

All of community pharmacists were aware of their role for community and all of community pharmacists that participate in this study respond to patient's symptom. However, lack of knowledge remains great responding to disease symptom. Majority of the respondents didn't get any formal training on disease symptoms management. There exists a gap in dispensing antibiotics without prescription which is a main cause for drug resistance. To resolve a knowledge gap in disease management in community pharmacist of Dire Dawa town, appropriate bodies such Dire Dawa health bureau, School of Pharmacy of Haramaya University should give appropriate training and reading sources to equip community pharmacists with appropriate knowledge.

Acknowledgement

Declarations

Consent to publish: Not applicable

Funding: None

Competing interests: The author declare no competing interest.

Conflict of interest: The authors declare no conflict of interest

Author's Contribution

Author Zeray Derese involved in the conception and design of the study, participated in the literature searches, analyzed data and wrote the manuscript. Authors Teshome Sosengoand Eyassu Mathewos involved in the conception and design of the study, participated in the literature searches, supervised data collection and analyzed data.

Availability of Data

All the data are available with the Primary author, Zeray Derese.

References

1. Hashmi FK, Hassali MA, Khalid A, Saleem F, Aljadhey H, Babar ZD. A qualitative study exploring perceptions and attitudes of community pharmacists about extended pharmacy services in Lahore, Pakistan. BMC Health Serv Res 2017; 17: 1-9.

2. Hassali MA, Awaisu A, Shafis AA, Saeed M. Professional training and roles of community pharmacists in Malaysia; views from general medical practitioners. Malays Fam Physician 2009; 4: 71-76.

3. Rutter P. Role of community pharmacists in patient's self-care and self-medication. Integr Pharm Res Pract 2015; 4: 57-65.

4. Surur AS, GetachewE, Teressa E, Hailemeskel B, Getaw NS, Erku DA. Self-reported and actual involvement of community pharmacists in patient counseling: a cross-sectional and simulated patient study in Gondar, Ethiopia. Pharm Pract 2017; 15: 890.

5. Shemsedin R, Tigabu BM. Community drug retail outlet services in Harar town. Eastern Ethiopia. Inter J Pharma Sci Res 2015; 6: 1083-1090.

6. Akram W, Ijal N, Ahamed H, Jamshaid M, Ismail ME. Barriers to the provision of asthma services and perceived practice toward asthma management among urban community pharmacists Selangor, Malaysia. Brazil J Pharma Sci 2018; 4: e17324.

7. Alaqeel S, Abanmy NO. Counselling practices in community pharmacies in Riyadh, Saudi Arabia: a cross-sectional study. BMC Health Serv Res 2015; 15: 1-9.

8. Bahmaid R, Mroueh M, Al -Otabi F, El-Bakri N, Alasfar A. The role of the clinic pharmacist in multidisciplinary heart failure clinic at tertiary care hospital. Donnish Journal of medicine and medical sciences 2016; 3: 011-014.

9. Brata C, Marjadi B, Schneider CR, Murray K, Clifford RM. Information-gathering for self-medication via Eastern Indonesian community pharmacies: A cross-sectional study. BMC Health Serv Res 2015; 15: 1-9.

10. Guirguis LM. Assessing the knowledge to practice gap: the asthma practices of community pharmacists. Can pharm J 2018; 151: 62-70.

11. Mohathasim BA, Raja DI, Venkatesan P, Rizwan UZ. A qualitative study on community pharmacies across the United Arab Emirates in terms of pharmacists view about the facilities offered, demographic details, prescription received and types of minor ailments being treated with over-the-counter medications. J Pharm Sci Res 2015; 7: 1114-1117.

12. Netere AK, Erku DA, Sendekie AK, Gebreyohannes EA, Muluneh NY, Belachew S A. Assessment of community pharmacy professionals' knowledge and counseling skills achievement towards headache management: a cross-sectional and simulated-client based mixed study. The journal of headache and pain 2018; 19: 1-9.

13. Yimer YS, Mohammed SA, Hailu AD. Patient–Pharmacist Interaction in Ethiopia: Systematic Review of Barriers to Communication. Patient Preference and Adherence 2020; 14:1295–1305.

14. Becattini C, Agnelli G. Treatment of Venous Thromboembolism with new anticoagulant agents. J Am Coll Cardiol 2016; 67:1941-1955.

15. Mohd Shukri NH, Wells J, Eaton S, Mukhtar F, Petelin A, Jenko-Pražnikar Z, Fewtrell M. Randomized controlled trial investigating the effects of a breastfeeding relaxation intervention on maternal psychological state, breast milk outcomes, and infant behavior and growth. Am J Clin Nutr 2019; 110:121-130.

16. Govo M, Gavaza P, Mapnga CC, Mukosera KT. Community Pharmacy Users' Characteristics, Reasons for Visit to the Pharmacy and Perceptions of the Role of Community Pharmacists in Harare, Zimbabwe. East and Central African Journal of Pharmaceutical Sciences 2008; 11: 25-30.

17. Erku DA, Mersha AG. Involvement of community pharmacists in public health priorities: a multi-center descriptive survey in Ethiopia. PLOS ONE 2017; 12: e0180943.

18. Ayele AA, Tegegn HG, Gebresillasie Bm Mekonnen AB, Erku DA. Management of minor ailments in a community pharmacy setting: findings from simulated visits and qualitative study in Gondor town Ethiopia. PLOS ONE 2018; 13: e0190583.

19. Eades CE, Ferguson JS, O'Carroll RE. Public health in community pharmacy: A systematic review of pharmacist and consumer views. BMC Public Health 2011; 11: 582.

20. Hussain A, Mohamed I, Ibrahim M, Malk M. Assessment of disease management of insomnia at community pharmacies through simulated visits in Pakistan. Pharm pract 2013; 11: 179-184.

21. Zawahir S, Lekamwasam S, Aslani P. Community pharmacy staff's response to symptoms of common infections: a pseudo-patient study. Antimicrob Resist Infect Control 2019; 8: 60.

22. Mishore KM, Mekuria AN, Tola A, Ayele Y. Assessment of Knowledge and Attitude among Pharmacists toward Pharmaceutical Care in Eastern Ethiopia. BioMed Res Int

23. Oparah AC, Arigbe-Osola EM. Evaluation of community pharmacist's involvement in primary health care. Tropical J Pharma Res 2002; 1: 67-74.

*Correspondence to:

Teshome Sosengo

School of Pharmacy

College of Health and Medical Sciences

Haramaya University

Ethiopia