



Investigating the Public Awareness and Utilization of Health Screening Services Offered by Community Pharmacies

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Community pharmacies are the integral part of the healthcare system offering healthcare services for patients. Pharmacists are expanding their roles by providing pharmaceutical services and comprehensive pharmaceutical care. Health screenings played an important role in early detection of diseases and potential risk factors.

Objectives: To assess the extent of awareness, utilization and impact of using health screening services offered by community pharmacy among public and to identify the barriers to access these services.

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Methods: A cross-sectional study was conducted in different cities of Punjab, Pakistan. Data was collected using validated questionnaire after getting consent from general public. The sample size for this study was 151. SPSS version 26th was used as a statistical tool to analyze data. P-value < 0.05 were considered as statistically significant.

Results: Health screening services were more used by middle age individuals and adults. Individuals holding bachelor's degree (41.2%) and female respondents (42.9%) showed more satisfactory response than male respondents. Blood pressure screenings (53.6%), diabetes screenings (28.5%) and other services (34.4%) were mostly used by the participants. Barriers to health screening services include lack of awareness, lack of time and preference to visit doctor.

Conclusion: Screening services offered at community pharmacies are found satisfactory, convenient and economical by most people. However utilization of these services is less frequent indicating a need for improved awareness and public education about the services offered by community pharmacy. Attention should be given to reduce barriers to the use of health screening services.

Keywords: Health screening; community pharmacist; attitudes; public perception; awareness.

1. INTRODUCTION

The WHO (World Health Organization) acknowledges the community pharmacy as healthcare facilities that offer its services to the general public as they are the most convenient way for the patient to acquire advice on health care [1]. Community pharmacy are the integral part of healthcare system, offering health interventions and they serve as accessible points where the public can obtain medications and other services including those which reduces the prevalence of high risk diseases and thus promote a healthy lifestyle [1]. The various role of community pharmacy includes medication dispensing, patient counselling, health promotion and disease prevention, [2] chronic disease management, accessibility and first point of contact for healthcare [3].

Traditionally, community pharmacy scope was to provide clinical pharmacy services [4]. and supply of medicines [1]. But the focus noticeably shifted from dispensing medications towards the patient centered care [4]. The recent changes resulted in the implantation of public health focus services which in turn helps in protecting the nation's health [1]. Pharmacists are increasingly expanding their roles beyond traditional dispensing and compounding to include cognitive pharmaceutical services, information and comprehensive pharmaceutical care [5]. By adopting a pharmaceutical care approach, pharmacists can play a pivotal role in enhancing drug therapy outcomes and improving patient quality of life [4]. This involves the development and

implementation of tailored pharmaceutical care plan to address each patient's specific drug related need [6].

The pharmaceutical care framework can only be implemented successfully when the patient appropriately understand the professional role of pharmacist and what services they can offer when it comes to consultation with patients regarding medications, monitoring the dosage route and regimens, and other pharmaceutical care activities [4]. Problem in consultation arises when the patient and the pharmacist have different expectations about role and services which pharmacists can provide. There is a study which shows that patients who has low expectations from screening and consultation services provided by pharmacist receive less satisfactory services and vice versa. Also if the patient with low expectations receive the services which are proper and above satisfaction level they might not adhere to it which can in turn affect the outcomes of pharmacy services [7]. Another research was conducted in 2012 in Scotland UK in which opinion of pharmacy services provided and public experience were explored [8]. The study found that public members prefer to visit general practitioner (GP) or physician for health advice as they suggest improved or better communication and sharing of information is also convenient as there is no confidentiality or busyness issue arise when the patient visit the physician. They also suggest that pharmacy is important to support the NHS pharmacy led public health services. Further studies done on small scale explored public opinions and behavior which demonstrated that pharmacies focus is to supply medicines rather

than having role in providing health screening services [1]. The community pharmacies were generally seen as first call when it comes to medicines or prescription related issues, but people lack awareness that they can also provide screening services or other public health role. However after the study participants were informed of such services and positive feedback was observed afterwards, implying a high level of acceptance of these roles [1].

The key factor in the advancement of community pharmacy practice is to understand the public expectation and meet their needs [4]. A successful implementation of development or expansion of community pharmacy role is to identify the barriers and finding out the general public perspective who does not have previous contact with community pharmacy [9]. As the knowledge about public utilization and view about community pharmacy can improve customer satisfaction and quality of services provided by community pharmacy [10].

Health screenings is a practice or medical test which is performed on a population to evaluate possibility of having a specific disease [11]. Perform on the individuals that have no obvious signs and symptoms of a specific health condition, so the main concern of these screenings is the detection of possible health issue at initial stage mostly before the symptoms develop and help in various interventions and management [12]. Most of the community pharmacies now offer blood pressure screenings for hypertension, glucose level screenings for diabetes mellitus and cholesterol screenings for heart diseases [13]. Advancement in the technology made pharmacies to provide more sophisticated screenings with great accuracy and ease [14]. Health screenings at community pharmacies are more accessible and convenient for most people because of less distance from their home and less waiting time as compared to any other laboratory [15]. The health screenings help to reduce the morbidity and mortality rates because disease diagnose at early stage and treatment starts before the symptoms appear [12]. Health screenings at community pharmacies reduce the workload on overall health care system. Most of the screenings at pharmacies provide immediate results and pharmacist can counsel according to the results

for preventive care and management of the condition [16].

The study was conducted in Lahore, the cultural and economic hub of Pakistan, is home to a diverse and dynamic healthcare landscape. The city's pharmacies, ranging from small independent shops to large chain stores, play a crucial role in providing access to medications and healthcare services to the local population. As of recent estimates, Lahore proves to be a major metropolitan area in Pakistan, has approximately 5,000 to 7,000 pharmacies. This number includes both independent pharmacies and those that are part of larger retail chains. The study reveal that many members of general public do not have exposure to community pharmacy as they are unaware of screening services provided by the community pharmacy. The focus of this research is to investigate the perception of public and finding out their mindset about health screening services offered at community pharmacies, awareness about services provided at pharmacies and what are some possible barriers which prevent them from using those services. It would also seem that public perception in Pakistan has slightly changed over the last two decades or more but there is again need to spread awareness and capture information on regular basis. The aim of this study was two fold first to design the questionnaire for investigating the KAP (knowledge, attitude and practice) or public perception of health screening services (Blood pressure, diabetes, cholesterol screening) offered by community pharmacy and second is to establish the nature of barriers which are the cause of hindrance to public for utilizing such services at community pharmacy. The objective were:

1. To assess the extent of public awareness regarding the availability of health screening services in community pharmacies.
2. To evaluate the frequency and reasons for utilizing health screening services at community pharmacies.
3. To analyze demographic factors influencing the awareness and utilization of these services.
4. To identify barriers to the use of health screening services in community pharmacies.
5. To explore the potential impact of community pharmacy health screening services on public health outcomes.

2. METHODOLOGY

The research was conducted as an observational cross-sectional study and was accomplished from July 2024 to August 2024 over a period of 2 months by the medical students from a private institute in Lahore. A validated questionnaire was formed to evaluate awareness about health screening services offered by a community pharmacy among the public in which participants identities were kept private. Members of the public were randomly approached. A written consent was acquired from each of the participants who agreed to participate. The questionnaire was continued further by a consent form that evidently explains the objectives, procedures, voluntary participation, risks and benefits of the study and commitment to confidentiality. Data was collected from different areas of Pakistan under the supervision of undergraduate pharmacists. Each question was thoroughly described to participants and to assure consistency, a bilingual pharmacist converted the questions into Urdu for the participants with inadequate English literacy. Any benefit or any kind of incentive was not offered to the participants for their involvement. The questionnaire was composed of 28 open and close ended questions that were grouped into five sections. Initial section highlights the demographic information. Demographic characteristic were gender, age groups, highest level of education, employment status, any chronic health condition, number of people in household, marital status, health literacy rates and access to primary care.

Second section was designed to explore the Community Pharmacy Utilization by the participants including pharmacy visit frequency for this responses were classified into predefined frequency groups e.g., (daily, weekly, monthly) followed by the reason for pharmacy visit, distance to the nearest pharmacy and waiting time at pharmacy. Third section was categorized into 5 questions based on the awareness of services provided by community pharmacy which of the health screening services were used by them assessing their satisfaction level and frequency of usage of health screening services. Questions in section 4 focused on knowledge, awareness and utilization of health screening services, investigating their importance and affordability, reasons for not using pharmacy health services, whether they were referred to a pharmacy for health screening by a healthcare provider and would they recommend pharmacy

health screening services to others. Last section was intended to uncover the impact of health screening services on improving health and life style modifications and any additional services would they like to be offered by community pharmacy. Total 180 questionnaires were collected, but 30 were deemed incomplete and excluded from the study.

3. RESULTS

From July 2024 to August 2024, 151 participants were surveyed. Details of the participants including sociodemographic characteristics were given in Table 1 indicating majority of the respondents were females (55.6%) as compared to male (44.4%) Mostly were married (40.3) and hold a bachelor's degree (45.0) Respondents were predominantly either students (29.1%, N = 44) or occupied in full-time employment (25.2%, N = 38). Most of the individuals have a good health literacy rate and (90.7%) of the participants have an access to primary care.

Post-hoc pairwise comparison of chi-squared tests for different demographic variables with the visit to community pharmacy shown in Table 2. Married respondents (48.47%) visit community pharmacy once every month as compared to single respondents (25.4%). Age group 19 to 24(40.0%) and females visit community pharmacy few times a year (40.5% N= 34) while male participants visit community pharmacy monthly (40.3%) showing (p-value =0.001) and (effect size=0.465). Chi-square test, was used to evaluate p value and Phi coefficient was used to find the effect size. Candidates holding bachelor's degree tends to visit community pharmacy monthly (30.9%) and few times a year (36.8%). Very few of the individuals visit community pharmacy on daily basis.

Responses on the usage of health screening services are classified in Table 3. Respondents were questioned whether they have used the screening service or not. Age groups from 19 to 24years (52.7%) and 45 to 55 years(63.6%) and mostly females (66.7%) availed health screening services indicating (p -value =0.377). Educated people and candidates having good literacy rate were well aware about the health screening services and they utilized them especially blood pressure screenings and diabetes screening services offered by community pharmacy.

Table 4 evaluates the satisfaction level of respondents associated with screening services

provided. About (41.2%) of the respondents holding bachelor's degree were satisfied with the services they utilized. Age group 19 to 24 (47.3%) showed neutral response to satisfaction level. However both male (40.3%) and female (42.9%) were satisfied with the services. Few of the participants were dissatisfied with health screening services they availed.

In Fig. 2, participants health literacy rate (the ability of a person to diagnose, recognize, and

use knowledge to elevate and support good health) was compared with gender. For females only (10%) showed excellent health literacy rate, (20%) have fair response while more than (45%) have good health literacy rate and (5%) showed poor response. The male participants were concluded as (20-25%) excellent, (10%) fair, (30-35%) good and (0-5%) showed poor response. Altogether females have good health literacy as compared to male participants.

Table 1. Represents the demographic information of the patients. (N=151)

Variables	N (%)
Gender	
Male	67 (44.4)
Female	84 (55.6)
Age	
19 to 24 years	55 (36.4)
25 to 34 years	23 (15.2)
35 to 44 years	17 (11.3)
45 to 55 years	33 (21.9)
56 to 60 years	14 (9.3)
61 or above	9 (6.0)
Marital Status	
Single	67 (44.4)
Married	76 (50.3)
Divorced	2 (1.3)
Widow	6 (4.0)
Highest level of Education	
No formal education	8 (5.3)
Primary education	12 (7.9)
Secondary education	37 (24.5)
Bachelors	68 (45.0)
Masters or above	26 (17.2)
Employment Status	
Employed full time	38 (25.2)
Employed part time	11 (7.3)
Self employed	15 (9.9)
Unemployed	36 (23.8)
Student	44 (29.1)
Retired	7 (4.6)
Household Members	
1	2 (1.3)
2	5 (3.3)
3	12 (7.9)
4	27 (17.9)
5 or more	105 (69.5)
Health Literacy	
Excellent	34 (22.5)
Good	79 (52.3)
Fair	31 (20.5)
Poor	7 (4.6)
Access to Primary Care	
Yes	137 (90.7)
No	14 (9.3)

Table 2. Represent the visit to community pharmacy

Variables	Visit to a Community Pharmacy					P value	Effect size
	Daily	Weekly	Monthly	Few times a year	Never		
Age							
19 to 24	1 (1.8)	7 (12.7)	15 (7.3)	22 (40.0)	10 (18.2)	0.061	-
25 to 34	0 (0.0)	2 (8.7)	7 (30.4)	9 (39.1)	5 (21.7)		
35 to 44	0 (0.0)	6 (35.3)	8 (47.1)	2 (11.8)	1 (5.9)		
45 to 55	1 (3.0)	3 (9.1)	17 (51.5)	9 (27.3)	3 (9.1)		
56 to 60	0 (0.0)	4 (28.6)	7 (50.0)	3 (21.4)	0 (0.0)		
61 or above	1 (11.1)	2 (22.2)	5 (55.6)	0 (0.0)	0 (11.1)		
Gender							
Male	2 (3.0)	22 (32.8)	27 (40.3)	11 (16.4)	5 (7.5)	0.001	.465
Female	1 (1.2)	2 (2.4)	32 (38.1)	34 (40.5)	15 (17.9)		
Highest level of education							
No formal education	0(0.0)	19(12.5)	4(50.0)	2(25.0)	1(12.5)	0.282	
Primary education	1(8.3)	1(8.3)	9(75.0)	1(8.3)	0(0.0)		
Secondary education	0.(0.0)	9(24.3)	14(37.8)	11(29.7)	3(8.1)		
Bachelors	1(1.5)	10(14.7)	21(30.9)	25(36.8)	11(16.2)		
Masters or above	1(3.8)	3(11.5)	11(42.3)	6(23.1)	5(19.2)		
Marital Status							
Single	1(1.5)	9(13.4)	17(25.4)	27(40.3)	13(19.4)	0.16	
Married	1(1.3)	15(19.7)	37(48.47)	17(22.4)	6(7.9)		
Divorced	0(0.0)	0(0.0)	2(100.0)	0(0.0)	0(0.0)		
Widowed	1(16.7)	0(0.0)	3(50.0)	1(16.7)	1(16.7)		

Table 3. Use of Health Screening Services

Variables	Usage of Health Screenings			P value	Effect size
Age	YES	NO			
19 to 24	29(52.7)	26(47.3)		0.166	
25 to 34	14(60.9)	9(39.1)			
35 to 44	13(76.5)	4(23.5)			
45 to 55	21(63.6)	12(36.4)			
56 to 60	12(85.7)	2(14.3)			
61 or above	7(77.8)	2(22.2)			
GENDER				0.377	
Male	40(59.7)	27(40.3)			
Female	56(66.7)	28(33.3)			
Highest Level of Education				0.188	
No formal education	7(87.5)	1(12.5)			
Primary education	9(75.0)	3(25.0)			
Secondary Education	24(64.9)	13(35.1)			
Bachelors	37(54.4)	31(45.6)			
Masters or above	19(73.1)	7(26.9)			
Health Literacy Rate				0.546	
Excellent	20(58.8)	14(41.2)			
Good	49(62.0)	30(38.0)			
Fair	21(67.7)	10(32.3)			
Poor	6(85.7)	1(14.3)			

Table 4. Satisfactory Level of Health Screening Services

Variables	Satisfaction with Health Screenings					P value	Effect size
	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied		
Age							
19 to 24	7(12.7)	20(36.4)	26(47.3)	2(3.6)	0(0.0)	0.479	
25 to 34	4(17.4)	13(56.5)	6(26.1)	0(0.0)	0(0.0)		
35 to 44	3(17.6)	7(14.2)	7(41.2)	0(0.0)	0(0.0)		
45 to 55	6(18.2)	12(36.4)	13(39.4)	0(0.0)	2(6.1)		
56 to 60	4(28.6)	5(35.7)	4(28.6)	1(7.1)	4(28.6)		
61 or above	1(11.1)	6(66.7)	2(22.2)	0(0.0)	0(0.0)		
Gender							
Male	11(16.4)	27(40.3)	25(37.3)	2(3.0)	2(3.0)	0.523	
Female	14(16.7)	36(42.9)	33(39.3)	1(1.2)	0(0.0)		
Highest level of Education							
No formal education	1(12.5)	3(37.5)	4(50.0)	0(0.0)	0(0.0)	0.049	0.025
Primary education	1(8.3)	6(50.0)	3(25.0)	0(0.0)	2(16.7)		
Secondary Education	7(18.9)	15(40.5)	14(37.8)	1(2.7)	0(0.0)		
Bachelors	11(16.2)	28(41.2)	28(41.2)	1(1.5)	0(0.0)		
Masters or above	5(19.2)	11(42.3)	9(34.6)	1(3.8)	0(0.0)		

Table 5. Main reason for visiting a community pharmacy

Main reason for visiting a community pharmacy	N (%)
1. To fill a prescription	33 (21.9)
2. To purchase over -the-counter medications	84 (55.6)
3. To seek health advice from a pharmacist	14 (9.3)
4. To get health screenings	17 (11.3)
5. To buy health and wellness product	49 (32.5)

Section 4: Awareness and Utilization of Health Screening Services: Importance of health screening services at community pharmacy

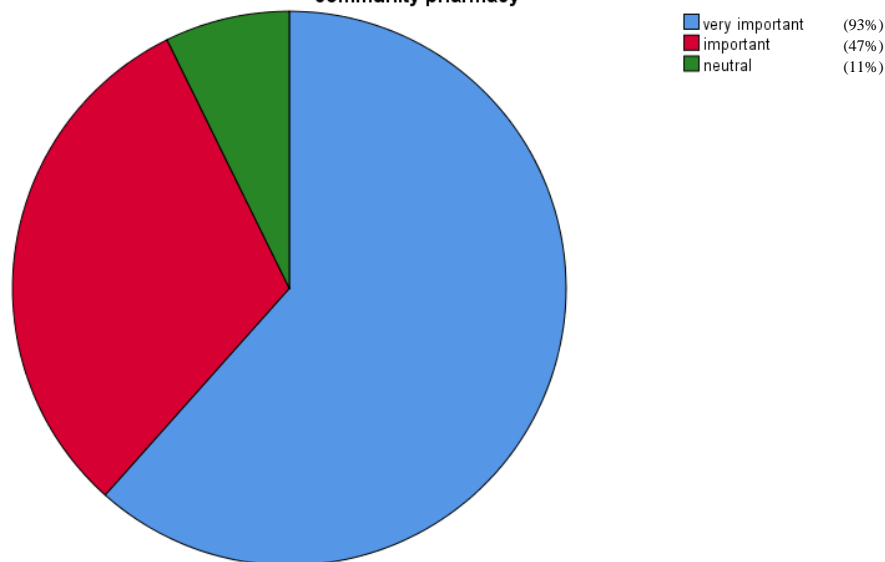


Fig. 1. The above pie chart elaborates the importance of health screening services provided at community pharmacy. Total 150 participants were allowed to respond out of which (93%) participants reviewed health screening services very important, while (47%) responded they were just important and (11%) participants showed neutral response

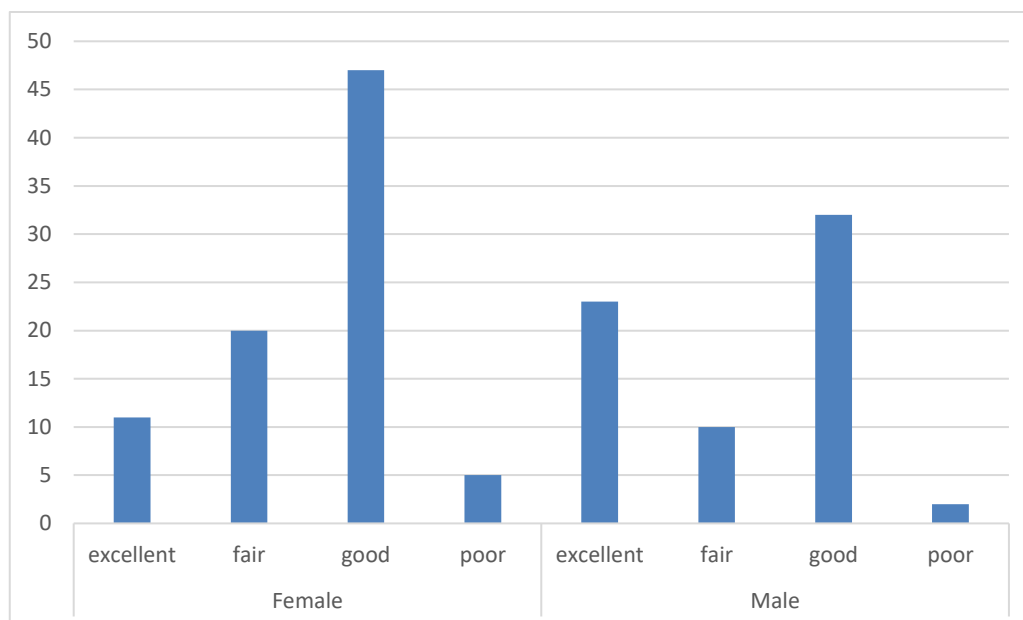


Fig. 2. Comparison of health literacy with gender

Table 6. Health screening services used at community pharmacy

Services used at community pharmacy	N (%)
1. Blood pressure screening	81(53.6)
2. Cholesterol screening	9 (6.0)
3. Diabetes screening	43(28.5)
4. Other	52(34.4)

Table 7. Patient perceived barrier from using health screening services at community pharmacy

Perceived Barrier	N (%)
1. Lack of awareness	43(28.5)
2. Cost	17(11.3)
3. Lack of time	37(24.5)
4. Perceived in efficacy	16(10.6)
5. Prefer to go to doctor	66(43.7)
6. Other	12(7.9)

4. DISCUSSION

The study includes the designing of questionnaire to record the response of public perceptions on utilization and awareness of health screening services provided by community pharmacies and to determine the possible barriers which prevent them from using the services. This was achieved using mixed method approach as the study included both quantitative data (e.g., number of respondents using services) and qualitative insights (e.g., why respondents do or don't use services) and the application of exploratory factor analysis in recording the pattern how respondents interact with different health screening services. The questionnaire includes 5 sections comprising of 28 concise questions to gain perception of public on delivering of health related services by community pharmacies. A concise and short questionnaire improves respondent participation and retention, in this kind of study as individuals are more likely to respond [17]. The sub scales analysis was not considered since the study include all health screening services (blood pressure, diabetes, cholesterol screening) under one section analysis rather than dividing them into separate components.

For the robustness of the questionnaire the psychometric analysis techniques were applied. The validity measurement is critical during questionnaire design. Face validity was explored in this study as it determines whether the questionnaire appears to be measuring what it claims to, based on a superficial review [18] which in this case is utilization and public awareness. In this study design the content validity was applied since the questionnaire items were derived after extensive literature review and evaluated by experienced researcher [19]. In this study Internal Consistency (Cronbach's Alpha) determine whether different questions measuring the same construct (e.g., public awareness or utilization of various health services) are consistent with one another. Inter-Rater

Reliability was also used in which multiple researchers are involved in the data collection process. It ensures consistency in how the survey is administered and how responses are recorded.

Results of current study reveal overall positive attitude of the respondents towards community pharmacy. Most of the public (39%) visited community pharmacy once a month which, when compared to the other studies carried out in Qatar (52%) (4). Jordan (67.4%) [20]. North Ireland (67.7%) [21] show lesser frequency of visits. When reason for the visit was analyzed, it showed that (55%) of the public go to community pharmacy to purchase OTC medications which is higher percentage than reported in Malta (23%) [22]. This is explained by the high number of medications available over the counter in Pakistan, despite their classification as prescription medication in other countries. Other results in this study show that (32%) of respondents go to community pharmacy to buy health and wellness products, (21%) to fill out the prescription, (11%) to get health screenings and only (9%) to seek health advice from the pharmacist.

The utilization of health screening services was observed against different demographics, and it was observed that usage was found more in female gender (66%) than male (59%) and shows a p-value of 0.37 which is not significant. The utilization was also observed against the health literacy rate of public showing that individuals having good or fair health literacy rate tends to use more health screenings services i.e. (62%) and (67%) respectively rather than people having good health literacy and p-value (0.54) in this case also remain insignificant. While discussing the results on the use of health screenings services of community pharmacies the most important factor is awareness and knowledge of the patient about which screenings are provided at community pharmacy. The high percentage was observed for the awareness of

BP screenings (80.8%) while (53.6%) were aware about diabetes screenings and the least aware about cholesterol screenings (11.9%) and vaccination services (10.6%). Most of the respondents use the health screenings provided at community pharmacy show a p-value of 0.166 which is not considered to be significant. The most health screening services utilize by the public is blood pressure screening (53.6%) and diabetes screening (28.5%) The satisfaction level of the respondents that use the services is higher than the dissatisfied and show a p-value 0.479.

The importance of these services were also studied by likert scale chart and (93%) of participant responded them as very important, (47%) as important and (11%) gave a neutral response. The barrier perceived by the public which prevent them from using health screening services at community pharmacies is lack of awareness (28.5%) The majority of the respondents were familiar with the different responsibilities of community pharmacists but they lack awareness about pharmacist role in providing pharmaceutical care plan, monitoring drug therapy and performing health screening. When compared with other studies similar results were found which shows lack of awareness of the professional services provided by community pharmacist. This is because of lack of chance to try, evaluate and use the health screening services as majority of the public consider pharmacist role as dispensing medication and basic counseling provider [4]. Another major factor including in the barrier towards using screening services at community pharmacies is public prefer to go to a doctor (43.7%) This is because of traditional beliefs as people tend to trust the physician skills more than the pharmacist and consider them primary source of drug related information [23]. Other factors contributing towards the barrier include privacy and confidentiality issue as the community pharmacy consider to be a crowded space and busyness factor arise which refrain the individual from utilization of such services. The privacy issue is consistently reported in other literature too as a barrier to interact with community pharmacists [23]. Most of the people are unaware of private consultation room within pharmacy and their availability in all pharmacies [1]. Lack of time by community pharmacists also contributes to the barrier for providing cognitive, counselling and other screening services as the pharmacy might be short in staff and technicians and pharmacist might be busy in dispensing of medication. If pharmacists are less involved in

dispensing services, they will have more time for patient centered pharmacy services [24]. The study also reveals that major participants (69.5%) consider the screening services provided at the community pharmacies as affordable and (49.5%) find these services convenient to use. Another study relates to the public perception as pharmacies easy to access as they don't need to setup an appointment and they are open 24/7. Further some of the public added "It is easier to access than my physician." and "It is convenient to get support from my community pharmacy." This could provide powerful insight into the usefulness of health-related services provided at community pharmacies [25].

The study respondents also responded positively well regarding introduction of new community pharmacy services. (60%) of the respondents would like nutritional counselling services to be offered at community pharmacy and (45%) of the public supported the introduction of advanced diagnostic and screening services. Some would also be in favor of mental health support specifically the age group ranging from 19 to 24. These services are essential for implementing pharmaceutical care practice in community pharmacies in Pakistan. The other literature also demonstrated that the pharmacist delivered services, disease management programs for patient suffering with diabetes, blood pressure, dyslipidemia, and the introduction of advanced diagnostic programs can improve the patient outcomes [26].

One of the few limitations of this study is that, since it was a cross-sectional study, it assessed information at only a single point in time. Consequently, it limited the assessment of the changes in awareness or utilization over some period of time. The future might consider research with a longitudinal design to track changes or trends in behavior and awareness. It also had a small sample size (N=151) and such a sample is never adequate to generalize findings to a larger population in Lahore or any other region. A larger sample would have given more robust and representative results. Because this work is mainly focused on community pharmacies in Lahore, then general findings may not be applicable to other regions in Pakistan or any other country in the world. Differences between urban and rural areas, as well as among different cities, may also limit generalizability. A one-month data collection period might somewhat limit sample

representativeness since it may fail to capture variations at different times of the year. Also, the method of direct questioning might have elicited slightly different information compared to if, for example the distribution on such questionnaire across different social media platforms i.e., (Twitter, Instagram or LinkedIn) or in paper format (postal surveys) in the future studies would be very beneficial since the audience can be vast and no time constraint issue will arise [1].

5. CONCLUSION

The services of community pharmacies through health screening improved health. Public awareness of community pharmacy-based screening services was fairly good, leading to relatively high utilization of these services. These were less than optimal which might be illustrating more needed to be done in terms of provision and public awareness regarding other services of the community pharmacy for early detection and prevention of the disease. It is noted that community pharmacy-based screenings are affordable and convenient, though a perceived barrier exists prominently for this relative reason—they would prefer to go to a doctor, or it could be that they lack time and information. They look like independent prescribers so definitely would have more health services. Attention should be given to enhance the community pharmacy practice and execution of pharmaceutical care in community pharmacies. Various strategies should be taken under the action to resolve the related problems including empowering the role of pharmacist in optimizing the medication use, public education and information resources.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

CONSENT

As per international standards or university standards, Participants' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. James DH, Rapado R, Brown SL, Kember J, Hodson KL, Prior AL. Development of a Questionnaire to Measure Public Perceptions of the Role of Community Pharmacy in Public Health (PubPharmQ). *Pharmacy*. 2023 Sep 8;11(5):141.
2. Agomo C, Udoh A, Kpokiri E, Osuku-Opio J. Community pharmacists' contribution to public health: assessing the global evidence base. *Clinical Pharmacist*. 2018 Apr 6;10(4).
3. George PP, Molina JA, Cheah J, Chan SC, Lim BP. The evolving role of the community pharmacist in chronic disease management—a literature review. *Ann Acad Med Singapore*. 2010 Nov 1;39(11):861-7.
4. El Hajj MS, Salem S, Mansoor H. Public's attitudes towards community pharmacy in Qatar: A pilot study. *Patient Prefer Adherence*. 2011;5:405–22.
5. Wiedenmayer K, Summers RS, Mackie CA, Gous AGS, Everard M, Tromp D. Developing pharmacy practice A focus on patient care HANDBOOK-2006 EDITION With contributions from; 2006.
6. Hepler CD. Clinical pharmacy, pharmaceutical care, and the quality of drug therapy. *Pharmacotherapy*. 2004;24
7. AlGhurair SA, Simpson SH, Guirguis LM. What elements of the patient-pharmacist relationship are associated with patient satisfaction? *Patient Prefer Adherence*. 2012;6:663–76.
8. Gidman W, Cowley J. A qualitative exploration of opinions on the community pharmacists' role amongst the general public in Scotland. *Int J Pharm Pract*. 2013 Oct;21(5):288–96.
9. Campeau Calfat A, Duval C, Laberge M, Savard AM, Sirois C. Clinical services in community pharmacies: A scoping review of policy and social implications. Vol. 29, *International Journal of Pharmacy Practice*. Oxford University Press; 2021;116–25.
10. Oparah AC, Kikanme LC. Consumer satisfaction with community pharmacies in Warri, Nigeria. *Res Soc Adm Pharm*. 2006 Dec;2(4):499–511.
11. Ayorinde AA, Porteous T, Sharma P. Screening for major diseases in community

- pharmacies: A systematic review. *International Journal of Pharmacy Practice*. 2013;21:349–61.
12. Wilson JM, Jungner G, World Health Organization. Principles and practice of screening for disease; 1968.
 13. Alotaibi MM, Almuharifi FY, Almuhaini DS, Alsulaiman DR, Albader MA, Alhejji WA, et al. Assessing Public Awareness, Utilization and Satisfaction with Community Pharmacy Services. *Patient Prefer Adherence*. 2024;18:1183–93.
 14. Grabenstein JD. Essential services: Quantifying the contributions of America's pharmacists in COVID-19 clinical interventions. *J Am Pharm Assoc*. 2022 Nov 1;62(6):1929-1945.e1.
 15. Gregório J, Cavaco AM, Lapão LV. How to best manage time interaction with patients? Community pharmacist workload and service provision analysis. *Res Soc Adm Pharm*. 2017 Jan 1;13(1):133–47.
 16. Lancaster K, Thabane L, Tarride JE, Agarwal G, Healey JS, Sandhu R, et al. Descriptive analysis of pharmacy services provided after community pharmacy screening. *Int J Clin Pharm*. 2018 Dec 1;40(6):1577–86.
 17. Ho R. Understanding statistics for the social sciences with IBM SPSS. Chapman and Hall/CRC; 2017 Sep 22.
 18. Horvat N, Kos M. Development and initial validation of a patient satisfaction with pharmacy performance questionnaire (PSPQ-Q). *Eval Heal Prof*. 2010 Jun;33(2):197–215.
 19. Narayanan A, Greco M, Reeves P, Matthews A, Bergin J. Community pharmacy performance evaluation: Reliability and validity of the pharmacy patient questionnaire. *Int J Healthc Manag*. 2014;7(2):103–19.
 20. Wazaify M, Al-Bsoul-Younes A, Abu-Gharbieh E, Tahaine L. Societal perspectives on the role of community pharmacists and over-the-counter drugs in Jordan. *Pharm World Sci*. 2008 Dec;30(6):884–91.
 21. McElnay JC, Nicholl AJ, Grainger-Rousseau T-J. The role of the community pharmacist — A survey of public opinion in Northern Ireland. *Int J Pharm Pract*. 1993;2(2):95–100.
 22. Cordina M, McElnay JC, Hughes CM. Societal perceptions of community pharmaceutical services in Malta. *J Clin Pharm Ther*. 1998;23(2):115–26.
 23. Bpharm CA, Bpharm AB, Armstrong M, Maà B, Anderson C. Feedback from community pharmacy users on the contribution of community pharmacy to improving the public's health: a systematic review of the peer reviewed and non-peer reviewed literature 1990-2002, *Health Expectations*. 2004;7. Available: <http://www.hdaonline.org.uk/evidence/eb2000>
 24. El-Kholy AA, Abdelaal K, Alqhtani H, Abdel-Wahab BA, Abdel-Latif MMM. Publics' Perceptions of Community Pharmacists and Satisfaction with Pharmacy Services in Al-Madinah City, Saudi Arabia: A Cross Sectional Study. *Med*. 2022 Mar 1;58(3).
 25. Eades CE, Ferguson JS, O'Carroll RE. Public health in community pharmacy: A systematic review of pharmacist and consumer views. Vol. 11, *BMC Public Health*. 2011.
 26. Posey LM. Proving that pharmaceutical care makes a difference in community pharmacy. *J Am Pharm Assoc*. 2003;43(2): 136–9.

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