

Original Research Article

Knowledge, Attitude and Practice of community pharmacist's in managing Chronic diseases.

ABSTRACT

Background: The rising number of chronic illnesses such as asthma, diabetes, osteoarthritis, hypertension, and chronic kidney disease (CKD) presents a major danger to the worldwide health community. The ability of individuals to successfully manage their medical problems with the help of healthcare professionals is essential to the effective control of chronic illnesses.

Objective: The aim of this research is to evaluate the knowledge of community pharmacist's regarding chronic disease managements. The aim of current study is also to evaluate the attitude of community pharmacists towards chronic disease management and their practice to control chronic diseases.

Methods: This cross-sectional study is conducted in Lahore, Punjab, Pakistan. The filled questionnaires were analyzed by using Statistical Package for Social Sciences program software (SPSS Inc., version 21.0, IBM corp., Armonk NY, USA). Descriptive and inferential statistics were applied to summarize outcome variables, categorical variables were presented as percentages and frequencies, and quantitative variables were demonstrated as mean and standard deviations. Chi square analysis was used to identify factors, p-values were determined when the assumptions of the chi square analysis requirements were not satisfied. P-value of less than 0.05 were considered as statistically significant values.

Results: Data was collected from 93 different pharmacists in Lahore, Punjab in the current study. About 54.8% males participated in the current study and 45.2% females participated. Males have higher rate of participation as compared to females. Majority of the participants have bachelor's education and are unmarried. Most of the participants are full time employee with

average 48 work hours per week. Furthermore, information is given in table.1 about the demographics.

Conclusion:In conclusion, current study shows that number of different variables are having a positive knowledge on chronic diseases in which mostly there are males. Also attitude and practice evaluated, in which females show more positive attitude while males show more good practice.

Keywords: Chronic diseases, community pharmacists, knowledge, attitude and practice.

INTRODUCTION

The global health community is seriously threatened by the rising prevalence of chronic diseases such as Asthma, Diabetes, Osteoarthritis, Hypertension, and chronic kidney disease (CKD)(Arefin et al. 2024). Numerous chronic patients deal with lifelong changes in lifestyle, social stigma, tasks related to self-management, challenges to their dignity and low self-esteem, uncertainty concerning their diagnosis, disruptions of routine life transitions, and limited resources(Bisschop et al., 2004).The ability of people to effectively manage their medical conditions with the assistance of healthcare practitioners is a key factor in the successful control of chronic diseases(Fan et al. 2022).Clinical pharmacists (CPs) are particularly interested in strategies for managing chronic diseases because most medical interventions involve prescription pharmaceutical use. Because of their expertise with drugs, frequent patient interactions, and convenient location, community pharmacists are in a unique position to assist patients in managing their chronic illnesses(Okoro et al. 2021).

Since prescription medications are used in 80% of medical treatments, interventions conducted by pharmacists are particularly relevant when it comes to managing chronic diseases(Newman et al., 2020).Pharmacists typically advise their patients verbally or in writing about how to take prescribed medications and dietary supplements correctly, as well as about any potential side effects, safety measures, and how to store them(Medhat et al., 2020).Pharmacists can contribute to chronic disease management in differentways, including the disease state education, patient counseling, glucose level measurement, blood pressure measurement, adherence monitoring, and

medication therapy(Soubra et al. 2023).A randomized controlled clinical trial showed that a structured evidence-based pharmacist-delivered chronic disease management service significantly enhanced patients' medication uses and quality of life(Obiezu et al., n.d.).

Primary care, where hypertension is managed, needs innovative strategies to enhance blood pressure control. Increasing the use of community-based models of care with the participation of healthcare providers who are not physicians, such as nurses and pharmacists, is one such strategy(Santschi et al., 2014).Community pharmacists educate patients on hypertension management, monitor elevated blood pressure, and refer those not meeting targets to general practitioners(Okoro et al. 2021).

Diabetes type 2 is a serious public health issue. Diabetes-related expenses exceeded 237 billion dollars in direct costs and 90 billion dollars in indirect costs in 2017(Narain et al., 2020).A substantial amount of research demonstrates the advantages of multidisciplinary teams as a successful diabetes care approach in terms of lowering medical errors and enhancing patient and overall healthcare outcomes. By delivering patient-centered care in accordance with the pharmaceutical care philosophy, the pharmacist has been acknowledged as a crucial component of diabetes care teams(Abdulrhim et al., 2020).Community Pharmacists manage diabetes patients, providing education on treatment,anti-diabetes medications, lifestyle changes, insulin administration, and self-blood glucose monitoring(Okoro et al. 2021).

Community pharmacists play a vital role in the healthcare system in Malaysia and provide accessible healthcare services to improve the health outcomes to mainstream hospitals and primary healthcare services(Chu et al., 2024).Pharmacists are the trusted healthcare professionals widely distributed across territories, reaching people with lower access to care and providing different types of services, encompassing screening, management(Viegas et al., 2024).Asthma is more common than any other chronic respiratory disease in low and middle-income nations. It is a major cause of death and disability in all age and gender categories, although it is most prevalent in children(Mubarak et al., 2019). Pharmaceutical care is the provision of drug therapy for achieving definite outcomes with improvement in patient's quality of life. It is important for pharmacists to provide disease-oriented pharmaceutical care(Hayden et al. 2020).

Community pharmacists play an important role in increasing vaccination rates especially in countries where they offer vaccination administration (Meraya et al., 2024). Their role includes medication therapy management (MTM), promoting patient adherence, engaging in collaborative care to improve health outcomes. Regardless of these opportunities, pharmacists face many challenges mainly in developing countries (Obiezu et al., n.d.). In integrated primary care there are many opportunities and challenges for community pharmacists (Mossialos et al., 2015). Some challenges include evidence-based medical information provision, managing supply chains, prevention of infection, preventing stock-piling. However, some chronic diseases like hypertension, asthma, diabetes can affect the mental and physical condition of patients (Melton et al. 2017).

The aim of this study was therefore to summarize and evaluate quantitative and qualitative evidence of chronic disease management in community pharmacy. The interventions of this study are to identify the chronic diseases management in community pharmacy setting namely; hypertension, diabetes mellitus (DM) and asthma. The results would provide knowledge and information of community pharmacists when planning services for chronic disease.

METHODOLOGY

A cross-sectional survey-based study was conducted to evaluate the attitude, knowledge and practice of community pharmacists on hypertension, asthma and diabetes. Quantitative research methodology involving validated questionnaires and research tools were utilized in order to evaluate the knowledge, attitude and perception of healthcare providers.

The data for this research project was collected from community pharmacists in Lahore, Punjab, Pakistan. Study settings were based in Lahore. The purpose of the study was to evaluate the knowledge of healthcare students in Lahore. To achieve this goal, the data was collected from community pharmacies that dealt with healthcare professionals. The study was conducted on community pharmacists from different pharmacies in Lahore, Punjab, Pakistan. The duration of research was of 3 months approximately, from June 2024 to August 2024.

The inclusion criteria for this research are as follows:

- Only the community pharmacist was included.

- Those participants who provided consent to voluntarily participation in this study were included.

The exclusion criteria for this research are as follows:

- Hospital pharmacists were excluded.
- Dentists, physiotherapists, physicians and undergraduate students (future healthcare providers) were excluded.

Based on assumptions, the sample size was considered to be not less than 90. The samples collected for this study was 110. However, the final sample size was 93 the remaining forms were discarded because of the following reasons: duplication, lack of signature, incomplete form. Data was collected by visiting community pharmacies in Lahore. The pharmacists present on community pharmacies were requested to fill the questionnaire and they must sign a consent form before filling out the questionnaire.

The data collection form was developed from the literatures regarding the pharmacists' work experiences and attitude towards pharmaceutical care services in Pakistan. The form is developed in English language and consists of four sections. Section A comprised twelve questions about demographic characterization. Section B, C and D focus on Knowledge (15 questions), Attitude (15 questions) and Practice (15 questions) respectively. Since the study was done to monitor pharmacist performance, ethical approval was not considered necessary. However, before filling out the questionnaire, each participant had to sign a consent form.

Statistical analysis

The filled questionnaires were analyzed by using Statistical Package for Social Sciences program software (SPSS Inc., version 21.0, IBM corp., Armonk NY, USA). Descriptive and inferential statistics were applied to summarize outcome variables, categorical variables were presented as percentages and frequencies, and quantitative variables were demonstrated as mean and standard deviations. Chi-square analysis was used to identify factors, p-values were determined when the assumptions of the chi square analysis requirements were not satisfied. P-value of less than 0.05 were considered as statistically significant values.

Variables	N%
Gender	

RESULTS

Data was collected from 93 different pharmacists in Lahore, Punjab in the current study. About 54.8% females participated in the current study and 45.2% males participated. Females have higher rate of participation as compared to males. Majority of the participants have bachelor's education and are married. Most of the participants are full time employee with average 48 work hours per week. Furthermore, information is given in table.1 about the demographics.

Table 1: Represents the demographic information of the candidates. (N=93)

Male	42 (45.2)
Female	51 (54.8)
Education	
Bachelors	68 (73.1)
Masters	25 (26.9)
Marital Status	
Married	59 (63.3)
Unmarried	34 (36.6)
Age	
20-25	30(32.3)
25-30	52(55.9)
30 years and above	11(11.8)
Source of information	
Seminars	6(6.5)
Research	22(23.7)
Medical books	55(59.1)
Medical	2(2.2)
Social Media	8(8.6)
Employment Status	
Part time	11(11.8)
Full time	82(88.2)
Use of Technology	
Very Proficient	17 (18.3)
Proficient	66 (71.0)
Somewhat Proficient	7 (7.5)
Not Proficient	3 (3.2)

Males have more adequate knowledge of chronic diseases than females. Technology is used adequately and proficiently. For further information about knowledge, refer to Table 2.

Table 2: Knowledge count for different variables

Variables	Adequate	Non-Adequate	<i>P- value</i>	<i>Effect size (φ)</i>
Gender				
Male	34(81.0)	8(19.0)	<0.001	0.348
Female	24(47.1)	27(52.9)		
Age				
20-25	34(81.0)	8(19.0)	<0.002	0.346
25-30	24(47.1)	27(52.9)		
Above 30	34(81.0)	8(19.0)		
Education				
Bachelors	40(58.8)	28(41.2)	0.179	-
Masters	18(72.0)	7(28.0)		
Marital status				
Unmarried	32(54.2)	27(45.8)	<0.027	0.221
Married	26(76.5)	8(23.5)		
Source of Information				
Seminars	4(66.7)	2(33.3)	0.099	-
Research	9(40.9)	13(59.1)		
Books	39(70.9)	16(29.1)		
Medical	2(100)	0(0.0)		
Social media	4(50.0)	4(50.0)		
Employment status				
Part time	8(72.7)	3(27.3)	0.343	-
Full time	50(61.0)	32(39.0)		
Use of technology				
Very proficient	7(41.2)	10(58.8)	<0.005	0.089

Proficient	44(55.7)	22(33.3)		
Somewhat proficient	7(100.0)	0(0.0)		
Not proficient	0(0.0)	3(100.0)		

In the current study results have shown that male pharmacists have more positive attitude as compared to female regarding chronic diseases. For more information related to attitude refer to table 3 and for practice refer table 4.

Table 3: Attitude of Community pharmacists(Total Maximum score was 74 and minimum was 17 for 15 questions).

Outcome Variable	Mean (SD)	95% Confidence Interval (CI)	<i>t</i> -statistics (1,92)	<i>p</i> -value	Effect size (ϕ)
Gender					
Male	60.69±10.02	57.56	63.48	0.015 (1,92)	0.902
Female	60.43±10.11	57.32	62.87		
Age					
20-25	58.83±11.51	53.87	62.45	0.688 (1,92)	0.505
25-30	61,19±9.80	58.38	63.61		
Above 30	62.18±5.94	58.50	65.66		
Education					
Bachelors	60.86±10.25	58.16	63.01	0.026 (1,92)	0.871
Masters	60.48±10.0	56.40	63.93		

Marital status						
Unmarried	60.37±10.78	57.61	62.88	0.238	0.627	-
Married	61.44±9.0	57.97	64.14	(1,92)		
Source of information						
Seminars	64.16±5.19	59.5	67.33	0.851	0.497	-
Research	57.63±15.84	49.41	63.96	(1,92)		
Books	61.8±8.0	59.56	63.72			
Medical	60.5±7.7	55.0	66.0			
Social Media	59.75±4.65	56.33	63.0			
Employment						
Part time	64.81±6.75	60.66	68.59	2.018	0.159	-
Full time	60.21±10.41	57.90	62.43	(1,92)		
Use of technology						
Very proficient	62.47±5.01	59.76	64.68	0.433	0.730	-
Proficient	60.31±11.51	57.12	62.93	(1,92)		
Somewhat proficient	62.57±5.65	58.6	66.66			
Not Proficient	56.66±7.23	52.0	65.0			

Table 4: Practice of Community pharmacists(Total Maximum score was 40 and minimum was 15 for 15 questions).

Outcome	Mean	95% Confidence Interval	t-statistics	p-value	Effect size

Variable	(SD)					(φ)
Gender						
Male	23.09±4.78	21.68	24.56	2.835	0.096	-
Female	24.88±5.33	23.42	26.42	(1,92)		
Age						
20-25	23.33±5.44	21.42	25.24	4.805	<0.010	0.311
25-30	25.26±4.79	24.04	26.53	(1,92)		
Above 30	0.45±4.05	18.00	23.0			
Education						
Bachelors	24.41±4.43	23.31	25.47	1.083	0.301	-
Masters	23.16±6.73	20.59	25.87	(1,92)		
Marital status						
Unmarried	24.45±5.39	23.04	25.84	0.891	0.348	-
Married	23.41±4.68	21.81	25.16	(1,92)		
Source of information						
Seminars	21.26±3.65	17.85	24.11	2.18	0.077	-
Research	22.31±4.93	20.33	24.44	(1,92)		
Books	25.07±4.93	23.74	26.41			
Medical	28.50±9.19	22.00	35.0			
Social Media	23.12±5.84	18.66	27.0			
Employment						
Part time	21.09±5.24	18.16	24.74	4.352	<0.040	0.214
Full time	24.47±5.02	23.33	25.55	(1,92)		
Use of technology						

Very proficient	23.17±6.44	20.22	26.54	1.147 (1,92)	0.335	-
Proficient	24.65±4.75	23.52	25.81			
Somewhat proficient	21.42±3.99	18.50	24.80			
Not Proficient	22.66±7.63	16.0	31.0			

In the current study females do more practice as compared to males with the age group of 25-30 years and have proficient use of technology.

DISCUSSION

Result shows significant difference between the males and females in regard of adequacy, with p value 0.001. Both the genders show varied distributions with significant p-value indicates that gender is determining factor in this research study. There are many studies in different programs where gender significantly impact knowledge in certain settings. The good number of the pharmacists recognize the role of the providing management services in the improvement of use of medications (Hatem et al., 2024).

A similar study was conducted in Lahore on undergraduates from different fields in which females (68.2%) showed higher rate of participation as compared to males (31.8%) (Amjad et al., 2024). Age groups show significant difference in the adequacy with p-value of 0.002. The pharmacists with the age above 30 have more adequate knowledge as compared to others, it is may be due to their experience in the field. The good response of community pharmacists for patients' education content with good expertise needs to be improve (Chen et al., 2022a).

Education (Bachelor's vs. Master's) insignificantly impact adequacy with p-value of 0.179. So those with Bachelor's degree showed a slightly more percentage of adequacy compared to Master's degree which shows that education can be more relevant to adequacy. Compare to the those with the less education, practitioners with bachelor's degrees were more likely to see the role in guidance (Zhang et al., 2024).

Marital status does show significant affect adequacy as indicate a p-value of 0.027. Distribution shows that the both unmarried and married individual do not have the similar level of adequacy.

Findings show that the personal circumstances such as the marital status does not heavily affect professional and educational adequacy. Our study shows similarity with a study conducted in the Egypt(Said et al., 2022a).

Sources of information shows some variability in the adequacy levels, but none reached statistical significance with p-value (0.099). Data suggest that the seminars and the medical source have higher adequacy percentage on the other hand social media and the books have lesser level of adequacy. Programs relevant to the patient education have conducted in different countries.A study conducted shows that more than 30% of the community pharmacists implement on different sources of information(Zhang et al., 2024).

The employment status whether the part-time or the full-time does not show significant adequacy with p-value of 0.343. So those employee of part-time have the higher adequacy percentage rather than those employee of full-time. Finding suggest that part-time employees may have the more time for skill development. Our current study is similar to study conducted in Egypt(Said et al., 2022a).

The most important finding in this study is significant relationship between technology proficiency and adequacy with p-value of 0.005. This shows that those who are more proficient in the technology are significantly more likely to be the adequate in measure outcome. So, the result of diabetes knowledge was inconsistent with the those of who reports a good level of the knowledge between their research participants(Asante et al., 2023).

This study presents that males have better attitude as compared to females with 63.48% but the p-value with 0.902 for both genders is insignificant. The cross-sectional study conducted in Egypt in 2022 contravenes with our present study suggesting that females have significantly higher attitude scores when compared to males(Said et al., 2022a). The present study indicates that participants of age group above 30 with 65.66% have better attitude than other age groups. The p-value with 0.305 for age is insignificant. However, relevant study was conducted in Indonesia in 2019 which contradicts with present study indicating that pharmacists with age group 31-40 have lowest score for attitude(Athiyah et al., 2019a).

The p-value of 0.871 for level of education is insignificant. This study indicates that participants having master's level of education with 63.93% have better attitude than participants having

bachelors level education with 63.01%. Relevant study was conducted in Lebanese in 2019 which also indicates same results that the level of education of participants does not have a significant relationship towards their attitude in managing chronic disease(Hallit et al., 2020). This study indicates that married participants with 64.14% have better attitude than unmarried participants. However, the p-value of 0.627 for this variable is insignificant. A relevant study was conducted concerning community pharmacists which showed that majority of pharmacists participating have overall positive attitude(Evans et al.,2021).

The participants having seminars as their source of information have better attitude than other participants having other sources of information. The p-value is 0.497 which is insignificant. A study conducted in Pakistan in 2021 regarding community pharmacists ascertained that majority of participants use social media as their primary source of information(Muhammad et al., 2022). The participants working part time with 68.59% have better attitude than participants working full time. Another study conducted in Egypt in 2022 resulted that working hours have an insignificant correlation with attitude of community pharmacists(Said et al., 2022b).

The p-value for employment status is 0.159 which is insignificant. The participants having somewhat proficient use of technology have better attitude of 66.66% than other participants. The p-value for use of technology is 0.730 which is insignificant. A study conducted in another country suggested that the correlation between majority of the demographics and attitude of community pharmacists is insignificant(Mahmoudi et al., 2019).

Results show no significant difference regarding practice between male and female gender with a p-value is 0.09. Although females have a higher mean practice score as compare to males, both genders show varied distribution but p-value being greater than 0.05 indicates a non-significant difference. These findings of the current study are similar with the results of the study conducted in Jordan that suggest that females have superior asthma management practice as compared to the males(Jarab et al., 2024). One of the major subject to control the chronic diseases is their cost.

A systematic review was written on cost of asthma in which different countries used to prescribe oral medications as compared to inhaled medication (Shahid, n.d.). A significant association was observed between age and the practice with a significant p-value 0.01 and effect size of 0.311.

Pharmacists between the age of 25-30 show better practice in management of chronic diseases. These results are in line with the results of the research conducted in Indonesia that age of pharmacist effect the practice and pharmacist within the age group of 31-40 have low practice scores(Athiyah et al., 2019b).

The results show that there is in-significant association between the higher education and better practice scores. Pharmacist with a bachelor degree show a higher mean practice score of 24.41 as compared to the pharmacist with the master degree having mean practice score of 23.16 These findings of the current study are in line with the results of the study conducted in Lebanon that suggest no significance between higher degree and practice score but PhD degree holders have higher mean practice score as compared to other degree holders(Hallit et al., 2019).

The married and unmarried pharmacists show varied distribution but there is no significant association between the marital status and the practice with a value of p-value is0.34. As the study conducted in Dakar, despite low level of knowledge in pharmacist the level of practice is satisfactory(Mane et al., 2019).Using different source of information in practice of management of chronic diseases is not found to be associated with the practice with p-value 0.07, which indicate insignificant association. As research conducted in Ethiopia suggest only a few participants use scientific references and web pages while the majority does not refer to any reference material(KelifaEmiru et al., 2019).

Employment status of the pharmacists has shown a significant association with the practice having p-value 0.04 and effect size of 0.214. Pharmacists working full time indicate higher practice scores.The results are in line with the results of the study done in Egypt that states that pharmacists with >100 patients have significant higher mean practice scores as compared to other groups(Said et al., 2022b).The results show that degree to which a pharmacist is proficient is using in technology is not associated with the practice havingp-value 0.335. However, the pharmacist that are proficient in technology have higher mean practice scores. As the research conducted in China suggested despite having a positive attitude most of the pharmacist do not have high level of practice(Chen et al., 2022b).

CONCLUSION

Our study of knowledge, attitude and practice associated with community pharmacists in managing chronic disease is conducted in community pharmacies in Lahore, Punjab shows that males have more adequate knowledge and positive attitude than females, while females do more practice than males. Age above 20-25 and above 30 show similar adequate knowledge but pharmacist above 30 shows better attitude, while pharmacist between age 20-25 shows better practice. Pharmacist with bachelor's degree have more adequate knowledge and practice while pharmacist with master level show more positive attitude. Unmarried pharmacist shows better knowledge, while married pharmacist have better attitude. Pharmacists that got information from books have better knowledge while participants from seminar have better attitude. The participants who worked full time have better knowledge and practice, while participant's who work part time shows better attitude. Participants that consider use of technology proficiently have better knowledge, attitude and practice.

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