

Original Research Article

Assessment of Knowledge, Attitudes and Practices among Community Pharmacists in Lahore Regarding Prescription Patterns in Children: a cross sectional study.

ABSTRACT:

Background:

Community pharmacists play a vital role in ensuring that pediatric patients utilize drugs safely and effectively. Pediatric patients requires special attention. To identify possible gaps in their knowledge of proper dosage, formulation selection, pharmacists' knowledge, and practices of pediatric prescriptions must be evaluated. These assessments help pharmacists become more competent in handling of pediatric prescriptions, and accurately counselling caretakers. Targeted evaluation can be assessed to ensure pediatric care with lower medication errors in pediatric prescriptions.

Objective:

The aim of this research is to assess retail pharmacists' (KAPs') knowledge, attitudes, and practices with reference to pediatric patients' prescription patterns in community pharmacies in Lahore. It also examines the association between demographic characteristics and KAP scores.

Method:

The cross-sectional study was conducted by students from a private medical university in Lahore to check the knowledge, and practices of community pharmacists on children's prescription patterns. A questionnaire was used to assess pharmacist understanding. Data collection carried between August 15, 2024, and August 30, 2024. A total of 133 surveys were completed; none were incomplete. Data was collected from many locations inside Lahore, Pakistan. The questionnaire was distributed to pharmacists who consented to participate. The first part of the questionnaire is the permission form, which contains information about the study's goals, methodology, introduction, and confidentiality.

The questionnaire consisted of forty questions. First, the demographic data was collected, including name, age, gender, years of experience, higher education. The second part was a set of questions with answers to see how well a pharmacist understood prescription of children. If a pharmacist could respond to the question with a 55% accuracy rate, they were considered to have appropriate knowledge. The final section had ten questions about pharmacist attitudes about prescription trends for children. Pharmacists working in Lahore's community pharmacies who gave their consent to participate in the study and answer the questionnaire were included.

Result:

The knowledge of pharmacists and their demographics not significantly correlate. There is no association among the factors in our study and attitude. The post-hoc analysis of P values for various demographic groups also reveals no association with a pharmacists practice regarding children's prescription patterns.

Conclusion:

Pharmacists can offer pediatric medication counselling to parents and children who are comfortable with it, even though children are rarely present at pharmacies when prescriptions are taken up. For the purpose of facilitating counselling and educating children about the safe and effective use of medications, pharmacists must create and employ interactive and instructional technologies.

Keywords:

Prescription Pattern, Pharmacist, Community Pharmacies, Retail Pharmacists, Lahore, Chi Square Test, Fischer's Exact Test, Phi-Square, Pharmacy Practice.

INTRODUCTION:

Rational use of drugs is a foundation for a better and effective healthcare mainly in populations such as children that usually don't have fully developed and matured immune system also being in a growing stage such that in them the repercussion of inappropriate medication practise could be very serious and sometimes in extreme cases could prove to be fatal. (Bush & Hardon, 1990). Children are more prone to medication error and in them side effects are also more severe as compared to adults. (Benavides et al., 2011). As well as medical management of children throughout medication process is kind of different when you compare them with adults and it comprises of various complicated challenges due to the fact that there exist social as well as physical differences therefore at a community pharmacy level handling of children prescription by a pharmacist is of great importance and that pharmacist should be well aware of different diseases prevailing in children what are the general practises being carried out also attitude of pharmacist towards approaching this issue is of great importance. (Benavides et al., 2011)

A pharmacist should be well aware of doses especially in children in which dose regulation is of great importance and especially when it comes to antibiotics a pharmacist should be well aware of the fact that which antibiotic would work best in which condition what should be the dose of antibiotic by assessing the age, weight and condition of disease of the paediatric patient also the pharmacist should be well aware of the feedback coming majorly from the parents or guardian of the children that what were some of the common side effects that appeared in their children after taking prescribed antibiotic or any other medication. (Keewan et al., 2021) As according to WHO the main reason that is behind the antibiotic resistance issue is the factor that antibiotics are inappropriately used to very great extend and it has been observed on pharmacies that there is no proper counselling by the pharmacist to the parents or guardian of children. (Sabry et al., 2014)

Attitude of a pharmacist towards their profession is of great importance as the basic duty of a pharmacist is to make sure of the fact that there is a safe and effective use of medications in children also due to the age factor it would not be best to guide children about the medication therefore it is duty of pharmacist to properly guide and console the parents or guardian of the children ensuring that there would not be any issues regarding medication (Benavides et al., 2011). It has also been observed that pharmacist are trying to perform their duties with dignity and honesty but in majority of cases it has been observed that parents or guardians of the children are not supporting enough in all the matter or even sometimes it has been observed that they are not even willing to understand things and this creates a communication gaps between the pharmacist and the guardians of children hence ultimately effecting the therapy in some of

the cases as no knowledge about the medication could possibly led to medication errors.(El Hajj et al., 2021)

A pharmacist should be well aware of different practices that are being carried out in the premises of pharmacy especially when it relates to patients that are children such that pharmacist should be aware of different parameters such as describing about the dosing cups and oral syringes to parents or guardians of the children, educating parents or guardian of children about the label content of the drug that is being dispensed as well as informing them what possible side effects could appears as a result of the medication, if any adverse effect appears then does he/she report that to respective authorities, continuously about his/her knowledge as well as taking part in different activities to promote optimal use of medications.(Penelitan et al., 2012).

The main objective of this research is the assessment of knowledge, attitude and practise among community pharmacist when it comes to prescription pattern in children and this research is carried out in a cross-sectional study format.

MATERIALS AND METHODS:

Students from a private medical institution in Lahore carried out the cross sectional study to find out what community pharmacist knew, thought, and did about children's prescription patterns. Pharmacist comprehension was assessed using a standardized questionnaire. The period of data collecting was August 15, 2024–August 30, 2024. A total of 133 completed questionnaires were gathered; none of them were deemed incomplete or returned. Information was gathered from several parts of Lahore, Pakistan. Pharmacists who agreed to participate were given the questionnaire, and all data collection was overseen by a senior pharmacist. The consent form, which outlines the study's objectives, introduction, process, and confidentiality, is the first section of the questionnaire.

There were forty questions on the survey, broken down into various areas. The first component gathered demographic information such as name, age, gender, year of experience, higher education, average weekly hours worked, and workplace location. The second component consisted of a series of questions with correct answers to gauge the pharmacist understanding of children's prescription patterns. A pharmacist was deemed to have sufficient knowledge if they could answer the question with 55% accuracy. Ten questions concerning pharmacist attitudes towards children's prescription patterns were included in the third segment. In the fourth segment, a series of yes/no questions was utilized to evaluate pharmacist practice with reference to children's prescription patterns.

Inclusion criteria:

The study included registered pharmacists employed at community pharmacies of Lahore who consented to participate and complete the questionnaire.

Exclusion criteria:

The pharmacist who refuse to fill the form are excluded from this study. The community pharmacist out of tertiary of Lahore are also excluded from the study.

STATISTICAL ANALYSIS:

We applied the 24th edition of SPSS to analyze the data that had been gathered, and we used the mean and Standard deviation (SD) to summarize the results. Kurtosis and Skewness Tests were used to see if the data had a normal distribution. One-way ANOVA tests or Independent T tests were used to evaluate the null hypothesis. Either the chi square test or Fischer's exact test were used to examine categorical data. The effect size was calculated using either phi (ϕ) or Cramer's V. A P-value was deemed significant if it was less than 0.05.

RESULTS:

A total of 133 pharmacists participated in the current investigation. In comparison to the ratio of male pharmacists, female pharmacists accounted for 24.1% of the total and male pharmacists accounted for 75.9%. Furthermore, just 27.1% of pharmacists hold a certification with a specialty, compared to 69.9% of pharmacists who merely hold a degree.

The majority of pharmacists, 76.7% have less than 15 years of experience. Table 1 provides more demographic information about the pharmacists.

Table1: Represents the demographic information of the pharmacist. (N=133)

Age	
<30 years	89(66.9)
30-50 years	39(29.3)
>50 years	5(3.8)
Gender	
Male	101(75.9)
Female	32(24.1)
Higher education	
MPHIL	33(24.8)
Ph.D.	7(5.3)
Graduate	93(69.9)
Year of graduation	
Recently graduated	13(9.8)
<15 years	102(76.7)
>15 years	6(4.5)
Not given	12(9.0)
Any specialization / Certification	
Yes	36(27.1)
No	97(72.9)
Years of experience	
<5 years	84(63.2)
5-10 years	29(21.8)

>10 years	19(14.3)
Average number of working hours per week	
10-30	8(6.0)
30-60	102(76.7)
60-90	21(15.8)
>90	2(1.5)
Location of work place	
Urban	131(98.5)
Rural	2(1.5)
How proficient are you with using technology in your daily work	
Proficient	89(66.9)
Very proficient	36(27.1)
Somewhat proficient	8(6.0)
Not proficient	-

To ascertain the knowledge levels of 133 pharmacists, a post-hoc pairwise comparison of the chi square test for various factors with pharmacist knowledge was conducted. According to the research, 43.8% of females had significantly adequate knowledge which was higher as compared to males 15.8%. Table 2 provides more information on pharmacists' understanding of children's prescription patterns.

Table 2: Knowledge of Pharmacists:

Variables	Adequate knowledge	Inadequate knowledge	P-value	Effect size(ϕ)
Age				
<30 years	21(23.6)	68(76.4)	0.468	-
30-50 years	9(23.1)	30(76.9)		
>50 years	0(0.0)	5(100.0)		
Gender				
Male	16(15.8)	85(84.2)	<0.001	0.002
Female	14(43.8)	18(56.3)		
Higher education				
MPHIL	8(24.2)	25(75.8)	0.879	-
Ph.D.	2(28.6)	5(71.4)		
Graduate	20(21.5)	73(78.5)		
Year of graduation				
Recently graduated	2(15.4)	11(84.6)	0.061	-
<15 years	22(21.6)	80(78.4)		
>15 years	0(0.0)	6(100.0)		
Not given	6(50.0)	6(50.0)		
Any specialization / Certification				
Yes	9(25.0)	27(75.0)	0.681	-

No	21(21.6)	76(78.4)		
Years of experience				
<5 years	20(23.8)	64(76.2)	0.501	-
5-10 years	8(27.6)	21(72.4)		
>10 years	2(10.5)	17(89.5)		
Average number of working hours per week				
10-30	4(50.0)	4(50.0)	0.106	-
30-60	24(23.5)	78(76.5)		
60-90	2(9.5)	19(90.5)		
>90	0(0.0)	2(100.0)		
Location of work place				
Urban	28(21.4)	103(78.6)	0.008	0.050
Rural	2(100.0)	0(0.0)		
How proficient are you with using technology in your daily work				
Proficient	20(22.5)	69(77.5)	0.985	-
Very proficient	8(22.2)	28(77.8)		
Somewhat proficient	2(25.0)	6(75.0)		
Not proficient	-	-		

The P value was calculated using chi square Test as the data was parametric. Table 2 demonstrates that there is no significant difference ($p>0.05$) between age, years of experience, years of graduation, specialization/ certification, years of experience, average number of working hours per week, and use of technology.

Table 3: Attitude of pharmacist:

Outcomes Variable	Mean (SD)	95%Confidence interval(C.I)		T statistics(df)	p-value	Effect size(ϕ)
		Lower bounds	Upper bounds			
Age						
<30 years	0.8090±0.95	0.6277	1.0232	1.756 (1,132)	0.177	
30-50 years	0.7436±0.96	0.4694	1.0432			
>50 years	0.0000±0.00	0.0000	0.0000			
Gender						
Male	0.6733±0.91	0.5052	0.8597	3.542 (1,132)	0.062	
Female	1.0313±0.99	0.7059	1.3571			
Higher education						
MPHIL	0.9394±0.99	0.6177	1.2682	1.174 (1,132)	0.312	
Ph.D.	1.0000±1.00	0.2000	1.7500			
Graduate	0.6774±0.92	0.4945	0.8667			
Year of graduation						
Recently	0.5385±0.87	0.1252	1.0000	2.087	0.105	

graduated				(1,132)		
<15 years	0.7941±0.95	0.6139	0.9806			
>15 years	0.0000±0.00	0.000	0.000			
Not given	1.0833±0.99	0.5385	1.6364			
Any specialization / Certification						
Yes	1.0278±0.99	0.6970	1.3945	4.059	0.046	
No	0.6598±0.91	0.4950	0.8315	(1,132)		
Years of experience						
<5 years	0.8929±0.96	0.6942	1.0885	1.821	0.147	
5-10 years	0.6207±0.90	0.3001	0.9599	(1,132)		
>10 years	0.4211±0.83	0.0952	0.8235			
Average number of working hours per week						
10-30	0.2500±0.70	0.0000	0.8571	1.492	0.220	
30-60	0.8333±0.97	0.6567	1.0206	(1,132)		
60-90	0.6667±0.85	0.3203	1.0526			
>90	0.0000±0.00	0.0000	0.0000			
Location of work place						
Urban	0.7557±0.94	0.6000	0.9084	0.130	0.719	
Rural	1.0000±1.41	0.0000	2.0000	(1,132)		
How proficient are you with using technology in your daily work						
Proficient	0.6292±0.89	0.4659	0.8072	2.609	0.077	
Very proficient	1.0278±0.99	0.6844	1.3333	(1,132)		
Somewhat proficient	1.0000±1.06	0.2509	1.7143			
Not proficient	-	-				

Table 3 demonstrates that there are no significant differences ($p>0.05$) between age, gender, higher education, year of graduation, year of experience, average number of working hours per week, location of work place and use of technology, on the community pharmacists perspective on children's prescription patterns.

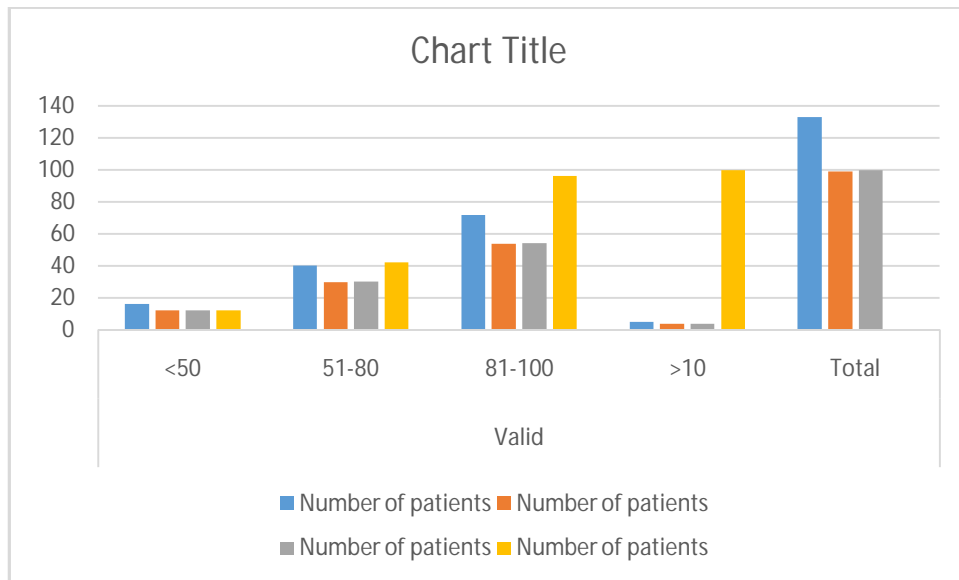
Table 4: Practice of Pharmacist:

Outcomes Variable	Mean (SD)	95%Confidence interval(C.I)		T statistics(df)	p-value	Effect size(ϕ)
		Lower bounds	Upper bounds			
Age						
<30 years	17.5506±3.52	16.8297	18.2527	0.240	0.787	-
30-50 years	17.4615±3.45	16.4146	18.5308	(1,132)		
>50 years	18.6000±2.07	16.5000	20.4173			
Gender						

Male	17.6238±3.56	16.9714	18.3050	0.125(1,132)	0.724	-
Female	17.3750±3.09	16.2965	18.5448			
Higher education						
MPHIL	16.8182±3.53	15.5718	18.0696	1.168 (1,132)	0.314	-
Ph.D.	17.1429±4.25	13.6667	20.3344			
Graduate	17.8602±3.35	17.1291	18.5199			
Year of graduation						
Recently graduated	18.3846±3.45	16.4286	20.2120	0.766 (1,132)	0.515	-
<15 years	17.6176±3.42	16.9451	18.2997			
>15 years	17.3333±3.93	13.5000	20.3321			
Not given	16.3333±3.52	14.1003	18.2491			
Any specialization / Certification						
Yes	16.8056±3.63	15.6563	17.9143	2.408 (1,132)	0.123	-
No	17.8454±3.35	17.1432	18.5150			
Years of experience						
<5 years	17.4524±3.46	16.7447	18.1706	0.396 (1,132)	0.756	-
5-10 years	17.5862±3.41	16.3215	18.8077			
>10 years	18.1579±3.59	16.4546	19.6470			
Average number of working hours per week						
10-30	17.1250±5.16	13.5000	20.8000	0.245 (1,132)	0.865	-
30-60	17.4804±3.38	16.8191	18.1212			
60-90	18.0476±3.26	16.6542	19.3681			
>90	18.5000±2.12	17.0000	20.0000			
Location of work place						
Urban	17.6031±3.45	17.0076	18.1753	1.121 (1,132)	0.292	-
Rural	15.0000±2.82	13.0000	17.0000			
How proficient are you with using technology in your daily work						
Proficient	18.2022±3.03	17.5761	18.8143	6.090 (1,132)	0.003	
Very proficient	15.9167±3.86	14.5714	17.2618			
Somewhat proficient	17.8750±3.83	15.3333	20.6992			
Not proficient	-	-	-			

Table 4 presents a summary of the factors that do not significantly differ ($p>0.05$) based on age, gender, higher education, year of graduation, experience, specialization/certification, average number of working hours per week, and location of work place about community pharmacists' practices with reference to children's prescription patterns.

Figure 1: The mean of the number of patients in a pharmacy per day.



Discussion:

The current research assesses knowledge of community pharmacists, evaluate attitude, and practice regarding prescription patterns in pediatric patients. This study involve the total of 133 pharmacists with fewer females as compared to males. Although the majority of pharmacists were familiar with the concept of pediatric prescription most admitted to having gain their knowledge through experience as reported by. (*Brit J Clinical Pharma - 2007 - Stewart - Attitudes and Experiences of Community Pharmacists towards Paediatric Off-label.Pdf*, n.d.)Furthermore, inadequate knowledge of males was more as compared to the females and the percentage is 84.2% get the P value < 0.001.

Additionally, no significant differences were found in attitude of pharmacists based on age, gender, higher education, year of graduation, years of experience, average number of working hours per week, location of workplace, or use of technology. 517 pharmacists in Nigeria participated in a survey that found that their knowledge and attitude are suboptimal. (Ogunyinka et al., 2021)

Furthermore, there wasno significant difference were found in practice based on age, gender, higher education, year of graduation, specialization/ certification , years of experience, average number of working hours per week and location of work place of the community pharmacists.

The research also indicates that the assessment of knowledge and aptitude of pharmacistin regard of pediatric patient centered therapy. It evaluate the individual pharmacists knowledge based on practice and experience enlightened by attitude of learning. It also represents the expertise in terms of international guidelines. The research suggests that female pharmacist are more prone towards learning attitude with following the proper standards of prescription pattern of pediatric patients.

Similarly, the study indicates a statistical effect of pharmacist expertise and the knowledge of prescription pattern of children.This suggests that higher levels of education are not associated

with better knowledge and practice. These findings are consistent with various studies conducted in different countries, which show that increased knowledge of pharmacists on handling of prescriptions of pediatric patients.

The current study highlights the necessity and importance of having more desirable pediatric patient centered skills and expertise when it comes to overseeing patient-centered, individualized care. Closing the information gaps in the current assessment might improve the overall quality of care provided by Lahore's community pharmacy as well as the results for the impacted patients that will directly impact the overall medication therapy and desired outcomes. Eventually, leading to more desirable outcomes for pediatric patients. More research is needed to address issues like limited sample sizes and response bias in order to give a more thorough understanding of pharmacists' expertise in knowledge, attitude and limitations for managing and ensuring better pediatric care.

CONCLUSION:

Pharmacists can offer pediatric medication counselling to parents and children who are comfortable with it, even though children are rarely present at pharmacies when prescriptions are taken up. For the purpose of facilitating counselling and educating children about the safe and effective use of medications, pharmacists must create and employ interactive and instructional technologies.(Abraham et al., 2017) Parents and children's are comfortable with pediatric medication counselling by pharmacist. Pharmacist providing educational techniques/technologies to educate parents about effective use of medicine.(Benavides et al., 2011)

LIMITATIONS:

Research on the attitudes, practices, and expertise of retail pharmacists in Lahore about prescription trends in children may also run into a number of limitations. If the pharmacists who were surveyed no longer accurately represent the general community, sample size and representativeness may have an impact on the validity of the results. Response bias is a problem as pharmacists may provide socially acceptable advice. Pharmacists might respond inconsistently due to differences in their education and experience. Pharmacists' expertise and actions may differ depending on the most recent data on prescription patterns in children. Cultural and religious differences might affect the results, making them less generalizable to other areas. In addition to other factors such as workload and useful resource availability can affect pharmacist's capability to update themselves of the latest trends.

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UNDER PEER REVIEW