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GENERAL

QUANTITATIVE STUDY EVALUATING PERCEPTION OF GENERAL PUBLIC TOWARDS ROLE OF PHARMACIST IN HEALTH CARE SYSTEM OF PAKISTAN

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Abstract: To investigate general public perception towards the role of pharmacist in developing countries' healthcare system was the main aim of this study, which would be the basic foundation for researching the treatment pattern of cognitive disorder after stroke in communities. The study population (sample size = 385) consisted of general public from Islamabad, Faisalabad and Lahore, Pakistan. Main sections of the questionnaire comprised of series of statements pertaining to consumer's perception and experience with the pharmacists. The response rate of study was 77.1%. A majority (80.1%) of the consumers knows who is pharmacist; 49.8% (n = 148) of the respondents found the pharmacist working in the pharmacies; 74.1% (n = 220) believed that pharmacist can guide them regarding their medicine. With respect to government efforts to improve services provided by community pharmacies, less percentage (31.0%) of the consumers were satisfied. Half of the respondents (59.9%) were expecting from the pharmacists to be knowledgeable drug therapy experts, whereas 61.3% (n = 182) expect from the pharmacists to educate them regarding safe and appropriate use of medication. The findings of this study conclude that the quality of pharmaceutical services provided is very low in Pakistan. There is a gap between the public and the pharmacist, which can only be filled by creating awareness among public regarding the pharmacist's role in healthcare system and by focusing on how services provided by the pharmacists can add improvement to general public health.

Keywords: general public, perception, pharmacist role, pharmaceutical services, cognitive disorder, stroke

In recent years, pharmacy profession has extended its role of product-oriented to consumer-oriented with an emphasis on the provision of consumer care services (1, 2). Although there are barriers to pharmacist-consumers communication due to personal and social factors that influence pharmacy practice (3), but the involvement of the patients in their own healthcare is the present need of today (4). The consumers' perception of the benefits of pharmaceutical care is based on the ability of the pharmacist to help them. More frequent interaction with the consumers increases the opportunities to improve outcomes of therapy (5). In developed countries, studies showed that pharmacists were willing to provide evidence based advice to people. It also showed that patients believed that they were at lower risk if they were able to meet with a pharmacist regularly, and the pharmacist was identified as the predominant source of information for medicines (4–6). This scenario in developing countries is totally different. The pharmacist population ratio is very low, and a majority of the population, especially in poor and rural areas rarely come in contact with the trained pharmacist (7, 8). Pharmacy services throughout the world play a broad range of activities in provision of health services provided to the general public. Comparatively small number of studies focused towards the role of pharmacist in this context (9). However, there are couple of studies, which do focused with the use of medicines and pattern of practice in low and middle income countries (10–15). There are very few studies, which focused

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on the consumer's perception regarding community pharmacist. At present, this study is first of its kind, which focuses directly on the perception of consumer towards community pharmacists' role in healthcare delivery in developing countries, and currently many subsequent symptoms such as cognitive disorder after stroke have a long course for treatments, so Community Clinic rather than Integrated Hospitals has been the main choice for many patients (16–18), and in this condition, community physicians and pharmacists' role are more and more important. So the research will be a basic foundation for the further design of treatment pattern of cognitive disorder after stroke in communities.

EXPERIMENTAL

The questionnaire was developed after the extensive literature review and from the qualitative findings of the study. The questionnaire had five parts, which included the demographic information, general awareness about pharmacists and places of work, perception, expectation and experience regarding pharmacists' role. Each section of the questionnaire included a set of statements for which the respondents were asked. There are questions which required a "yes" or "no" response. To indicate the level of agreement, 4-point Likert scale, where 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree, was used in order to avoid confusion with the 'neutral' responses.

The primary version of the questionnaire consisting of 30 items was viewed by the professionals at the School of Pharmacy, Universiti Sains Malaysia (USM). These professionals were asked to assess the questionnaire by providing their overall opinion and by listing the questions in the order of relevance and importance. The more relevant and important questions were highlighted. To assess face validity of the questionnaire, thirty participants were solicited. These participants were asked for their views on the significance, worth, and simplici-

Table 1. General public demographic characteristics.

Variable	Frequency	Percent (%)
Age (mean ± SD, 31.53 ± 10.8)		
15–25	126	42.4
26–35	74	24.9
36–45	57	19.2
46–55	34	11.4
> 56	6	2.0
Gender		
Male	149	50.2
Female	148	49.8
Education		
No education	10	3.4
Religious studies only	13	4.4
Primary	20	6.7
Matric/SSC	20	6.7
FA /FSc	46	15.5
Graduation	88	29.6
Post graduation	105	35.4
Employment		
Government employee	69	23.2
Private employee	67	22.6
Businessman	58	19.5
Unemployed	103	34.7

ty of each question and to identify, which questions they would point out to be removed so to make the questionnaire brief and comprehensive. In addition to this, the participants were also welcomed to suggest further comments on questions whether they are understandable or not. Most of them suggested simplifying the questions. The reliability test was applied to all variables comprising all domains. The reliability of tool was estimated on the basis of Cronbach's Alpha ($\alpha = 0.74$).

The study population consisted of general public from three cities of Punjab province named Islamabad, Faisalabad and Lahore.

Sample size was calculated by Roasoft soft sample size calculator (19) with confidence interval of 95 and 5% margin of error. Due to a lack of sampling frame and up-to-date electronic population database, a convenient sampling technique was used. A sample of 385 was calculated and by adding 20% drop-out rate, sampling size was 462 consumers who were selected from the pharmacies (chain and independent) of three cities of Pakistan.

The questionnaire was distributed to those people visiting 25 pharmacies (chain and independent) (14), which were selected from three cities. Data were obtained through a 4 hour visit made to each pharmacy by a data collecting team over a period of 3 months. During these visits, questionnaires were filled by consumers of all pharmacies who requested advice from the pharmacists.

Survey administration and time frame

Survey was conducted for a period of three months from January through March 2011. Community pharmacists were informed regarding survey of general public perceptions regarding the role of pharmacists, the aim, objective and nature of the study and verbal consent was given.

Secondly, general public who visited the pharmacies were informed regarding survey. After obtaining their consent for participation in this study, the execution of the study took place.

Data collection

Questionnaires were collected. Responses were exported to Statistical Package for Social Sciences (SPSS®) for Windows, version 15, to perform statistical analysis (20).

Data analysis

Non-parametric statistical test and appropriate descriptive statistics for demographic characteristics (mean and standard deviation for age) were performed using SPSS® for Windows, version 15. The demographic information that was collected included age, gender, education and employment, frequencies and descriptive statistic of each variable was reported. The χ^2-test was used to test significance of association between independent variables (age, gender, education and employment) and dependent variables (general awareness about pharmacists, perception regarding pharmacist's role, expectation from pharmacist's role and experience with pharmacists). Statistical significance was accepted at p value of < 0.05.

RESULTS AND DISCUSSION

Response rate

During the period of three months of data collection from January to March 2011, a total of 385 questionnaires were distributed, 297 questionnaires were returned giving a response rate of 77.1%.

Demographic characteristics

Demographic characteristics of general public who took part in this study are shown in Table 1. Mean age was 31.53 years with standard deviation (SD) = 10.8 years. Among the respondents, 50.2% (n = 149) were male, while 49.8% (n = 148) were female. A majority (34.4%) of the consumers were post graduates, 29.6% (n = 88) had graduation degree, the education of 15.5% (n = 46) were FA/FSc. There is equal (6.7%, n = 20) number of primary and matric level consumer, whereas 4.4% (n = 13) were having religious education only, while 3.4% (n = 10) of the consumers have no education. With respect to employment of the consumers, a majority (34.7%) of the consumers were unemployed. Government employee were 23.2% (n = 69), while 22.6% (n = 67) belonged to private organizations and 19.5% (n = 58) were businessmen.

General awareness about pharmacists

A majority (80.1%) of the consumers knows who is pharmacist; 49.8% (n = 148) of the respondents found the pharmacists working in the pharmacies. Only half (56.9%) of the respondents replied that they can got medicine without prescription; 74.1% (n = 220) believed that pharmacist can guide them regarding their medicine; 67.7% (n = 201) of consumers felt comfortable while taking advice from the pharmacists, while 65.3% (n = 194) trust on pharmacists advice. Beside medicines, 53.5% (n = 159) of the consumers trust on pharmacist's advice on health related issues. Only half (50.2%) of the respondents showed their satisfactions with services provided by the community pharmacies. With

respect to the government efforts to improve the services provided by the community pharmacies, less percentage (31.0%, n = 92) of the consumers were satisfied.

Perception regarding pharmacist's role

Table 3 indicates perception regarding the pharmacist's role in healthcare. Approximately half (45.8%, n = 136) of the consumers agreed on pharmacists providing patient education, and 48.8% (n = 145) pharmacists suggesting use of non-prescription medications. Respondents were asked about their opinion suggesting the use of certain prescription medications to patients and only 61.6% (n = 183) of the respondents agreed. With respect to treating minor illness only half (50.5%) of the respondents agreed and 43.1% (n = 128) of the respondents agreed with the pharmacist role as identifying and preventing prescription errors. Respondents were asked regarding designing and monitoring pharma-

Table 2. General awareness about pharmacist.

Items in questionnaire	Frequency of "Yes"	Percent of "Yes"
Do you know who is pharmacist in healthcare setting?	238	80.1
When you go to pharmacy / medical store you find pharmacist working?	148	49.8
Can you get medicine without prescription?	169	56.9
Did you know pharmacist can guide you regarding your medicine?	220	74.1
Would you feel comfortable talking to pharmacist regarding your minor illness?	201	67.7
Do you already talk to pharmacist for advice on medicines?	160	53.9
Do you trust your pharmacist's advice about your medicine?	194	65.3
Would you trust your pharmacist's advice on other health issues besides medicines?	159	53.5
Are you satisfied with the services provided by the community pharmacies?	149	50.2
Are you satisfied by the steps taken by government to improve the services provided by the community pharmacies?	92	31.0

Table 3. Perception regarding pharmacist's role.

Items in questionnaire	Responses *				p value **		
	n (%)				Age	Gender	Employment
	SD	D	A	SA			
1	9 (3.0)	136 (45.8)	131 (44.1)	21 (7.1)	0.512	0.738	0.482
2	39 (13.1)	98 (32.3)	145 (48.8)	17 (5.7)	0.125	0.958	0.696
3	16 (5.4)	80 (26.9)	183 (61.6)	18 (6.1)	0.740	0.724	0.326
4	18 (16.1)	111 (37.4)	150 (50.5)	18 (16.1)	0.197	0.128	0.115
5	22 (7.4)	126 (42.4)	128 (43.1)	21 (7.1)	0.277	0.891	0.591
6	47 (15.8)	137 (46.1)	95 (32.0)	18 (6.1)	0.471	0.513	**0.044**
7	50 (16.8)	143 (48.1)	87 (29.3)	17 (5.7)	0.505	0.866	**0.025**

* Responses were for all respondents ** χ^2; SD = strongly disagree, D = disagree, A = agree, SA = strongly agree. 1 = Providing patient education. 2 = Suggesting use of non-prescription medications. 3 = Suggesting use of certain prescription medications to patients. 4 = Treating the minor illnesses. 5 = Identifying and preventing prescription errors. 6 = Designing and monitoring pharmacotherapeutic regimens. 7 = Monitoring outcomes of pharmacotherapeutic regimens and plans.

Table 4. Expectation from pharmacist's role.

Items in questionnaire	Responses *				p value **		
	n (%)				Age	Gender	Employment
	SD	D	A	SA			
1	18 (6.1)	66 (22.2)	173 (58.2)	40 (13.5)	0.000	0.051	0.007
2	17 (5.7)	54 (18.2)	178 (59.9)	48 (16.2)	0.059	0.655	0.082
3	13 (4.4)	53 (17.8)	182 (61.3)	49 (16.5)	0.295	0.506	0.167
4	14 (4.7)	87 (29.3)	148 (49.8)	48 (16.2)	0.130	0.430	**0.007**

* Responses were for all respondents ** χ^2; SD = strongly disagree, D = disagree, A = agree, SA = strongly agree. 1 = I expect pharmacists to take personal responsibility for resolving any drug-related problems. 2 = I expect pharmacists to be knowledgeable drug therapy experts. 3 = I expect pharmacists to educate me about the safe and appropriate use of medication. 4 = I expect pharmacists to monitor response to drug therapy and let me know if encounters any drug-related problem.

Table 5. Experience regarding pharmacist's role.

Items in questionnaire	Responses *				p value **		
	n (%)				Age	Gender	Employment
	SD	D	A	SA			
1	12 (4.0)	45 (15.2)	205 (69.0)	35 (11.8)	0.221	0.199	0.206
2	13 (4.4)	59 (19.9)	179 (60.3)	46 (16.5)	0.183	0.653	0.388
3	28 (9.4)	110 (37.0)	123 (41.4)	36 (12.1)	0.081	0.424	0.189
4	59 (19.9)	117 (39.4)	102 (34.3)	19 (6.4)	0.110	**0.014**	**0.001**

* Responses were for all respondents ** χ^2; SD = strongly disagree, D = disagree, A = agree, SA = strongly agree. 1 = In my experience, pharmacists are a reliable source of general drug information. 2 = In my experience, pharmacists are important health processional in the healthcare system. 3 = Pharmacists routinely counsel patients regarding the safe and appropriate use of their medications. 4 = In my experience, pharmacists appear willing to take personal responsibility for resolving any drug-related problems they discover.

cotherapeutic regimens as one of the roles of pharmacists, 46.1% (n = 137) of the respondents disagreed. The value was found to be statistically significant (p = 0.044) with respect to employment; 48.1% (n = 143) of the respondents disagreed with the pharmacist's role as monitoring outcomes of pharmacotherapeutic regimens and plans, again the value was found to be statistically significantly (p = 0.025) with respect to employment.

Expectation from pharmacist role

Part 4 of the questionnaire describes the expectation from pharmacist's role. Half of the respondents (58.2%) expect from the pharmacists to take personal responsibility for resolving any drug-related problems. The value was found to be statistically significant (p = 0.007) with respect to the employment. More than half (59.9%) of the respondents were expecting from the pharmacists to be knowledgeable drug therapy experts, 61.3% (n = 182) expect from the pharmacists to educate them regarding the safe and appropriate use of medication. Again only half of the respondents (49.8%, n = 148) agreed with the expectation from the pharmacists to monitor response to drug therapy and let them know if they encounter any drug-related problem.

Experiences with pharmacist

Consumer's experiences with the pharmacists are elaborated in Table 5; 69.0% (n = 205) of the respondents agreed on the statement that pharmacists are a reliable source of general drug information. 60.3% (n = 179) were agreed that pharmacists are important health processionals in the healthcare system. Less than half of the respondents (41.4%, n = 123) agreed on the statement that pharmacists routinely counsel patients regarding the safe and appropriate use of their medications. Some respondents

were disagreed (39.4%, n = 117) with the pharmacists willingness to take personal responsibility for resolving any drug-related problems they discover, whereas there was small number (34.3%) of respondents who agreed on the statements. The value was found to be statistically significant ($p = 0.014$) and ($p = 0.001$) with respect to the gender and employment, respectively.

In general, 385 questionnaires were hand delivered to the general public visiting community pharmacies and 297 were received by the principal researcher, thus giving response rate of 77.1%, which is adequate and found to be within the range (5–70%) quoted by researchers for self administered questionnaire (21).

The majority of the respondents knew about pharmacist in the healthcare system. On the other hand, only half of the population did not know whether they were present in community pharmacies, the possible reason could be the trend in Pakistan (22). They believed in the advice on common health problem from the person standing at the pharmacies even from the unqualified drug sellers. This problem has already been discussed in number of studies (23–25). There are also studies, which gave the possible reason of least awareness of pharmacist in the system, where the pharmacists are not recognized by the general public. The possible reason could be the small ratio of pharmacists available for population than they are required (12, 26). Respondents in this study believed that pharmacist can guide them in proper use of medicine and they also showed trust towards pharmacists. The finding is consistent with the studies in Qatar and Jordan where a majority of the public believed on pharmacists' role in provision of advice with respect to the rational use of medicines (13, 27).

Pharmacists play a very important role in solving all drug related problems for achieving optimal patient outcomes and ultimately improve the quality of life of the patient (28). The perception regarding pharmacists' role is different in different parts of the world. The finding in the study shows less difference between agreed and disagreed among the general public. Results from the studies showed that neither doctors nor consumers believed that pharmacists had momentous role in pharmaceutical care (29). Moreover, pharmacists and consumers did not understand each other's discernment regarding pharmaceutical care services (30). However, half of the respondents agreed on pharmacist's role in treating minor illness, it could be the reason the general public is saving the cost of doctors and will take direct advice from pharmacists. This can be beneficial as in case of limited resources available in developing countries and in this context, the role of pharmacists at the pharmacies has been diversified, integrating not only dispensing, but also health education and sometimes even diagnosis (22).

The expectations of general public in Pakistan are favorable towards pharmacists. They expect the pharmacists to provide broad range of pharmaceutical care services including safe use of medication along with monitoring of response from drug therapy. The finding from another study which focused on 'patient's expectation" revealed that the pharmacists also believed themselves to provide information related to appropriate use of medication (31). Studies from the developing countries also revealed that the people had great trust on pharmacists when they visit the pharmacies (11–13).

General public in Pakistan conceived the pharmacist as an authentic source of drug information, and believed in them as an important member of healthcare team. The finding supports the pharmacist's role in the country. As far as their experience with the pharmacist's willingness to take personal responsibility is concerned, they disagreed with the small difference with the agreed respondents. The possible reason could be the focus of pharmacists towards the managerial job rather than providing pharmaceutical services.

Study limitations

This study is subjected to certain limitations due to the general public involved from three cities only, namely Lahore, Faisalabad and Rawalpindi/Islamabad of Punjab province only, which cannot be generalized to the other provinces of the country. Moreover, only the general public involved who visited the chain or independent pharmacies within four hour visit of the data collecting team, were considered as the respondents for the study. There is no electronic data base available neither for the public living in these three cities, nor for the number where pharmacists are working.

CONCLUSION

The general public in Pakistan is aware of the pharmacists in the healthcare system. There are shortcomings in professional practice terms of providing pharmaceutical care services to the consumers. The trends of chain pharmacies in developing countries, which appoint pharmacists for 24 h at pharmacies, is greatly responsible for creating positive image of pharmacies in the society. The only need of time is to increase the number of pharma-

cists so that the pharmacists along with the management can equally focus on the provision of healthcare services to the community. Based on the role of pharmacists in community, the new treatment pattern of subsequent symptoms such as cognitive disorder after stroke could be considered in communities.

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