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Patient's Assessment of Pharmaceutical Care Services in Egyptian Community Pharmacies: Cross-Sectional Study

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Abstract:
Community pharmacy is the largest sector of pharmacy practice in Egypt, so the study aims to assess patients' satisfaction with pharmaceutical services provided by community pharmacists. A cross-sectional study based on an online questionnaire was conducted in different governorates in Egypt including Cairo, Giza, El-Sharqia, El-Qliopia, and Suhag between November 2021 to April 2022. A total of 545 participants completed the questionnaire with 68.4% of them being females. The mean age was 32.9±6.55 years, 52.3% of the participants were either university students or had bachelor's degrees and 56,1% of them had medical background. The participants visited independent and chain pharmacies and 63.7% of them had no chronic illness. The participants were from different governorates with higher contributions from Cairo, El-Sharqia, and El-Qliopia. The participants visited the community pharmacy for different reasons. The participants showed a moderate agreement of about 50 – 65% towards the time taken until being served, the ability of the pharmacist to answer their questions and label clear instructions of use, instead lower agreement (33–44%) was reported for the availability of medicines and ability of the pharmacist to explain medications information regarding interactions, side effects, and storage conditions. Participants aged between 45-64 years old with chronic conditions showed less agreement about the community pharmacy services. The community pharmacist needs to be aware of the needs of patients with chronic diseases for improved pharmaceutical care.

Keywords: Community pharmacist, pharmacy services, patient assessment, Egypt

1. Introduction

By 1990, there was a paradigm shift in the pharmacy profession from a business-centered practice to a patient-centered one [1]. This is achieved through patient assessment, disease management, proper counseling about medication administration, safety, adverse effects storage conditions as well as follow-up with subsequent improvement in therapeutic outcomes and patient satisfaction [2, 3]. In Egypt, the community pharmacy constitutes the front door for many people for medical treatment and health advice due to the accessibility to pharmacy services, cost reduction, and avoidance of long waiting times in hospitals and clinics. As a result, the pharmacist plays a critical role in providing primary health care which necessitates the acquisition of appropriate scientific knowledge and clinical skills for proper patient care [4]. However, there are many barriers affecting the pharmacy practice in community pharmacies including the lack of sufficient clinical pharmacy skills and practical knowledge in communicating with physicians and patients [5], complex relationship between the physicians and pharmacists [3], absence of pharmacists and their roles in many community pharmacies despite the number of Egyptian registered pharmacists constitutes about 4-times of the international figures [6], lack of a private area for patient counseling, unavailability of drug information resources, absence of regular continuing pharmaceutical education programs and weak regulatory system of drug sales [4].

Assessment of patient satisfaction can determine the needs [1]and perceptions of patients towards community pharmacy services which is very important for improving the quality of the health care system [7]. Previous studies conducted in the Middle Eastern region, i.e., United Arab Emirates, Iraq, Palestine, Saudi Arabia, and Qatar showed relatively negative satisfaction towards the role of the community pharmacist [8–12]. In Egypt, little research is available about patient satisfaction and attitude toward the services provided by the community pharmacy and hence the study aimed at assessment of community pharmacy services in Egypt to point out the expectations and needs of patients for improvement of pharmaceutical services.

The questionnaire was pre-piloted by distributing among 20 non-professionals and all their recommendations were considered in the final version of the questionnaire. The calculated Cronbach's alpha for each section was 0.73, 0.78 and 0.81, respectively, with an overall value of 0.77 indicating good internal reliability and consistency.

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Since the study did not require any clinical intervention, the questionnaire began with a brief description illustrating the aim of the study rather than written consent. The questionnaire was divided into three sections as follows (supplementary materials):

Section 1: Demographic details of the participants (age, gender, governorate, educational level, professional background, presence of chronic illness, and type of pharmacy they always visit. **Section 2:** included 9 questions to evaluate the services provided to participants at the community pharmacy. The first question was an open ended that asked about the reason for visiting pharmacy. The questions 2 to 7 each to be answered by "agree", "neutral" or "disagree" included: the time taken to collect the prescription, whether the pharmacist always answers any inquiries or not, the availability of medicines at the pharmacy, clear labeling of instructions on each medication, clear explanation of drug information in terms of possible side effects, drug-drug interaction, food-drug interaction and proper storage conditions. Question 8 was an open ended that asked about how they rate the pharmacist. Question 9 was answered with "yes" or "no" that asked about patient satisfaction with non-paid services like blood pressure measurement, weighing & home delivery. **Section 3:** evaluated educational information delivered to participants at the community pharmacy in terms of smoking cessation, healthy food, hypertension, diabetes, oral contraceptives, medications used for cold and flu, vitamins, and skin & hair care products, as well as participants satisfaction with the privacy of the discussion and the overall education service. The questions were answered with "yes" or "no".

Study sample:

The sample was calculated to be 545 participants, calculated using the Open Epi I program at a confidence interval of 95%, A design effect of 2 was used for cluster surveys, As about (77 %) of the population was satisfied with the pharmacist's help, and a total number of Egyptian population assumed to be 100 million [13].

Statistical analysis:

The participants' responses were encoded for confidentional purpose and data were entered into Microsoft Excel (version 2010). The 95% confidence interval (CI) was calculated to
estimate the expected range of "agree" response of the general population.The data were statistically analyzed using Minitab statistical software version 16, Minitab Ltd., Coventry, UK. To understand the significance of variation in agreement % concerning socio-demographical characteristics of the patients, one-way ANOVA was applied with a significance level of $P < 0.05$.

2. Results:

Sample characteristics:

The socio-demographic data of the studied participants are displayed in Table 1. The study included 545 participants (The overall response rate was 97.3%); their mean age was 32.9±6.55 years and the least age group was those of > 65 years (12, 2.2%). 68.4% (373) of the participants were females, and more than half (285, 52.3%) of the participants were university students or had bachelor's degrees. 56.1% (306) of the participants were with a medical background. The participants were from different governorates including Cairo (137, 25.1%); El-Sharqia (133, 24.4%); El-Qliopia (128, 23.5%), Giza (89. 16.3%) and Suhag (58, 10.7%). The participants visited different pharmacies including chain (112, 20.6%), independent (193, 35.4%) and both types (240, 44%). 198 (36.3 %) of them had chronic conditions.

Table 1: Summary of Socio-demographic data of the studied participants.

Characteristics	Frequency (n=545)	%
Age mean ± SD (32.9±6.55 years):		
20–24	232	42.6
25–34	107	19.6
35-44	101	18.5
45-54	68	12.5
55-64	25	4.6
> 65	12	2.2
Gender:		
male	172	31.6
female	373	68.4
Governorate:		
Cairo	137	25.1
Giza	89	16.3
El-Sharqia	133	24.4
Qalyubia	128	23.5
Sohag	58	10.7
Educational level:		
Postgraduate degree	156	28.6
Bachelor degree	285	52.3
High school	95	17.4
Others	9	1.7
Professional background:		
Nonmedical background	239	43.9
Medical background	306	56.1
Pharmacy type you always visit:		
Chain pharmacy	112	20.6
Independent pharmacy	193	35.4
Both	240	44
Presence of chronic illness:		
Yes	198	36.3
No	347	63.7

Participants evaluation of the community pharmacy service:

A higher response rate (28 – 29%) was recorded for visiting the pharmacy to collect either prescribed or nonprescribed medications and a relatively lower response rate (21–22%) for the other reasons as illustrated in Figure 1.

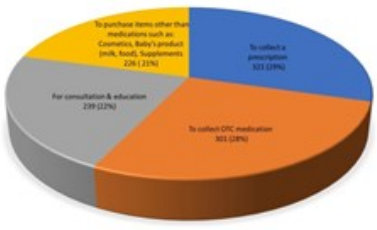

Fig. 1: Response rate of the participants towards the purpose of visiting community pharmacy.

Table 2, demonstrates participants' evaluation of the community pharmacy service. A relatively lower number of participants agreed about the availability of medicines at the pharmacy (204, 37.4%), the provided drug information about possible side effects, drug-drug interaction, and food-drug interaction (203, 37.2%) as well as the provided information about medication storage instructions (222, 40.7%). On the contrary, 336 (61.7%) of the participants mentioned that the instructions were clearly labeled by the pharmacist on each medication. Slightly more than half of the participants (305, 56%) and (316, 58%) revealed that the pharmacist always answers any inquiries and the time taken by the pharmacist till being served is appropriate, respectively. The participants described their usual pharmacist as trustworthy (19.3%), helpful (%18.9), experienced (17.8%), and confident (17.2), however, 27% of them reported that the pharmacist had all the mentioned attributes. Additionally, the majority of the participants (439, 80.6%) were satisfied with the non-paid services like blood pressure measurement, weighing & home delivery.

Table 2: Participants evaluation of the community pharmacy service.

Variable	Agree	Neutral	Disagree	95% CIs for agree responses
1. The time taken by the pharmacist till you being served is appropriate	316 (58%)	209 (38.3%)	20 (3.7%)	53.8 – 62.1
2. The pharmacist always answers any inquiries I have	305 (56%)	209 (38.3%)	31 (5.7%)	51.8 – 60.1
3. The medicines you need are always available at the pharmacy	204 (37.4%)	294 (53.9%)	47 (8.6%)	33.4 – 41.4
4. The instructions were clearly labelled by the pharmacist on each medication	336 (61.7%)	166 (30.5%)	43 (7.9%)	57.5 – 65.7
5. The pharmacist clearly explains to you all possible side effects, drug-drug interaction, and food-drug interaction	203 (37.2%)	212 (38.9%)	130 (23.9%)	33.2 – 41.3
6. The pharmacist provides you with information about the proper method of storage of your medication	222 (40.7%)	225 (41.3%)	98 (18%)	36.6 – 44.8
7. How do you rate your usual pharmacist?				
Experienced	97 (17.8%)			
Trustworthy	105 (19.3%)			
Confident	94 (17.2%)			
Helpful	103 (18.9%)			
All the above	146 (26.8%)			
8. Are you satisfied with non-paid services like blood pressure measurement, weighing & home delivery?	Yes		No	
	439 (80.6%)		106 (19.4%)	

Participants evaluation of the education service provided by the community pharmacist:

When the participants were surveyed about the educational information given by the pharmacist, 62.58-68.93% of the participants agreed that they had advice about vitamins, medications used for flu and colds, and healthy food. 57.33 and 52.35 % of the participants indicated that they were advised about skin & hair care products as well as hypertension by the community pharmacist. Alternatively, less than half of the participants (40.45 - 48.58%) mentioned that they had advice about oral contraceptives, smoking cessation, and diabetes. Nearly 65% of the participants were satisfied with the provided education in community pharmacies and the privacy of discussions (Table 3).

Table 3: Participants' evaluation of the education service provided by the community pharmacist.

Variable	% Agree responses (Mean ± SD)	P-value
1. Have you ever been given an advice about any of the following by the pharmacist?		0.001
• Smoking cessation	46.12 (7.39)	
• Healthy food	62.58 (15.16)	
• Hypertension	52.35 (12.63)	
• Diabetes	48.58 (9.38)	
• Oral contraceptives	40.45 (7.48)*	
• Medications used in flu and cold	63.95 (7.51)*	
• Vitamins	68.93 (15.4)*	
• Skin & hair care products	57.33 (14.92)	
2. Are you satisfied with privacy for discussions?	65.883 (10.18)	

3. The education service delivered by the pharmacist was satisfactory	65.003 (6.47)	

* P < 0.05 is significant

Effect of participants' demographics on the mean % agree responses about the community pharmacy service:

Statistical analysis for the effect of different participants' demographics on the mean % agree responses about the community pharmacy service was illustrated in Table 4. There was a significant difference in % evaluation of the community pharmacy service among participants of different ages (P = 0.007), those with chronic conditions (P = 0.039), and those from different governorates (P=0.009). Other demographic variables had no significant (P>0.05) effect on % service evaluation.

3. Discussion:

Since medicines in Egypt are irrationally used by patients and the community pharmacist is the closest and most accessible healthcare professional, it is becoming mandatory that his role should be expanded to better serve the patients and improve healthcare outcomes and the quality of life of patients [4]. Therefore, studying patient satisfaction and needs assessment for new services is crucial to improving the quality of current services.

The present study was conducted to determine some aspects of patient satisfaction with different pharmaceutical services provided by the community pharmacist.

The results revealed that the participants visited different types of pharmacies either chain, independent, or both which might be due to medication availability, pharmacy location, availability of well-experienced pharmacists, and quality of care [14, 15].

Considering the participant's evaluation of the community pharmacy service, it was noticeable that the participants moderately agreed (53.8 – 62.1%) about the appropriateness of time taken by the pharmacist for serving patients which may indirectly contribute to the overall patient's satisfaction with the community services regardless the rational pharmaceutical care delivery [13]. Chowdhury et al. stated that patient satisfaction is significantly influenced by the availability of medicines and short waiting times [16].

Table 4: Effect of participants' demographics on the mean % agree responses about the community pharmacy service.

Participants demographics	**% Agree responses (Mean ± SD)**	**P-value**
Age:		P=0.007
20-24	58.4 (17.23)	
25-34	46.33 (8.94)	
35-44	41.73 (11.72)	
45-54	36.3 (3.46)*	
55-64	37.33 (8.64)*	
> 65	55.57 (13.6)*	
Gender:		P = 0.347
Male	44.28 (8.79)	
Female	50.45 (12.51)	
Professional background:		P = 0.355
Medical	51.23 (12.41)	
Non- medical	44.96 (9.83)	
Educational level:		P = 0.133
Postgraduate degree	57.35 (15.98)	
Undergraduate degree	47.83 (16.04)	
High school	39.46 (16.45)	
Others	64.8 (24.79)*	
Presence of chronic illness:		P = 0.039
Yes	46.4 (3.6)	
No	52.2 (13.6)	
Pharmacy type:		P = 0.125
Chain pharmacy	70.98 (24.8)	
Independent pharmacy	51.88 (30.19)	
Both	35.33 (29.45)	
Governorate:		P = 0.009
Cairo	44.8 (8.88)*	
Giza	35.33 (15.26)*	
El-Sharqia	63.68 (18.96)	
Suhag	68.53 (4.56)	
El-Qliopia	64.5 (11.75)	

* P < 0.05 is significant

Although the patients % agreement about the pharmacist's capability of answering any inquiries and labeling instructions for use was 56%, they agreed to a lower extent (37.2 – 40.7%) with the pharmacist explaining side effects, drug interactions and storage conditions which was parallel to previous studies conducted in the United Arab Emirates [13], Pakistan [17] and Saudi Arabia [18] reporting that pharmacies offered the least informative services. A previous study reported poor communication and interaction between pharmacists and patients and recommended the development of training programs for the improvement of pharmacist communication skills [19].It was reported that patient satisfaction is linked with pharmacist involvement in patient care and communication [16, 17]. A study conducted by Abebe et al, in northwestern Ethiopia emphasized the necessity of enhancing the pharmacy service's medication counseling [18]. Similarly, Mahmoud and Mahmoud studied the quality of pharmaceutical services in Saudi hospitals and mentioned that pharmacist competency in explaining drug use instructions is a dominant factor for patient satisfaction [19]. Considering the pharmacist rating, only 17.8% of the participants described the community pharmacist as experienced and 26.8% of them described the community pharmacist as "Experienced", "Trustworthy", "Confident" and "Helpful". This finding may be due to the prevailing view in society that physicians are the most knowledgeable and skilled experts in the healthcare system [12, 20]. High patient satisfaction was recorded for the non-paid services like blood pressure measurement, weighing & home delivery which was similar to another study in Jordan [21] meanwhile higher than a study conducted in Pakistan [22].

Pharmacists have major roles in educating patients and providing them with information about the proper use of medications, management of chronic diseases, and

lifestyle modification. The present study revealed that the community pharmacists delivered different educational services with a high potential for vitamins and medications used for flu and cold and a low potential for oral contraceptives, smoking cessation, diabetes, and hypertension with an overall agreement % about the education service of not more than 65%. An Egyptian study conducted by Amin, 2016, reported that community pharmacists in Egypt need to extend their knowledge about reproductive health topics such as menstrual hygiene products, pregnancy tests, and oral contraceptives [23]. Additionally, Nazer and Tuffaha 2017 claimed that there is a strong relationship between patients with chronic illnesses and their physicians that not accept the assistance of pharmacists [24]. However, there is evidence that community pharmacists play a crucial role in the management of chronic diseases such as hypertension, diabetes, cholesterol control, weight management, asthma, cardiovascular disease, and osteoporosis [25]. The findings of a published systematic review evaluating the public attitudes toward community pharmacies in Arabic-speaking countries indicated that the public had a low perception level of advanced pharmaceutical services that can be offered by community pharmacists [26]. However, increasing community pharmacists' ability to assist patients with chronic conditions like diabetes through developing management programs would necessitate bolstering their knowledge [27, 28] It is noteworthy that there are many success reports describing the effective counseling provided by pharmacists for managing different conditions including a healthy diet, behavior modification in cardiac rehabilitation units, smoking cessation as well as self-isolated COVID-19 patients in rural areas [29, 30]. Not more than 65% of the participants were satisfied with the privacy for discussions which was consistent with a Saudi Arabian study that reported inadequate space in pharmacies and the lack of a private consulting area may be a barrier against seeking advice from community pharmacies [31]. It was reported that patient-centered care communication as well as the effectiveness of the consultation process are key factors for developing strong and appropriate rapport with patients [32]. However, our finding was greater than that of another study in UAE where only 38.4% of the respondents were satisfied with the privacy of the counseling place [13] reflecting the politeness of Egyptian patients to allow others to have private discussions with the pharmacist and their belief to have the same chance during their turn. Moreover, community pharmacies recently started developing hotline services to answer patients health related questions to overcome the unavailability of private consultation areas in community pharmacy settings.

Results revealed that participants' age had a significant (P =0.007) association with their % agree responses i.e. participants of low age (20–24 years) showed higher agreement % of 58.4 ±17.23% while those of middle age (45-54 years) showed lower agreement% of 36.3 ± 3.46%. This result might be ascribed to a higher contributing number of lower-age participants as well as higher expectations of pharmaceutical care quality perceived by the middle-aged participants due to the emergence of chronic diseases and so more discussions about chronic medications are required. Similar results were reported by Aniza et al., 2020 [33]. This result was supported by our finding regarding the evaluation of % agree response based on the presence of chronic diseases where there was a lower agreement % among participants with chronic diseases. Similarly, Naser and Abu Sbeat claimed that satisfaction scores were significantly dependent on age and the presence of a history of chronic diseases [21]. On the contrary, the professional background and educational level of the participants had no association with their level of agreement responses which was comparable with previous studies [13, 20]. Our study revealed that gender and pharmacy type were not associated with % agreement of participants which were supported by other studies in Ethiopia [18] and Saudi Arabia [11], respectively. Participants from different governorates showed significantly different agreement % whereas those from Cairo and Giza showed relatively less agreement than those from Suhag, El-Sharqia, and El-Qliopia. This result could be explained according to Youssef and Amin, 2023, who reported that Egyptian community pharmacists working in low-income areas constitute the key sources of information where they diagnose illnesses, counsel patients on lifestyle modifications, and help patients with different health-related problems [34].

4. Conclusion:

Patients expressed a variable level of satisfaction towards different pharmacy services. Special attention should be given to patients aged between 44 - 64 years old especially those with chronic diseases. The results highlight the importance of establishing continuing self-development programs to enhance community pharmacists' capabilities in different areas including patient-oriented communication, chronic conditions including diabetes and hypertension, oral contraceptives, smoking cessation, drug-drug/ drug-food interactions as well as special drug storage conditions. Additionally, the findings emphasize the value of creating a private place suitable for patients' counseling and education.

Limitations of the study:

The study suffers from the following limitations: 1) This work was a cross-sectional study over a short duration of time with a limited number of governorates and the data were collected using convenience sampling, 2) the participants' distribution's bias in favor of younger age groups as well as the participants' educational level was biased towards the bachelor degree. Nonetheless, the study provided insights regarding areas to take into account when developing community pharmacy services. Future work is recommended to involve representatives of populations visiting community pharmacies in most Egyptian governorates.

Ethical approval:

This study was approved by the Research Ethics Committee at Heliopolis University, Human Research Division, Cairo, Egypt (HU.REC. H.7-2022). The study considered good clinical practice guidelines and the ethical principles laid down in the current revision of the Declaration of Helsinki (2013). An informative study description was added at the beginning of the anonymous online questionnaire and the participants could not go

through the questionnaire until they confirmed their approval for participation in the study.

Disclosure Of Conflict Of Interest

The authors declare no personal or financial conflict of interest.

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Data Availability Statement

The authors confirm that all relevant data are included in the article.

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