

Original Research

Assessing Community Pharmacy Services: Patient Satisfaction, Service Delivery, and Regulatory Deficiencies

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Abstract

Objectives:The purpose of this study was to determine the needs of patients and the current regulations of community pharmacies in Iraq, as there is a lack of evidence on specific fields of improvement in community pharmacy services in the country.**Method:** A cross-sectional study was conducted between February and March 2023 using a pilot-tested questionnaire to collect data from 1,942 patients with a Likert scale and one-way ANOVA analysis.**Key Findings:**The response rate was 98.37%, with most respondents being young adults and adults (44.2%), female (94.4%), and from Baghdad (71.3%). Approximately 87.5% confirmed the presence of a pharmacist in the pharmacy, while 13% reported the absence of one. Key findings included 43.1% of participants being unsatisfied with the parking facilities, 38.2% reporting satisfaction with the education of pharmacy staff, 46.2% receiving medications exactly as prescribed, and 45.1% expressing dissatisfaction with prices or discounts.**Conclusion:**The study concluded that there is low patient satisfaction with community pharmacy services in Iraq, attributed to incorrect regulations and poor implementation, requiring improved community pharmacy services, ongoing professional development for pharmacy staff, and increased involvement of authorities to enhance pharmacy care services.

Keywords:Patient Satisfaction; Community Pharmacy Services; Pharmacy Regulations; Pharmacy Staff Education; Medication Pricing.

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INTRODUCTION

Background

Patient satisfaction is a crucial measure that demonstrates the outcomes, services, and sustainability of various healthcare systems¹. It is widely acknowledged that patient satisfaction encompasses multiple dimensions, including the interpersonal aspects of care, the technical quality of care, accessibility, and financial considerations². Research indicates that patients who are satisfied with their healthcare experience are more inclined to continue utilizing healthcare services, establish and nurture relationships with healthcare providers, and adhere to medication regimens, ultimately resulting in improved health outcomes³⁻⁵. Patient satisfaction serves as a valuable measure of service quality and plays a crucial role in the ongoing monitoring and enhancement of healthcare delivery systems⁶.

Prominent institutions such as the U.S. Agency for Healthcare Research and Quality (AHRQ) and the Centers for Medicare and Medicaid Services (CMS) acknowledge the significance of patient satisfaction as a vital quality indicator in healthcare. In recognition of this importance, they have implemented the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey program. This program aims to systematically measure and assess patient experiences across diverse healthcare settings⁷.

CAHPS surveys focus on assessing critical aspects of patient experience, including communication with healthcare providers, understanding of medication instructions, and the coordination of care⁸. Producing comprehensive measures of patient experience that enable healthcare consumers to make informed decisions and healthcare organizations to identify strengths, weaknesses, and areas for improvement^{9,10}. While patient satisfaction studies have become increasingly prominent in affluent nations, there is also significant interest in evaluating community pharmacy services and patient experiences in developing countries, where patients' needs, perceptions, and levels of satisfaction may vary due to disparities in community pharmacy performance^{10,11}.

Patients in Saudi Arabia are satisfied when seeking advice from their pharmacists, despite potential concerns about privacy in the pharmacy setting, and this study found that 56.1% of pharmacists were more focused on the business side of their work⁸. In Australia, over three-quarters of patients believed pharmacists should provide guidance on proper medication usage, while Japanese patients sought more communication with pharmacists and convenient pharmacy hours¹². In the Punjab region of Pakistan, there is a noticeable disparity in patient satisfaction between community pharmacy services and hospital pharmacy services, primarily attributed to inadequate policies and ineffective implementation¹². In Iraq, 41% of consumers



Table 1. The socio-demographic and financial status of participants.

Characteristic	No.	Frequency (%)	P-value
Female	1850	94.40%	0.187
Male	115	5.90%	
Baghdad	1403	71.30%	0.098
Erbil	23	1.20%	
Duhok	13	0.70%	
Sulaymaniyah	9	0.50%	
Mosul	13	0.70%	
Salah Uddin	42	2.10%	
Kirkuk	23	1.70%	
Anbar	33	2.10%	
Diyala	59	3%	
Karbala	56	2.80%	
Basra	93	4.70%	
Diwaniya	23	1.20%	
Babylon	48	2.40%	
Muthanna	15	0.80%	
Wasit	44	2.20%	
Najaf	36	1.80%	
Meyssan	7	0.40%	
Thi-qar	35	1.80%	
Under 18	22	1.10%	0.028
18-25	865	44.20%	
26-30	608	31%	
31-35	326	16.60%	
36-40	97	5%	
41-45	31	1.60%	
46-50	7	0.40%	
51 or above	11	0.60%	
Uneducated	1	0.10%	0.0807
Primary	12	0.60%	
Matriculation	77	3.90%	
Intermediate	226	11.50%	
Diploma	134	6.80%	
Bachelor	1391	70.90%	
Master	127	6.50%	
PhD	23	1.20%	
Single	959	49%	<0.001
Married	1000	51.10%	

Unemployed	428	22.70%	0.0014
Self-employment	192	10.20%	
Government employee	522	27.70%	
Private Sector Employee	296	15.70%	
Housewife	473	25.10%	
Retired	2	0.10%	
Governmental	308	16%	0.105
Nongovernmental	125	6.50%	
No insurance	1515	78.50%	
Monthly income in IQD			
0-500,000	809	44.80%	0.017
500,000-1,000,000	579	32.10%	
1,000,000-1,500,000	236	13.10%	
1,500,000-2,000,000	93	5.20%	
2,500,000 or above	98	5.40%	
Presence of pharmacist			
YES	1707	87.50%	0.155
NO	253	13%	

Table 2.Patients' satisfaction with the pharmacy, location, and staff

Measures	Not satisfied	Fairly satisfied	Satisfied
Location of pharmacy is suitable for you?	37 (1.9%)	692 (35.5%)	754 (38.6%)
Do you feel the comfort and convenience at the waiting area of Pharmacy?	233 (11.9%)	824 (42.0%)	744 (37.9%)
Are you satisfied with cleanliness and hygienic condition of pharmacy shop?	222 (11.3%)	714 (36.4%)	708 (36.1%)
Do you feel good about the look of the pharmacy?	143 (7.3%)	759 (38.6%)	770 (39.2%)
Are you satisfied with the time of consultation given by a pharmacist in the pharmacy?	172 (8.8%)	605 (30.9%)	783 (40.0%)
Are you satisfied to parking facility provided by pharmacy?	841 (43.1%)	635 (32.5%)	347 (17.8%)
Are you satisfied by operational hours of pharmacy?	201 (10.4%)	643 (33.1%)	782 (40.3%)
Are you satisfied to pharmacy operational hours at weekends and public holidays or festivals?	312 (16.0%)	653 (33.5%)	704 (36.2%)
Do you think staff is well educated?	251 (12.8%)	731 (37.4%)	747 (38.2%)
Are you satisfied with the staff attitude?	122 (6.3%)	556 (28.6%)	878 (45.1%)
Are you satisfied with the age of pharmacy staff?	105 (5.4%)	528 (27.0%)	928 (47.5%)
Are you satisfied that the number of staff is adequate to pharmacy operational requirements?	175 (9.0%)	605 (31.1%)	855 (43.9%)

reported that the community pharmacist, rather than other healthcare providers, is their primary source for medication-related advice, including for medical devices¹⁰.

Objectives

The transformations within the healthcare system of Iraq have had a far-reaching impact, extending to various facets such as pharmacy services, the responsibilities of pharmacists, and the expectations and behaviors of patients¹³. By undertaking this research, we aim to gain a valuable understanding of how the population perceives, views, and assesses the performance of pharmacists as healthcare providers in community pharmacy settings across 18 provinces in Iraq that have undergone these changes in the healthcare system.

METHODS

This study was conducted in all provinces of Iraq. According to the most recent statistics from the “We are social” and “Kepios” institutions, Iraq has a population of 45,504,560 people, over 28,000,000 of whom are active users on social networks. This suggests that social media usage is highly prevalent in Iraq, which can be attributed to the widespread use of smartphones and reasonably priced internet plans. Social media networks have become a common means of contact, information sharing, and entertainment among the Iraqi people, which eliminates the need to select random community pharmacies for collecting data from patients.

The advantages of using the social networking platform rather than using health care facilities: less time-consuming, decreasing the error, patient privacy, covering the entire nation, high number of participants, and easily collecting the data.

Questionnaire

The content of this article is derived from a survey conducted to assess patients’ perspectives, opinions, and satisfaction regarding the responsibilities of pharmacists in community pharmacy services. The survey questionnaire was developed based on the theoretical frameworks of Linder-Pelz’s expectancy theory and Fox’s discrepancy theory of patient satisfaction^{14,15}. To create the questionnaire, the researchers conducted a thorough literature review between February and March 2023. Existing studies and literature were consulted to formulate an initial set of questions. The questionnaire comprises 35 questions that focus on patients’ beliefs and satisfaction with the role of pharmacists in contemporary community pharmacy practice^{9,11-13,16-19}.

The survey was first written in English before being converted into Arabic language. Accurate translation both forward and backward was also guaranteed. Three language specialists evaluated the translation’s precision, and inter-rater reliability was used to determine a suitable version. A cognitive interview technique with 15 randomly selected patients was used to

evaluate the instrument’s further validity^{20,21}. A few queries that were discovered to be redundant or difficult to understand were revoked or modified. A questionnaire of 21 items was finalized. More than 80% of respondents to the cognitive interviews evaluated each item as pertinent, understood, suitable, not challenging, and properly interpreted²². The questionnaire contained 21-item questions selected to assess patients’ satisfaction and perspective about pharmacists’ role in the health-care System.

The final 21-item questionnaire comprised three domains: (1) Premises and Staff (12 items assessing pharmacy location, waiting area, cleanliness, hygiene, appearance, consultation time, parking facilities, operational hours, weekend/holiday hours, staff education, staff attitude, staff age, and adequacy of staff numbers); (2) Medicines (4 items evaluating medication dispensing accuracy, appropriate and safe storage of medicines, medicine prices and discounts, and medicine quality); and (3) Dispensing and Counselling Practices (5 items assessing pharmacist/staff consultation and cooperation with physicians, medication instruction readability, waiting time, pharmacist counselling attitude, and pharmacist counselling knowledge).

Scoring System: Each item was measured using a 3-point scale with response options: (1) Not Satisfied/Unsatisfied, (2) Fairly Satisfied, and (3) Satisfied. Patient satisfaction was assessed through frequency analysis and percentages for each response category across all the 21 items.

Pilot Study

To maximize the reliability and internal consistency of the tool, a pilot study was conducted with 25 patients^{23,24}. Cronbach’s alpha coefficients were calculated, with values of 0.71, 0.83, 0.75, and 0.72 for the four major domains: premises and staff, medicines, dispensing and counselling practices, and additional non-paid services, respectively. The questionnaire demonstrated a satisfactory level of reliability and internal consistency, as indicated by an overall Cronbach’s alpha coefficient of 0.76. However, it’s important to note that the data gathered during the pilot research phase was not included in the final study results. In addition, to establish validity, item development was guided by Linder-Pelz’s expectancy theory and Fox’s discrepancy theory, supplemented with items adapted from previously validated tools. Three language and subject-matter experts critically reviewed all items for clarity, relevance, representativeness, and cultural appropriateness, resulting in modifications or removal of ambiguous or redundant items and supporting content validity. Cognitive interviews with 15 patients from the target population were then conducted to examine item comprehension, relevance, and interpretation. Over 80% of participants reported that all items were understandable, meaningful, and culturally appropriate, providing evidence of face and content validity. Furthermore, the final 21-item structure aligned with three theoretically expected domains (Premises & Staff, Medicines, and Dispensing & Counselling Practices), thereby supporting construct validity. Together, these procedures confirm that the



Table 3. Patients' satisfaction with the medicine handling.

Measures	Unsatisfied	Fairly satisfied	Satisfied
Are you satisfied that you receive the medications from the pharmacy exactly according to the prescription or need?	111 (5.7%)	569 (29.4%)	894 (46.2%)
Are you satisfied with appropriate and safe storage of medicines in pharmacy shop or its warehouse?	241 (12.5%)	648 (33.5%)	777 (40.2%)
Are you satisfied with prices or discounts on medicines or health appliances you need?	875 (45.1%)	688 (35.4%)	297 (15.3%)
Are you satisfied with the quality of medicines?	234 (12.1%)	671 (34.6%)	767 (39.6%)

Table 4. Patients' satisfaction with the dispensing and counseling practices.

Measures	Unsatisfied	Fairly satisfied	Satisfied
Are you satisfied that the pharmacist/staff consult and cooperate with the physician for the correct dispensing of medicines to you?	409 (21.1%)	622 (32.1%)	637 (32.9%)
Are you satisfied that instructions on your medications are easily readable?	360 (18.6%)	709 (36.5%)	626 (32.3%)
Do you afford the waiting time?	328 (16.9%)	893 (46.0%)	623 (32.1%)
Are you satisfied with attitude of the counseling person?	86 (4.4%)	596 (30.8%)	875 (45.2%)
Are you satisfied with knowledge of the counseling person?	116 (6.0%)	672 (34.7%)	844 (43.5%)

instrument possesses strong validity and reliable performance for assessing patient satisfaction with community pharmacy services.

Data Analysis

Statistical Package for Social Sciences (SPSS) version 17.0 for Windows was used to code the questionnaire, verify its accuracy, and conduct the analysis (SPSS Inc., Chicago, Illinois). Frequencies of discrete variables, co-descriptor frequencies, and a cross-tabulation of the variables were all included in the analysis.

Data Collection Process

Data was collected for this cross-sectional study between March 31 and April 7 utilizing a Google Form (a data collection tool developed by Google). After confirming their assent and completing the consent form, the study's objective was described, and they were encouraged to complete the questionnaire. A survey link was made and posted on the social media platforms after the Google Form survey setup. This strategy, which is also less time-consuming, was utilized to do away with the requirement of selecting certain pharmacies to

collect the data.

RESULTS

When 1974 patients were contacted, 1942 of them responded to our questionnaire, yielding a response rate of about 98.37%, according to Table 1, which shows the socio-demographic and financial status of participants.

Study Characteristics

Most of the respondents are young adults and adults; about 44.2% of the respondents, or the majority, were between the ages of 18 and 25, compared to 0.6% of the respondents who were over the age of 51. Female respondents are 94.4%, while male respondents are only 5.9%. Additionally, the greater number of participants are from Baghdad 71.3% compared to other cities of Iraq, which showed low rates of participating such as Meyssan 0.4% and Sulaymaniyah 0.5%. Many 70.9% participants had a bachelor's degree in their formal education. In marital status revealed no significant difference between married 51.1% and unmarried 49% participants. A large proportion of participants, 44.8%, earned about 0-500,000 IQD monthly. Approximately 27.7%

are Government employees, and a high rate of 78.5% have no health insurance.

Satisfaction of participants about pharmacy appearance

The study surveyed participants to determine their satisfaction with various aspects of a pharmacy, including the presence of a pharmacist, the location of the pharmacy, the waiting area, hygiene, and overall appearance. As per Table 1, the participants surveyed, 87.5% confirmed the presence of a pharmacist in the pharmacy, while 13% reported the absence of one. Additionally, 38.6% of participants expressed high satisfaction with the pharmacy's location, while 42% reported satisfaction with the waiting area. The hygienic state of the pharmacy was deemed satisfactory by 36.4% of participants, and 39.2% expressed satisfaction with the pharmacy's overall as shown in Table 2. These findings provide insight into the importance of having a pharmacist present in the pharmacy and the impact of location, waiting area, hygiene, and appearance on customer satisfaction. 43.1% of participants reported being unsatisfied with the parking facilities at their local pharmacy as per Table 2. This finding highlights the potential impact that parking-related issues can have on customer satisfaction within the pharmacy industry. With almost half of the surveyed customers expressing dissatisfaction in this area, providing adequate parking facilities is a crucial factor in attracting and retaining customers.

Work Time in Pharmacy

40% of pharmacists expressed satisfaction with the working time of their pharmacy, indicating that they are content with the hours they are required to work, as shown in Table 2. Additionally, 36.2% of pharmacists reported satisfaction with the working time during weekends and holidays, which suggests that the availability of pharmacy services during non-traditional hours may be important for some pharmacists.

Pharmacy Staff

As shown in Table 2, 38.2% of participants reported satisfaction with the education of pharmacy staff, while only 12.8% expressed dissatisfaction. 45.1% of participants expressed satisfaction with the attitude of the pharmacy staff, highlighting the importance of customer service in the pharmacy industry. 47.8% of participants expressed satisfaction with the age of the pharmacist at their local pharmacy, while 43.9% reported satisfaction with the number of pharmacists available. Additionally, 43.5% of participants were satisfied with the knowledge possessed by the pharmacist. These findings suggest that customers value the experience and expertise of pharmacy staff and appreciate having access to knowledgeable professionals.

Medicines

The study findings suggest room for improvement in various aspects of community pharmacy services. As per Table 3, less than half (46.2%) of participants reported receiving their medications exactly as prescribed or needed. Moreover, only 40.2% were satisfied with the proper and secure storage of medicines at the pharmacy, while just 39.6% expressed contentment with the quality of the medications. Furthermore, a mere 33% felt the pharmacist or staff adequately consulted and collaborated with prescribers to correctly dispense their prescriptions. Additionally, only 36.5% were satisfied that medication instructions were easily readable, and 36% were content with the availability of medicines or medical devices. However, a significant 45.1% expressed dissatisfaction with the pricing or discounts on the pharmaceuticals or appliances they required.

A recent study revealed some concerning findings regarding the pharmacy experience for participants. Only a minority, specifically 46.2%, reported receiving medications that precisely matched their prescriptions or requirements. Satisfaction levels were also relatively low, with only 40.2% of respondents expressing contentment regarding the appropriate and secure storage of medicines in the pharmacy shop or warehouse. Similarly, 39.6% of participants reported satisfaction with the quality of the medications they received.

When it came to the interaction between pharmacists or staff and physicians, only 33% of survey participants felt satisfied with the level of consultation and cooperation. Furthermore, only 36.5% of respondents were content with the readability of medication instructions, and a similar percentage (36%) expressed satisfaction with the availability of medicines and healthcare devices.

However, as shown in Table 2, a significant portion of participants, specifically 45.1%, expressed dissatisfaction with the prices or discounts offered for the medicines and health appliances they required. These findings highlight the need for improvement in various aspects of the pharmacy experience to ensure better adherence to prescriptions, enhanced satisfaction, and more affordable options for patients.

Patients' satisfaction with the pharmacy, location, and staff

Patient satisfaction with the pharmacy, location, and staff as shown in Table 4 revealed that patients are satisfied 32.9% (637) regarding pharmacist-physician collaboration, while 32.1% (622) were fairly satisfied, and 21.1% (409) expressed dissatisfaction. For the readability of medication instructions, 32.3% (626) of patients were satisfied, 36.5% (709) were fairly satisfied, and 18.6% (360) were unsatisfied. Regarding affordability of waiting times, 32.1% (623) of patients were satisfied, while 46.0% (893) were fairly satisfied, and 16.9% (328) were dissatisfied. The attitude of the counselling staff received 45.2% (875) satisfaction, with 30.8% (596) being fairly satisfied and only 4.4% (86) expressing dissatisfaction. Similarly, the knowledge of the counselling staff by 43.5% (844) of patients satisfied, while 34.7% (672) were fairly satisfied and 6.0% (116) were unsatisfied.

DISCUSSION

The present study intended to measure patient satisfaction with community pharmacies in Iraq. To the more of our knowledge, no study has been conducted in Iraq in this regard. According to the study's findings, overall satisfaction was low (18.15%), lower than Portugal's (39%), but far lower than Spain's (76%) (26,27). Disparities in satisfaction levels between nations appeared to reflect variations in the quality of services provided, potentially due to gaps in facilitating and monitoring systems^{9,25-27}. For instance, participants' satisfaction with community pharmacy services in Iraq was lower compared to their satisfaction with hospital pharmacy services in Karachi, Pakistan (59.7%) and Islamabad, Pakistan (65%)^{28,29}. One plausible explanation for the relatively low satisfaction levels could be the age profile of the participants, with 92.9% being under 36 years old^{30,31}. Previous research has indicated that patient age can be a factor influencing satisfaction with healthcare services^{30,31}. The low patient satisfaction observed in this study can be attributed to several key factors such as inadequate pharmacy regulations and their poor implementation, which fail to ensure consistent quality standards across community pharmacies in Iraq; also, insufficient number of qualified pharmacists in many pharmacies, limiting patient access to professional pharmaceutical services; moreover, high medication prices and lack of transparent discount policies, creating financial barriers to medication access; furthermore, deficiencies in staff training and professional development, resulting in inadequate patient counselling and education; and finally, poor pharmacy infrastructure, including inadequate parking facilities and suboptimal hygiene standards.

Prior research has suggested that elderly patients tend to express higher levels of satisfaction with healthcare services^{32,33}. In contrast, the current study found that only 46% of participants were reasonably satisfied with the waiting time, while 38.1% of pharmacy customers in Punjab, Pakistan, reported being completely dissatisfied¹². Additionally, unlike most Nigerian customers, most participants in this study were dissatisfied with the community pharmacy's parking facilities¹⁷. The most critical factor in providing better services appears to be the pharmacy staff, as many patients or customers were satisfied with the attitude of the staff, like Spanish patients³⁴. However, participants expressed a more limited degree of satisfaction regarding the age of the pharmacy staff²⁵.

Many customers expressed dissatisfaction with the qualifications of the pharmacy staff and the knowledge of the counselors^{16,17,30}. However, participants were relatively satisfied with the counseling services overall. Interestingly, views on community pharmacy counseling services were similar across Iraq (40%), the Netherlands (42.0%), and South Korea (42.0%)^{35,36}. Optimal counseling has been shown to improve patient medication adherence^{16,37}. Yet, like Saudi Arabian patients, nearly half of the participants in this study reported that important medication instructions and warnings were not adequately communicated¹¹. Therefore, enhancing

the knowledge and competence of the counseling personnel, as well as the overall quality of counseling services, appears necessary to better meet patients' needs^{16,17,30}. This study suggests that medication information provided to patients should be made clearer and more standardized^{11,16,17,30,35-37}.

Mentioning the prices problem, 45.1% of participants in Iraq declared that medicines prices are expensive and there are no price discounts. However, in Punjab, Pakistan, 46.5% were satisfied with the price and price discounts of medicines in pharmacies. Community pharmacies are ideally situated to raise awareness of health issues by disseminating details about active health initiatives like camps and campaigns¹⁹. However, this study found that pharmacies offered the least informative services, which was in line with Saudi Arabia's findings¹¹. As a result, community pharmacies performed well overall. The fundamental structure and operation of community pharmacy services need numerous upgrades and alterations. By putting in place the necessary rules and promoting pharmacy staff training, the Ministry of Health, officials, and authorities can improve pharmacy care services.

There are some limitations to this study. One of them is the use of social media sampling, as the study population may not be representative of all pharmacy users in Iraq, particularly those with limited social media access or digital literacy. Also, the sample shows a notable overrepresentation of females and young adults, which may not reflect the general population's demographics and could limit the generalizability of the findings. moreover, the lack of random sampling and reliance on convenience sampling through social media platforms further compromises the representativeness of the sample. Fourth, potential recall bias may have influenced responses, as participants were asked to reflect on their pharmacy experiences without a specified timeframe. furthermore, the self-reported nature of the data may be subject to social desirability bias, where respondents provide answers, they believe are socially acceptable rather than their true experiences. Finally, because this study only included community pharmacists in Iraq, the results may differ compared to other regions or countries with different settings. As a result, additional validation is required through research in other locations

CONCLUSIONS

Low patient satisfaction with community pharmacy services in Iraq was found in the current study. Due to incorrect regulations and poor implementation, this research demonstrated that community pharmacy services are generally inferior to those provided at hospitals. The involvement of the youth may be responsible for the low degree of satisfaction. Improved community pharmacy services are required. Programs of ongoing professional development for pharmacy staff are also required. Authorities should also concentrate on and contribute to the improvement of pharmacy care services.

AUTHOR CONTRIBUTIONS



Conceptualization, I.M.A., M.A and M.A.A.; formal analysis, I.M.A, M.A.A, M.A. and K.M.A.; investigation, M.A., M.A.A, and K.M.A.; methodology, M.A., M.A.A., and K.M.A; supervision, I.M.A., M.A; original draft writing, M.A. and K.M.A; writing–review & editing, I.M.A, M.A.A, M.A. and K.M.A.; Data curation, M.A. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

1. Johnson J, Coons S, Hays R, Sabersm Darrel, Jones P, Langley P. A comparison of satisfaction with mail versus traditional pharmacy services. *Journal of Managed Care Pharmacy*. 1997;3(3):327-337.
2. Ware JE, Snyder MK, Wright WR, Davies AR. Defining and measuring patient satisfaction with medical care. *Eval Program Plann*. 1983;6(3-4):247-263. doi:10.1016/0149-7189(83)90005-8
3. Locker D, Dunt D. Theoretical and methodological issues in sociological studies of consumer satisfaction with medical care. *Soc Sci Med*. 1978;12(4A):283-292.
4. Schommer JC, Kucukarslan SN. Measuring patient satisfaction with pharmaceutical services. *Am J Health Syst Pharm*. 1997;54(23):2721-2732; quiz 2741-2743.
5. Ford RC, Bach SA, Fottler MD. Methods of measuring patient satisfaction in health care organizations. *Health Care Manage Rev*. 1997;22(2):74-89.
6. Bawazir SA. Consumer attitudes towards community pharmacy services in Saudi Arabia. *International Journal of Pharmacy Practice*. 2010;12(2):83-89. doi:10.1211/0022357023718
7. Centers for Medicare and Medicaid Services. HCAHPS: Patients' Perspectives of 331 Care Survey. <https://www.cms.gov/data-research/research/consumer-assessment-healthcare-providers-systems/hospital-cahps-hcahps>
8. Al-Arifi MN. Patients' perception, views and satisfaction with pharmacists' role as health care provider in community pharmacy setting at Riyadh, Saudi Arabia. *Saudi Pharmaceutical Journal*. 2012;20(4):323-330. doi:10.1016/j.jsps.2012.05.007
9. Hasan S, Suliman H, Stewart K, Chapman CB, Hasan MY, Kong DCM. Assessing patient satisfaction with community pharmacy in the UAE using a newly-validated tool. *Research in Social and Administrative Pharmacy*. 2013;9(6):841-850. doi:10.1016/j.sapharm.2012.10.002
10. Basheti IA, Qunaibi EA, Hamadi SA, et al. Patient Perspectives of the Role of the Community Pharmacist in the Middle East: Jordan, United Arab Emirates and Iraq. *Pharmacology & Pharmacy*. 2014;05(06):588-599. doi:10.4236/pp.2014.56069
11. KB F, SB S, M S, D S. How satisfied are your patients? *Can Pharm J*. 2000;133(8):32-36.
12. Aziz MM, Ji W, Masood I, et al. Patient Satisfaction with Community Pharmacies Services: A Cross-Sectional Survey from Punjab; Pakistan. *Int J Environ Res Public Health*. 2018;15(12):2914. doi:10.3390/ijerph15122914
13. Volmer D, Bell JS, Janno R, Raal A, Hamilton DD, Airaksinen MS. Change in public satisfaction with community pharmacy services in Tartu, Estonia, between 1993 and 2005. *Research in Social and Administrative Pharmacy*. 2009;5(4):337-346. doi:10.1016/j.sapharm.2008.12.001
14. Linder-Pelz S. Toward a theory of patient satisfaction. *Soc Sci Med*. 1982;16(5):577-582. doi:10.1016/0277-9536(82)90311-2
15. Fox JG, Storms DM. A different approach to sociodemographic predictors of satisfaction with health care. *Social Science & Medicine Part A: Medical Psychology & Medical Sociology*. 1981;15(5):557-564. doi:10.1016/0271-7123(81)90079-1
16. Naik Panvelkar P, Saini B, Armour C. Measurement of patient satisfaction with community pharmacy services: a review. *Pharmacy World & Science*. 2009;31(5):525-537. doi:10.1007/s11096-009-9311-2
17. Oparah A, Arigbe-Osula E. Evaluation of Community Pharmacists' Involvement in Primary Health Care. *Tropical Journal of Pharmaceutical Research*. 2002;1(2):67. doi:10.4314/tjpr.v1i2.14586
18. Hepler CD, Strand LM. Opportunities and responsibilities in pharmaceutical care. *Am J Hosp Pharm*. 1990;47(3):533-543.
19. World Health Organization. The Role of the Pharmacist in the Health Care System. *Essential Medicine and Health Products Information Portal*. Published online 1994.
20. Knaf K, Deatrick J, Gallo A, et al. The analysis and interpretation of cognitive interviews for instrument development. *Res Nurs Health*. 2007;30(2):224-234. doi:10.1002/nur.20195
21. Hamilton CB, Hoens AM, McQuitty S, et al. Development and pre-testing of the Patient Engagement In Research Scale (PEIRS) to assess the quality of engagement from a patient perspective. *PLoS One*. 2018;13(11):e0206588. doi:10.1371/journal.pone.0206588
22. Lam CL, Yuen NY, Mercer SW, Wong W. A pilot study on the validity and reliability of the Patient Enablement Instrument (PEI) in a Chinese population. *Fam Pract*. 2010;27(4):395-403. doi:10.1093/fampra/cmq021
23. Ye D, Chang J, Yang C, et al. How does the general public view antibiotic use in China? Result from a cross-sectional survey. *Int J Clin Pharm*. 2017;39(4):927-934. doi:10.1007/s11096-017-0472-0
24. Viechtbauer W, Smits L, Kotz D, et al. A simple formula for the calculation of sample size in pilot studies. *J Clin Epidemiol*.



- 2015;68(11):1375-1379. doi:10.1016/j.jclinepi.2015.04.014
25. Malewski DF, Ream A, Gaither CA. Patient satisfaction with community pharmacy: Comparing urban and suburban chain-pharmacy populations. *Research in Social and Administrative Pharmacy*. 2015;11(1):121-128. doi:10.1016/j.sapharm.2014.05.001
26. Márquez-Peiró JF, Pérez-Peiró C. [Evaluation of patient satisfaction in outpatient pharmacy]. *Farm Hosp*. 2008;32(2):71-76.
27. Surur AS, Teni FS, Girmay G, Moges E, Tesfa M, Abraha M. Satisfaction of clients with the services of an outpatient pharmacy at a university hospital in northwestern Ethiopia: a cross-sectional study. *BMC Health Serv Res*. 2015;15(1):229. doi:10.1186/s12913-015-0900-6
28. Raheem A, Nawaz A, Fouzia N, Imamuddin K. Patients' Satisfaction and Quality Health Services: An Investigation from Private Hospitals of Karachi, Pakistan. *Res J Recent Sci*. 2014;3(7):34-38.
29. Javed A, Sirisok V. Patient Satisfaction towards out Patient Department Services in Pakistan Institute of Medical Sciences. 2005.
30. Chumbler NR, Otani K, Desai SP, Herrmann PA, Kurz RS. Hospitalized Older Adults' Patient Satisfaction. *Sage Open*. 2016;6(2). doi:10.1177/2158244016645639
31. DeVoe JE, Wallace LS, Fryer GE. Patient age influences perceptions about health care communication. *Fam Med*. 2009;41(2):126-133.
32. Jaipaul CK, Rosenthal GE. Are older patients more satisfied with hospital care than younger patients? *J Gen Intern Med*. 2003;18(1):23-30. doi:10.1046/j.1525-1497.2003.20114.x
33. Peck BM. Age-Related Differences in Doctor-Patient Interaction and Patient Satisfaction. *Curr Gerontol Geriatr Res*. 2011;2011:1-10. doi:10.1155/2011/137492
34. Traverso ML, Salamano M, Botta C, Colautti M, Palchik V, Pérez B. Questionnaire to assess patient satisfaction with pharmaceutical care in Spanish language. *International Journal for Quality in Health Care*. 2007;19(4):217-224. doi:10.1093/intqhc/mzm014
35. Yang S, Kim D, Choi HJ, Chang MJ. A comparison of patients' and pharmacists' satisfaction with medication counseling provided by community pharmacies: a cross-sectional survey. *BMC Health Serv Res*. 2016;16(1):131. doi:10.1186/s12913-016-1374-x
36. van Geffen ECG, Philbert D, van Boheemen C, van Dijk L, Bos MB, Bouvy ML. Patients' satisfaction with information and experiences with counseling on cardiovascular medication received at the pharmacy. *Patient Educ Couns*. 2011;83(3):303-309. doi:10.1016/j.pec.2011.04.004
37. Puspitasari HP, Aslani P, Krass I. A review of counseling practices on prescription medicines in community pharmacies. *Research in Social and Administrative Pharmacy*. 2009;5(3):197-210. doi:10.1016/j.sapharm.2008.08.006