









RESEARCH ARTICLE

# A cross-sectional assessment of patient satisfaction with community pharmacy services in Lebanon: The IMPHACT-LB study

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## Abstract

**Background:** After the pharmacy profession has shifted from product-oriented practices to a more patient-centered approach, patient satisfaction has become an essential indicator of overall quality of care. This study aimed to assess the impact of pharmacy services and pharmacist-patient relationships on patient satisfaction in a crisis context, considering patient characteristics, economic factors, access to care, and health status. **Methods:** A web-based cross-sectional study (April 11-April 27, 2023) assessed patient satisfaction using validated tools among 865 Lebanese adults. **Results:** Satisfaction with pharmaceutical care was moderate (60%), varying between 58% and 63%. Notably, higher satisfaction was significantly and positively correlated with having private health insurance (Beta=0.583), taking more medications (Beta=0.166), and receiving advice from pharmacists about a healthy lifestyle (Beta=0.651), while lower satisfaction was associated with a university level of education (Beta=-0.505), older age (Beta=-0.022), and perceiving pharmacists as medication experts (Beta=-1.007). **Conclusion:** Age, education, health coverage, and patient expectations, in addition to services offered by community pharmacists, significantly affected satisfaction in times of crisis. Stakeholders should address pharmaceutical care holistically, acting concomitantly on improving health coverage, access to care, reasonable expectations, and optimising community pharmacy services.

## Introduction

For the last few decades, the pharmacy profession has evolved and witnessed a significant shift from product-

oriented practices, such as medication dispensing and compounding, to a more patient-centred approach that emphasises the provision of pharmaceutical services, information, and pharmaceutical care (Wiedenmayer

*et al.*, 2006). With this transition to patient-centered care, the focus has shifted from solely providing medications to actively engaging in the overall patient well-being and health outcomes. The concept of pharmaceutical care has emerged as a fundamental aspect of this paradigm shift, intending to reduce drug-related morbidities and mortalities, improve clinical outcomes, enhance health-related quality of life, and ultimately lower medical costs. As a result, community pharmacies have become key players in delivering essential healthcare services beyond the mere act of dispensing medications (Hermansen & Wiederholt, 2001; Nkansah *et al.*, 2010; Rasheed *et al.*, 2020).

The quality of healthcare services in community pharmacies is often evaluated based on patient satisfaction. Patient satisfaction is a complex construct that reflects the overall quality of care (Naik Panvelkar *et al.*, 2009). It encompasses a range of factors, including patient demographics, health status, and characteristics related to the healthcare provider, such as technical expertise and interest in patient-oriented care. Additionally, waiting time has been identified as an influential factor affecting patient satisfaction with community pharmacy services (Ghattas & Al-Abdallah, 2020; Kassam *et al.*, 2009; Sanmartin *et al.*, 2007; Verbeek, 2004). However, perceptions and satisfaction levels vary across countries due to differences in the performance of community pharmacies, patient needs, and services provided (Al-Arifi, 2012; Hasan *et al.*, 2013).

Numerous studies have been conducted globally to investigate patient satisfaction and attitudes toward community pharmacy services, revealing diverse perspectives and experiences across countries and regions. For instance, in the United States, surveys have consistently indicated high patient satisfaction with community pharmacy services (Cerulli, 2002; Larson *et al.*, 2002; Stergachis *et al.*, 2002). Similarly, individuals in Malta (Wirth *et al.*, 2010) and Portugal (Cavaco *et al.*, 2005) have perceived community pharmacists as essential healthcare team members and valued their contributions. Meanwhile, Australian patients have highlighted the importance of pharmacist explanations regarding medication use, while Japanese consumers have emphasised effective communication with pharmacists and convenient opening hours as key service attributes (Kamei *et al.*, 2001; Lea *et al.*, 2008). Studies conducted in Slovakia (Mináriková *et al.*, 2016b), Indonesia (Kristina *et al.*, 2021), and Sudan (Mohamud *et al.*, 2021) have revealed varying levels of patient satisfaction with community pharmacy services, encompassing aspects such as communication, consultation quality, privacy, and medication delivery.

In the Middle East, the Qataris have demonstrated a limited understanding of the role of community pharmacists as healthcare providers (El Hajj *et al.*, 2011). Conversely, in Saudi Arabia, patients have expressed comfort in seeking pharmacist advice despite concerns about privacy within the pharmacy setting (Bawazir, 2004). Studies have shown that most people surveyed recognised that community pharmacists were respectful toward them and provided clear instructions on medication use. While physicians remain the preferred source for medication counseling on drug therapy, a significant proportion of the population considers pharmacists valuable healthcare professionals. Satisfaction levels with pharmacists and pharmacy services are also relatively high (Al-Arifi, 2012; Al-Tannir *et al.*, 2016; El-Kholy *et al.*, 2022). Lastly, studies from the United Arab Emirates have shown varying satisfaction levels depending on the service and identified areas for improvement, such as addressing comorbid diseases and ensuring dedicated pharmacists are available for patient counseling (El-Sharif *et al.*, 2017; Hasan *et al.*, 2013).

In Lebanon, a Middle Eastern developing country In Lebanon, a Middle Eastern developing country that has been grappling with a series of crises, including the influx of refugees, political turmoil, and the aftermath of the October 2019 manifestations, the COVID-19 pandemic, and the devastating Beirut Port explosion (Hajjar *et al.*, 2021; Sacre *et al.*, 2022), the situation has led to severe economic hardship, currency depreciation, and the recent downgrade to a lower-middle-income country (Hamadeh *et al.*, 2022). Indeed, the widespread protests and civil unrest in October 2019 set the stage for a prolonged period of instability. The COVID-19 pandemic added another layer of complexity, straining the country's public health system, further weakening its economic foundations, and resulting in severe drug shortages that made access to essential medications a growing concern in the face of public health challenges.

In this context, with more than 3000 community pharmacies distributed across the territory, community pharmacists have always been the first port of call for patients and assumed a pivotal role, providing vital healthcare services and serving as essential pillars during a time of unprecedented uncertainty. Furthermore, most medications are readily available to patients without needing a prescription in these settings. However, the severe medication shortages stemming from the grueling economic crisis have prevented pharmacists from playing their role (Das, 2021). One study that compared patient perceptions of pharmacists and services in community pharmacies and primary healthcare centers showed an acceptable satisfaction level with the services offered in

community pharmacies (Tawil *et al.*, 2020). It is worth noting that it was conducted before the crisis and did not use validated measures. Another recently published qualitative study (Khalife *et al.*, 2023) among the general Lebanese population revealed that patients' perceptions of the health system, access, and quality of care should be accounted for when measuring satisfaction. Nevertheless, the study was not specific to pharmacists.

Therefore, this study aimed to assess the impact of pharmacy services and pharmacist-patient relationships on patient satisfaction in a crisis context, considering patient characteristics, economic factors, access to care, and health status.

## Methods

### Study design

This study is part of the first phase of a larger project focusing on the Impact of the Modern PHarmacy Concept on patient Therapy in Lebanon (The IMPHACT-LB Project).

A web-based cross-sectional study was conducted between April 11 and April 27, 2023, among 865 Lebanese adults. The survey tool was developed on Google Forms and shared on social platforms (WhatsApp, Facebook, and Instagram) to reach people across all Lebanese Governorates (Beirut, Mount Lebanon, North, South, and Beqaa). All Lebanese aged 18 and above were eligible to participate.

The introductory section of the questionnaire included details regarding the objective and length of the study. Participants were informed that their participation was entirely voluntary and that they could withdraw from the study any time. They received no incentives for their involvement and gave written informed consent before being directed to the survey.

### Ethical considerations

The Ethics and Research Committee at the Lebanese International University School of Pharmacy approved this protocol (2023RC-013-LIUSOP). This study was conducted in accordance with the ethical principles delineated in the Helsinki Declaration.

### Survey tool

The questionnaire was in Arabic, the mother tongue in Lebanon. It consisted of three parts.

The first part collected participants' sociodemographic characteristics (age, education level, occupation, and

income) and included questions about their medical condition, health coverage, access to healthcare, and the main reason for visiting a pharmacy.

The second part assessed community pharmacy visits. It included questions inspired by previous studies about the services provided to patients by community pharmacists, the overall experiences and perceptions towards these services, how often they visit a pharmacy, and their loyalty to a specific pharmacy (El Bizri & Dimassi, 2019; Iskandar *et al.*, 2017).

The third part consisted of the following validated measures:

### The adapted version of the patient satisfaction questionnaire short form (Ph-PSQ-18)

The PSQ-18 short form is a validated 18-item scale assessing patient satisfaction with doctors. It comprises seven subscales relating to general satisfaction (items 3 and 17), technical quality (items 2, 4, 6, and 14), interpersonal manner (items 10 and 11), time spent with the doctor (items 12 and 15), and accessibility and convenience (items 8, 9, 16, and 18) (Marshall & Hays, 1994). Items within the same subscale were averaged together to create the scores of the seven subscales, with higher scores indicating higher satisfaction with medical care.

In this study, PSQ-18 was adapted to the community pharmacy context (Ph-PSQ-18) by replacing some terms when necessary to assess patient satisfaction with the services provided by their pharmacists and community pharmacies. For example, "doctor" was replaced by "community pharmacist" and "medical services" by "community pharmacy services". The scale was then translated into Arabic. One of the authors translated this tool into Arabic, and then a second author examined the translation for potential discrepancies or nuances. Finally, all the authors agreed on the final version, confirming its accuracy and consistency in capturing the intended concepts across linguistic and cultural boundaries. Ph-PSQ-18 sampling adequacy (Kaiser-Meyer-Olkin=0.966; Bartlett's test of Sphericity  $p$ -value < 0.001) and reliability (Cronbach alpha=0.945) measures were excellent.

### The patient-pharmacist relationship measurement tool

This tool is validated in Lebanon and consists of three indices (Bou Raad *et al.*, 2017): The Patient Expectation Index (11 items), Barriers to Communication with the community pharmacist (7 items), and the Patient Perception Index (14 items). For the Patient Expectation Index, the sampling adequacy (Kaiser-Meyer-Olkin=0.829; Bartlett's test of Sphericity  $p$ -value

< 0.001) and reliability (Cronbach alpha=0.773) measures were appropriate. For the Barriers to Communication Index, the sampling adequacy (Kaiser-Meyer-Olkin=0.907; Bartlett's test of Sphericity  $p$ -value < 0.001) and reliability (Cronbach alpha=0.888) measures were very good. These values were also very good for the Patient Perception Index: 0.937 ( $p$ -value < 0.001) and 0.865, respectively. Scores were calculated by summing the answers of each index, with higher values indicating higher expectations, barriers, and perceptions, respectively.

### The InCharge Financial Distress/Financial (IFDFW)

Financial distress and the effect of the economic hardship were assessed by the InCharge Financial Distress/Financial (IFDFW) scale, a validated 8-item subjective measure of financial distress and financial well-being that has already been validated in the Lebanese population (Sacre et al., 2023). Responses were reported on a scale of 1 to 10, with higher scores indicating better financial well-being (Prawitz et al., 2006). In this study, the sampling adequacy (Kaiser-Meyer-Olkin=0.940; Bartlett's test of Sphericity  $p$ -value < 0.001) and reliability (Cronbach alpha=0.944) measures were excellent.

### Sample size calculation

The minimum sample size was calculated using the G-Power software, version 3.0.10. The calculated effect size was 0.0526, expecting a squared multiple correlation of 0.05 ( $R^2$  deviation from 0) related to the Omnibus test of multiple regression. The minimum sample required was  $n=454$ , considering a 5% alpha error, 80% power, and the inclusion of 25 predictors in the model. A minimum of 600 participants was targeted to account for potential missing values.

### Statistical analysis

The collected data were analysed using SPSS (Statistical Package for Social Sciences) software, version 28.0. For descriptive analysis, frequencies and percentages were used for categorical variables, and means and standard deviations were used for quantitative variables. The distribution of these variables was considered normal using visual inspection of the histogram, while the skewness and kurtosis were lower than 1. These conditions are deemed compatible with normality with a sample size higher than 300.

For the bivariate analysis of continuous variables, the Student's  $t$ -test was used to compare the means between two groups and ANOVA to compare between three groups or more after checking for homogeneity of variances using Levene's test. When the variances

were not homogenous, the corrected  $t$ -test and the Kruskal-Wallis test were applied, respectively. The Pearson correlation coefficient was applied between continuous variables. Categorical variables association was assessed using the Chi-square test. In all cases, a  $p$ -value lower than 0.05 was considered significant.

Before use, the validity of the different scales was confirmed using a factor analysis method; the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test for Sphericity were reported. Reliability was also confirmed using the Cronbach alpha coefficient.

As for the multivariable analysis, two multiple linear regressions were conducted to assess the correlates of patient satisfaction in the entire sample. A stepwise method was used to reach the most parsimonious model after checking the residues' normality, the linearity of the relationship, the absence of multicollinearity, and the homoscedasticity assumptions. The beta coefficient, the 95% Confidence Interval, and the  $p$ -value were reported. Independent variables introduced in the models had a  $p$ -value lower than 0.1 in the bivariate analysis, considering the maximum number of variables allowed to be included, given the sample size; sociodemographic and other independent variables were added as appropriate. The first model included patient-related variables, while the second comprised patient-related and pharmacy-related variables.

## Results

### Description of sociodemographic characteristics

A total of 865 respondents participated in this study. Table I summarises the demographic characteristics of the study population. The mean age was  $32.52 \pm 14.56$  years, and 39.9% were married. More than half of the participants were females (68.8%), unemployed (51.1%), and had a university education level (78.3%). Regarding their health, 79.3% reported that they had no sickness, and 77.6% stated they had easy access to healthcare; meanwhile, 57.7% indicated that the main reason for visiting a community pharmacy was to obtain nonprescription medications (analgesics, anti-inflammatory, supplements, etc.). The mean current family size was  $4.78 \pm 2.40$ , and the mean financial well-being scale was  $39.88 \pm 18.11$ . The respondents routinely took an average of  $0.87 \pm 1.78$  medications per day.

**Table I: Sociodemographic and medical characteristics of patients (N=865)**

Variable	N (%)
<b>Gender</b>	
Male	270 (31.2%)
Female	595 (68.8%)
<b>Area of residence</b>	
Beirut	215 (24.9%)
Mount Lebanon	182 (21.0%)
North	151 (17.5%)
Beqaa	17 (2.0%)
South	300 (34.7%)
<b>Marital status</b>	
Single/widowed/divorced	520 (60.1%)
Married	345 (39.9%)
<b>Monthly income</b>	
Less than 4,000,000 LBP	44 (5.1%)
Between 4,000,000 – 8,000,000 LBP	176 (20.3%)
Between 8,000,000 – 12,000,000 LBP	191 (22.1%)
More than 12,000,000 LBP	454 (52.5%)
<b>Education level</b>	
Illiterate	16 (1.8%)
School level	172 (19.9%)
University level	677 (78.3%)
<b>Work status</b>	
Unemployed	442 (51.1%)
Employed	407 (47.1%)
Retired	16 (1.8%)
<b>Health status</b>	
No sickness	686 (79.3%)
Chronic medical conditions	169 (19.5%)
Severe sickness	10 (1.2%)
<b>Presence of a medical illness<sup>†</sup></b>	
Hypertension	97 (11.2%)
Diabetes mellitus	58 (6.7%)
Dyslipidemia	85 (9.8%)
Cardiovascular diseases	51 (5.9%)
Chronic kidney disease	21 (2.4%)
Asthma	51 (5.9%)
Chronic obstructive pulmonary disease	10 (1.2%)
Other chronic pulmonary disease	13 (1.5%)
Allergic conditions	217 (25.1%)
History of stroke or cerebrovascular diseases	19 (2.2%)
Seizures or other neurological conditions	37 (4.3%)
Depression, anxiety, or other psychiatric conditions	122 (14.1%)

Variable	N (%)
Chronic gastrointestinal conditions	122 (14.1%)
Current or previous cancer	17 (2.0%)
Rheumatic disease	43 (5.0%)
Other chronic diseases	51 (5.9%)
<b>Main reason for visiting a community pharmacy</b>	
Obtain chronic medications (hypertension, diabetes mellitus, cardiovascular, etc.)	81 (9.4%)
Obtain nonprescription medications (analgesics, anti-inflammatory, supplements, etc.)	499 (57.7%)
Obtain both chronic and nonprescription medications	152 (17.6%)
Other reason	133 (15.4%)
<b>Easy access to healthcare</b>	
Yes	671 (77.6%)
No	194 (22.4%)
<b>Health coverage<sup>†</sup></b>	
Private insurance	253 (29.2%)
National Social Security Fund	303 (35.0%)
Ministry of Public Health	52 (6.0%)
Self-payer	175 (20.2%)
Public insurance (Army, COOP, Internal Security Forces)	129 (14.9%)
Other insurance	88 (10.2%)
<b>Mean ± SD</b>	
Age	32.52 ± 14.56
Financial well-being scale	39.88 ± 18.11
Current family size	4.78 ± 2.40
Number of chronic diseases	1.42 ± 2.16
Number of medications taken routinely per day	0.87 ± 1.78

<sup>†</sup> Each participant might have multiple answers

**Community pharmacy visits and pharmacist-patient relationship**

Table II illustrates the visits to community pharmacies and pharmacist-patient relationships. Over one-third of patients were chronic visitors of the same community pharmacy for more than five years (39.3%), and 50.9% were loyal to the same pharmacy. When asked about the frequency of visiting the community pharmacy, 40.3% sought medical care or counseling monthly, and 32.7% went to the pharmacy to obtain nonprescription medications most of the time. Also, 33.2% of the respondents indicated the presence of a counseling area in the pharmacy. Regarding the reason for visiting the pharmacy, the responses varied from asking about medications (68.2%) and diseases (36.0%) to getting treatment from the pharmacist (45.8%). Only 20.1%

received regular counseling from the pharmacist, and 47.6% responded that the counseling duration was 5-10 minutes. Patients' perceptions of their pharmacist included being a medication expert (94.2%), health counselor (81.0%), health promoter (66.2%), and

patient-centered practitioner (73.3%). Most patients indicated that their pharmacist advised them about healthy lifestyle modifications (71.8%) and provided additional healthcare services (79.8%).

**Table II: Description of community pharmacy visits and pharmacist-patient relationships (N=865)**

Variable	N (%)
<b>Are you familiar with the current community pharmacy?</b>	
Recent visitor (< 1 year)	192 (22.2%)
Regular visitor (1 – 5 years)	333 (38.5%)
Chronic visitor (> 5 years)	340 (39.3%)
<b>Do you visit the same pharmacy each time?</b>	
Yes, I visit the same pharmacy each time	440 (50.9%)
No, I visit different pharmacies depending on the situation/ circumstances	425 (49.1%)
<b>How frequently do you visit a community pharmacy for medical care or counseling?</b>	
Daily	16 (1.8%)
Weekly	92 (10.6%)
Monthly	349 (40.3%)
Rarely	408 (47.2%)
<b>How frequently do you visit your community pharmacy to obtain nonprescription medications?</b>	
Always	71 (8.2%)
Most of the time	283 (32.7%)
Sometimes	169 (19.5%)
Rarely	302 (34.9%)
Never	40 (4.6%)
<b>How frequently do you visit your community pharmacy to seek initial medical assessment and/or care?</b>	
Always	34 (3.9%)
Most of the time	168 (19.4%)
Sometimes	259 (29.9%)
Rarely	284 (32.8%)
Never	120 (13.9%)
<b>How frequently do you visit your community pharmacy for general or specific medical advice?</b>	
Always	42 (4.9%)
Most of the time	173 (20.0%)
Sometimes	258 (29.8%)
Rarely	279 (32.3%)
Never	113 (13.1%)
<b>How frequently do you prefer discussing your medical conditions with your pharmacist before referring to your primary care provider or doctor?</b>	
Always	86 (9.9%)
Most of the time	229 (26.5%)
Sometimes	204 (23.6%)
Rarely	241 (27.9%)
Never	105 (12.1%)
<b>Does the pharmacy you visit include a counseling area?</b>	
I do not know	269 (31.1%)
No	309 (35.7%)

Variable	N (%)
Yes	287 (33.2%)
<b>You mainly come to a community pharmacy to ask about medications.</b>	
No	275 (31.8%)
Yes	590 (68.2%)
<b>You mainly come to a community pharmacy to ask about a disease.</b>	
No	554 (64.0%)
Yes	311 (36.0%)
<b>You mainly come to a community pharmacy to receive treatment from the pharmacist.</b>	
No	469 (54.2%)
Yes	396 (45.8%)
<b>Do you receive regular counseling from your pharmacist?</b>	
No, not at all	252 (29.1%)
Yes, regularly	174 (20.1%)
Yes, from time to time	439 (50.8%)
<b>If you receive counseling from your pharmacist, how long does the pharmacist spend counseling you about a medication and/or medical condition?</b>	
Less than 5 minutes	372 (45.8%)
5 to 10 minutes	387 (47.6%)
More than 10 minutes	54 (6.6%)
<b>Do you perceive your pharmacist as a medication expert?</b>	
No	50 (5.8%)
Yes	815 (94.2%)
<b>Do you perceive your pharmacist as a health counselor?</b>	
No	164 (19.0%)
Yes	701 (81.0%)
<b>Do you perceive your pharmacist as a health promoter?</b>	
No	292 (33.8%)
Yes	573 (66.2%)
<b>Do you perceive your pharmacist as a patient-centered practitioner?</b>	
No	231 (26.7%)
Yes	634 (73.3%)
<b>Does your pharmacist advise you about healthy lifestyle modifications, including smoking cessation, weight loss, or physical activity?</b>	
No	244 (28.2%)
Yes	621 (71.8%)
<b>Does your pharmacist provide you with additional healthcare services, such as measuring blood pressure and/or blood glucose?</b>	
No	175 (20.2%)
Yes	690 (79.8%)

**Adapted version of the Patient Satisfaction Questionnaire short form (Ph-PSQ-18)**

The total Ph-PSQ-18 scores ranged from 41.00 to 65.0 points, the mean score being 54.36 ± 2.57 (Table III). The bivariate analysis in Table IV showed that Ph-PSQ-18 was significantly correlated with the education level,

private health insurance, familiarity with the current community pharmacy, the presence of a counseling area, pharmacist advice about healthy lifestyle modifications, and duration of the counseling ( $p < 0.05$ , for all variables). Other variables, including financial well-being and patient-pharmacist relationship indices, did not show statistically significant results.

**Table III: Description of the Patient Satisfaction Questionnaire adapted version (Ph-PSQ-18)**

	Mean ± SD	Ratio of the scales (%)	Median	Minimum	Maximum
General satisfaction	5.86 ± 0.73	58.60%	6.00	2.00	9.00
Technical quality	11.96 ± 1.15	59.80%	12.00	7.00	17.00
Interpersonal Manner	6.31 ± 0.84	63.00%	6.00	3.00	10.00
Communication	5.93 ± 0.89	59.20%	6.00	3.00	10.00
Financial aspects	6.15 ± 0.99	61.40%	6.00	2.00	10.00
Time spent with the pharmacist	5.94 ± 0.67	59.40%	6.00	3.00	8.00
Accessibility and Convenience	12.18 ± 1.04	60.80%	12.00	9.00	18.00
<b>Total satisfaction score</b>	<b>54.36 ± 2.57</b>	<b>60.40%</b>	<b>54.00</b>	<b>41.00</b>	<b>65.00</b>

**Table IV: Bivariate analysis taking the Patient Satisfaction Questionnaire adapted version (Ph-PSQ-18) as the dependent variable**

Variable	Ph-PSQ-18	p-value	
<b>Gender</b>			
Male	54.32 ± 2.49	0.769	
Female	54.38 ± 2.61		
<b>Marital status</b>			
Single/widowed/divorced	54.40 ± 2.56	0.597	
Married	54.30 ± 2.59		
<b>Monthly income</b>			
Less than 4,000,000 LBP	54.36±3.17	0.657	
Between 4,000,000 – 8,000,000 LBP	54.15±2.43		
Between 8,000,000 – 12,000,000 LBP	54.35±2.17		
More than 12,000,000 LBP	54.44±2.72		
<b>Education level</b>			
School level	54.76±2.63	<b>0.016</b>	
University level	54.25±2.55		
<b>Work status</b>			
Unemployed	54.36 ± 2.64	0.983	
Employed	54.36 ± 2.50		
<b>Health status</b>			
No sickness	54.37 ± 2.45	0.858	
Medical conditions	54.32 ± 2.99		
<b>Presence of a medical illness</b>			
Yes	54.27±2.80	0.269	
No	54.46±2.31		
<b>Easy access to healthcare</b>			
Yes	54.38±2.48	0.689	
No	54.29±2.88		
<b>Health coverage</b>			
Private insurance	Yes	54.67±2.73	<b>0.028</b>
	No	54.23±2.50	
National Social Security Fund	Yes	54.44±2.55	0.496
	No	54.32±2.58	
Ministry of Public Health	Yes	54.57±2.49	0.540
	No	54.35±2.58	



Variable	Ph-PSQ-18	p-value
Self-payer	Yes	54.02±2.66
	No	54.45±2.54
Public insurance (Army, COOP, Internal Security Forces)	Yes	54.24±2.21
	No	54.38±2.63
<b>Familiarity with the current community pharmacy</b>		
Recent visitor (< 1 year)	54.21±2.57	<b>0.041</b>
Regular visitor (1 – 5 years)	54.16±2.37	
Chronic visitor (> 5 years)	54.63±2.74	
<b>How frequently do you visit your community pharmacy to obtain nonprescription medications?</b>		
Always	53.67±2.61	0.091
Most of the time	54.49±2.72	
Sometimes	54.62±2.53	
Rarely	54.25±2.44	
Never	54.35±2.51	
<b>Does the pharmacy you visit include a counseling area?</b>		
I do not know	54.42±2.60	<b>0.029</b>
No	54.07±2.77	
Yes	54.62±2.29	
<b>Do you perceive your pharmacist as a medication expert?</b>		
No	54.96±2.95	0.092
Yes	54.32±2.55	
<b>Do you perceive your pharmacist as a health promoter?</b>		
No	54.14±2.90	0.092
Yes	54.47±2.38	
<b>Do you perceive your pharmacist as a patient-centered practitioner?</b>		
No	54.06±2.95	0.065
Yes	54.47±2.41	
<b>Your pharmacist advises you about healthy lifestyle modifications, including smoking cessation, weight loss, or physical activity</b>		
No	53.84±2.99	<b>0.001</b>
Yes	54.57±2.36	
<b>Pharmacists spend on counseling you about a medication and/or medical condition</b>		
Less than 5 minutes	54.09±2.73	<b>0.023</b>
5 to 10 minutes	54.49±2.30	
More than 10 minutes	54.90±2.51	
<b>Correlation</b>		
Age	-0.023	0.501
Financial well-being scale	0.019	0.579
Number of chronic diseases	0.018	0.600
Number of medications taken routinely per day	0.064	0.061
Patient expectation index	0.026	0.439
Patient perception index	0.014	0.688
Patient barriers to communication with the pharmacist	-0.026	0.439

**Multivariable analysis**

A first linear regression model examined the relationship between Ph-PSQ-18 as the dependent variable and sociodemographic characteristics. The

results indicated a significantly positive association between having private health insurance (Beta=0.399) and taking more medications (Beta=0.158) with higher Ph-PSQ-18 scores. Conversely, having a university level

of education (Beta=-0.655) and being older (Beta=-0.017) were significantly associated with lower satisfaction scores (Table V, Model 1).

A second linear regression model was performed, considering the Ph-PSQ-18 as the dependent variable and both sociodemographic characteristics and pharmacist-related variables. In this model, having private health insurance (Beta=0.583), taking more

medications (Beta=0.166), and receiving advice from a pharmacist about a healthy lifestyle (Beta=0.651) were all significantly correlated with higher Ph-PSQ-18 scores. On the contrary, having a university level of education (Beta=-0.505), being older (Beta=-0.022), and perceiving the pharmacist as the medication expert (Beta=-1.007) were significantly associated with a lower satisfaction score (Table V, Model 2).

**Table V: Multivariable analysis**

<b>Model 1: Linear regression analysis taking Ph-PSQ-18 as the dependent variable and the sociodemographic characteristics as the independent variable</b>					
	<b>UB</b>	<b>S.B.</b>	<b>p-value</b>	<b>95% Confidence interval</b>	
				<b>Lower bound</b>	<b>Upper bound</b>
Gender (female vs. male <sup>†</sup> )	0.081	0.015	0.669	-0.292	0.455
Marital status (married vs. single <sup>†</sup> )	-0.040	-0.008	0.861	-0.489	0.409
<b>Education level (university vs. school level<sup>†</sup>)</b>	<b>-0.655</b>	<b>-0.105</b>	<b>0.004</b>	<b>-1.103</b>	<b>-0.207</b>
<b>Health coverage/private insurance (yes vs. no<sup>†</sup>)</b>	<b>0.399</b>	<b>0.070</b>	<b>0.046</b>	<b>0.007</b>	<b>0.791</b>
Health coverage/self-payer (yes vs. no <sup>†</sup> )	-0.373	-0.058	0.094	-0.811	0.064
<b>Age</b>	<b>-0.017</b>	<b>-0.099</b>	<b>0.046</b>	<b>-0.035</b>	<b>-0.0003</b>
Financial well-being scale	0.0003	0.003	0.936	-0.009	0.010
Number of chronic diseases	-0.032	-0.027	0.520	-0.128	0.065
<b>Number of medications</b>	<b>0.158</b>	<b>0.109</b>	<b>0.014</b>	<b>0.031</b>	<b>0.284</b>
<b>Variables entered in the model:</b> gender, marital status, education level, health coverage, age, financial well-being scale, number of chronic diseases, and number of medications.					
<b>Model 2: Linear regression analysis taking Ph-PSQ-18 as the dependent variable and the sociodemographic characteristics and the pharmacist-related variables as the independent variables</b>					
	<b>UB</b>	<b>S.B.</b>	<b>p-value</b>	<b>95% Confidence interval</b>	
				<b>Lower bound</b>	<b>Lower bound</b>
Gender (female vs. male <sup>†</sup> )	0.073	0.013	0.700	-0.300	0.447
Marital status (married vs. single <sup>†</sup> )	0.144	0.028	0.531	-0.308	0.597
<b>Education level (university vs. school level<sup>†</sup>)</b>	<b>-0.505</b>	<b>-0.083</b>	<b>0.028</b>	<b>-0.953</b>	<b>-0.056</b>
<b>Health coverage / private insurance (yes vs. no<sup>†</sup>)</b>	<b>0.583</b>	<b>0.105</b>	<b>0.004</b>	<b>0.188</b>	<b>0.978</b>
Health coverage/self-payer (yes vs. no <sup>†</sup> )	-0.301	-0.048	0.185	-0.746	0.144
<b>Age</b>	<b>-0.022</b>	<b>-0.125</b>	<b>0.013</b>	<b>-0.039</b>	<b>-0.005</b>
Financial well-being scale	0.001	0.009	0.795	-0.008	0.011
Number of chronic diseases	-0.044	-0.037	0.384	-0.144	0.055
<b>Number of medications</b>	<b>0.166</b>	<b>0.119</b>	<b>0.009</b>	<b>0.041</b>	<b>0.291</b>
Familiarity with the current community pharmacy: Regular visitor (1 – 5 years)	-0.259	-0.050	0.285	-0.734	0.216
Familiarity with the current community pharmacy: Chronic visitor (> 5 years)	0.181	0.035	0.464	-0.303	0.665
Do you visit your community pharmacy to obtain nonprescription medications (always vs. never <sup>†</sup> )	-0.509	-0.056	0.329	-1.531	0.514
Do you visit your community pharmacy to obtain nonprescription medications (most of the time vs. never <sup>†</sup> )	0.246	0.046	0.585	-0.640	1.132
Do you visit your community pharmacy to obtain nonprescription medications (sometimes vs. never <sup>†</sup> )	0.387	0.060	0.406	-0.526	1.300

**Model 2: Linear regression analysis taking Ph-PSQ-18 as the dependent variable and the sociodemographic characteristics and the pharmacist-related variables as the independent variables**

	UB	S.B.	p-value	95% Confidence interval	
				Lower bound	Lower bound
Do you visit your community pharmacy to obtain nonprescription medications (rarely vs. never <sup>†</sup> )	0.149	0.028	0.739	-0.728	1.027
The pharmacy that you visit includes a counseling area (yes vs. no <sup>†</sup> )	0.159	0.030	0.409	-0.219	0.536
<b>Do you perceive your pharmacist as a medication expert (yes vs. no<sup>†</sup>)</b>	<b>-1.007</b>	<b>-0.091</b>	<b>0.015</b>	<b>-1.821</b>	<b>-0.192</b>
Do you perceive your pharmacist as a medication promoter (yes vs. no <sup>†</sup> )	0.277	0.051	0.225	-0.171	0.724
Do you perceive your pharmacist as a patient-centered practitioner (yes vs. no <sup>†</sup> )	0.060	0.010	0.814	-0.438	0.557
<b>The pharmacist advises about a healthy lifestyle (yes vs. no<sup>†</sup>)</b>	<b>0.651</b>	<b>0.112</b>	<b>0.003</b>	<b>0.217</b>	<b>1.085</b>
Patient expectation index	0.036	0.032	0.398	-0.048	0.120
Patient perception	-0.006	-0.016	0.667	-0.035	0.022
Patient barriers	-0.011	-0.011	0.747	-0.077	0.056
Time spent counseling (5 to 10 minutes)	0.185	0.036	0.326	-0.184	0.554
Time spent counseling (more than 10 minutes)	0.419	0.041	0.261	-0.313	1.151

**Variables entered in the model:** gender, marital status, education level, health coverage, age, financial well-being scale, number of chronic diseases, number of medications, health coverage, familiarity with the current community pharmacy, visiting the community pharmacy to obtain nonprescription medications, presence of a counseling area, perception of the pharmacist as a medication promoter, perception of the pharmacist as a medication expert, perception of the pharmacist as a patient-centered practitioner, the pharmacist advises about healthy lifestyle, time spent on counseling about a medication and/or medical condition, patient expectation index, patient perception, and patient barriers

<sup>†</sup> Reference Value

## Discussion

This study attempted to evaluate the level of satisfaction with the pharmaceutical care offered at community pharmacies in Lebanon based on patients' characteristics in a crisis context. Indeed, patient satisfaction is a valuable means for evaluating the quality of pharmacy services and could vary considerably across patients. This disparity stems from the varying needs and expectations of the different cultural contexts, consequently influencing individuals' overall satisfaction with healthcare services. With the plethora of criteria used to gauge patient satisfaction, this study used a validated tool, which improves its internal validity.

Patients in Lebanon were moderately satisfied with community pharmacy services, as indicated by a mean Ph-PSQ-18 score of 54.36 ± 2.57 points, accounting for a mean ratio of 60.40% of the scale. Patient satisfaction was relatively consistent across the seven subscales, ranging from 58.60% (general satisfaction) to 63.00% (satisfaction with interpersonal manner). A similar result was found in a previous study assessing the views of the general Lebanese population towards services in

primary healthcare centers and pharmacies (Tawil et al., 2020). However, satisfaction rates in this study were lower than those found in Spain (76%) (Márquez-Peiró & Pérez-Peiró, 2008) but considerably higher than in Portugal (39%) (Pinto et al., 2014) and Pakistan (39.6%) (Aziz et al., 2018), knowing that different tools have been used to evaluate satisfaction across these countries. One contributing factor to this disparity is that the general population may be unaware of the extent of the services and expertise that pharmacists can provide within their pharmacies (Iskandar et al., 2017; Tawil et al., 2020).

Internationally, numerous studies have looked into patient attitudes and satisfaction with community pharmacies (Gold & Wooldridge, 1995; Kamei et al., 2001; Cerulli, 2002; Mera, 2002; Cavaco et al., 2005; Wirth et al., 2010; El Hajj et al., 2011; Khojah, 2019; Khayyat et al., 2021), showing the importance of factors such as the location of the community pharmacy, the promptness of services, and the expertise of the pharmacist in the assessment of customer satisfaction with community pharmacy services. While accessibility is the primary concern in developing countries (El Hajj et al., 2011; Kamran et al., 2020), developed countries prioritise patient

satisfaction as an essential indicator when evaluating healthcare system quality (Gold & Wooldridge, 1995; Kassam *et al.*, 2012). Most Middle Eastern populations believe that the primary responsibility of a pharmacist should be to dispense medications rather than offer advice or information (Mera, 2002; Wazaify *et al.*, 2008; El Hajj *et al.*, 2011; Alssageer *et al.*, 2021; Matar *et al.*, 2021; Khayyat *et al.*, 2021). In this study, customers expressed positive views and reported satisfaction with community pharmacists and pharmacy services provided. The majority perceived the pharmacist as a medication expert, health counselor, health promoter, and patient-centered practitioner, reflected by the enhanced satisfaction scores among those who reported receiving advice on lifestyle habits from their pharmacist. These results underscore the importance of pharmacists educating their clients about non-pharmacological options for treatment (Kang *et al.*, 2017) and align with previous findings showing decreased patient satisfaction with pharmacists who did not offer guidance on non-pharmacological approaches to managing diseases (Chhabra *et al.*, 2019).

An analysis of respondents' demographics showed that patient age influenced patient satisfaction, with older patients being less satisfied with pharmacy services than other age groups, consistent with previous findings from Jordan, where younger patients were more likely to be pleased with pharmacy services (Naser & Abu Sbeat, 2022). This low score may indicate that people in this age group had higher expectations from healthcare professionals and were likely to visit community pharmacies more frequently than their younger counterparts to seek assistance and guidance. Notably, a 2017 study highlighted the challenges facing community pharmacists in Lebanon before the multiple crises, showing that pharmacists often grapple with limited time to dedicate to patients, particularly those taking multiple medications, such as older patients. These constraints stem from financial limitations, as community pharmacies cannot afford additional healthcare personnel, further complicating their ability to provide extensive patient care (Hallit *et al.*, 2017). Nevertheless, our findings diverge from those of global studies showing higher satisfaction levels among older individuals (Hall & Dornan, 1990; Kamei *et al.*, 2001; Aziz *et al.*, 2018).

Education is another factor that has been associated with patient satisfaction. Indeed, patients with a higher educational attainment tend to be less satisfied with the quality of the pharmacy services (Alanazi *et al.*, 2023). Lower satisfaction among educated patients might be due to their increased interest in learning about medications and exploring various areas of pharmacy services (Mináriková *et al.*, 2016a) and their

higher expectations (Awad *et al.*, 2017). In a broader context, older and more educated patients often expect a more professional approach, rather than a more informal rapport, from community pharmacists when managing their therapy. However, our findings contradict those of other studies suggesting that individuals with a college or university education were more satisfied with their care (Hall & Dornan, 1990; Kamei *et al.*, 2001; Karaca & Durna, 2019). Further studies are necessary to elucidate this matter.

Evaluating perceptions of pharmacist expertise is crucial as pharmacy services transition from traditional dispensing functions to more active, patient-centered pharmaceutical care. Surprisingly, participants who perceived the pharmacist as a medication expert expressed lower satisfaction ratings, in contrast with previously published literature (Alghurair *et al.*, 2012; Ismail *et al.*, 2020), where higher perceived pharmacist expertise was substantially related to better satisfaction with pharmacy services. In light of the multiple crises facing Lebanese patients, people may have higher expectations that could reduce their satisfaction levels, as they consider the pharmacist the most accessible and affordable healthcare provider (Sakr *et al.*, 2023).

Expectedly, patients with private health insurance reported higher satisfaction levels, consistent with previous findings showing that financial difficulties negatively affected satisfaction with all services provided by pharmacies (Hasan *et al.*, 2013; Malewski *et al.*, 2015). The economic crisis in Lebanon has disrupted the health sector and the government's ability to cover healthcare, thus resulting in beneficiaries shifting their care to private insurance or out-of-pocket payments (El-Jardali *et al.*, 2023). The fact is that, compared with those who are less fortunate, patients with private insurance typically have greater financial resources, granting them easier access to healthcare (Khalife *et al.*, 2023). Conversely, the lack of health funding can compel patients to bear substantial medical expenses out-of-pocket, indirectly affecting their health and productivity, which, in turn, may hamper the delivery of healthcare. Accordingly, policymakers must implement strategic measures and actions to mitigate the financial burden and foster sustainability (El-Jardali *et al.*, 2023).

Contrary to findings from regional (Naser & Abu Sbeat, 2022) and international (Druică *et al.*, 2021) studies that typically report lower satisfaction rates among chronic disease patients taking multiple medications, our study surprisingly uncovered a positive association between the number of medicines taken and patient satisfaction. This unexpected result could find roots in several factors specific to the Lebanese context. First,

the ongoing socioeconomic crisis in Lebanon may have lowered patient expectations regarding healthcare services. Second, community pharmacists in Lebanon readily provide patients with advice at no cost since counseling services offered at the pharmacy are free. These pharmacists can also substitute costly medications with more affordable generics, possibly contributing to heightened patient satisfaction. These results align with the existing body of evidence highlighting the pivotal role of community pharmacists in managing chronic diseases such as hypertension, diabetes, cholesterol control, weight management, asthma, cardiovascular disease, and osteoporosis (George *et al.*, 2010). Furthermore, they support previous findings demonstrating a positive correlation between higher satisfaction rates and the frequency of counseling and monitoring at community pharmacies (Naik Panvelkar *et al.*, 2009).

### **Clinical implications**

The findings of this study could provide valuable guidance to healthcare stakeholders and strategic planners by highlighting critical areas that require focused intervention. This informed perspective would, in turn, contribute to improved healthcare services, aligning with the United Nations' Sustainable Development Goal 3 (SDG3) (United Nations, 2023) and ensuring the delivery of top-tier healthcare that benefits society at large.

**Improving health coverage** to include a broader population is crucial. Ensuring that healthcare services are accessible to more people, including those in underserved areas, promotes equitable healthcare.

**Enhancing access to healthcare** services, including pharmaceutical care, should be facilitated by increasing the number of healthcare facilities and ensuring their proper geographical distribution to decrease travel time and patient costs. It also means addressing affordability issues, such as reducing out-of-pocket expenses for medicines and health services.

**Managing expectations** by educating patients about the roles and capabilities of pharmacists would help align expectations with what pharmacists can realistically provide and prevent potential dissatisfaction when those expectations are not met.

**Optimising services** offered by community pharmacists is essential to enhance patient satisfaction and the overall quality of pharmaceutical care by investing in continuing pharmacist education and development to ensure pharmacists are well-equipped to provide a wide range of services beyond medication dispensing. Community pharmacists can be crucial in chronic disease management, health promotion, and patient

education. Encouraging pharmacists to engage in these roles can significantly improve healthcare outcomes.

### **Limitations**

This study has several limitations. Its sampling methods may induce a selection bias, with an over-representation of some regions and some patients' subgroups (educated women with easy internet access), while its cross-sectional design would hamper causality assessment. In addition, relying on patients' self-reporting might lead to information bias, although the authors believe it is non-differential, thus driving the associations toward the null. Finally, residual confounding might still be possible due to possible unmeasured additional confounders despite the two multiple regressions conducted to consider potential confounding. Thus, further prospective studies that override these limitations are suggested to confirm these findings.

### **Conclusion**

This study showed that patients were moderately satisfied with the services offered in community pharmacies. Patient satisfaction in times of crisis was significantly influenced by sociodemographic characteristics, such as age, education, health coverage, and expectations, in addition to services provided by community pharmacists. The relevant stakeholders should strive to address pharmaceutical care holistically, acting concomitantly on improving health coverage, access to care, reasonable expectations, and optimising the services offered by community pharmacists.

### **Conflict of interest**

The authors declare no conflict of interest.

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### **References**

- Alanazi, A. S., Shah, S., Abbas, G., Hussain, M., Saleem, A., Khurram, H., Chand, U. R., Mallhi, T. H., Khan, Y. H., Ilyas, K., Tariq, S., Jamil, A., Alzarea, A. I., & Alzarea, S. I. (2023).

- Assessing patient satisfaction with community pharmacy services: A large regional study at Punjab, Pakistan. *Patient Preference and Adherence*, **17**, 13–22. <https://doi.org/10.2147/PPA.S389053>
- Al-Arifi, M. N. (2012). Patients' perception, views and satisfaction with pharmacists' role as health care provider in community pharmacy setting at Riyadh, Saudi Arabia. *Saudi Pharmaceutical Journal: The Official Publication of the Saudi Pharmaceutical Society*, **20**(4), 323–330. <https://doi.org/10.1016/j.jsps.2012.05.007>
- Alghurair, S. A., Simpson, S. H., & Guirguis, L. M. (2012). What elements of the patient-pharmacist relationship are associated with patient satisfaction? *Patient Preference and Adherence*, **6**, 663–676. <https://doi.org/10.2147/PPA.S35688>
- Allsageer, M. A., Hassan, A. O., & Rajab, M. O. (2021). Consumers' view, expectation and satisfaction with community pharmacy services. *ConsumersMediterranean Journal of Pharmacy and Pharmaceutical Sciences*, **1**(4), 90–98. <https://medjpps.com/mjpps/uploads/topics/16409139046107.pdf>
- Al-Tannir, M., Alharbi, A. I., Alfawaz, A. S., Zahran, R. I., & AlTannir, M. (2016). Saudi adults satisfaction with community pharmacy services. *SpringerPlus*, **5**(1), 774. <https://doi.org/10.1186/s40064-016-2442-8>
- Awad, A. I., Al-Rasheedi, A., & Lemay, J. (2017). Public Perceptions, expectations, and views of community pharmacy practice in Kuwait. *Medical Principles and Practice*, **26**(5), 438–446. <https://doi.org/10.1159/000481662>
- Aziz, M. M., Ji, W., Masood, I., Farooq, M., Malik, M. Z., Chang, J., Jiang, M., Atif, N., & Fang, Y. (2018). Patient satisfaction with community pharmacies services: A cross-sectional survey from Punjab; Pakistan. *International Journal of Environmental Research and Public Health*, **15**(12), 2914. <https://doi.org/10.3390/ijerph15122914>
- Bawazir, S. A. (2004). Consumer attitudes towards community pharmacy services in Saudi Arabia. *International Journal of Pharmacy Practice*, **12**(2), 83–89. <https://doi.org/10.1211/0022357023718>
- Bou Raad, E., Hallit, S., Iskandar, K., Zeenny, R., & Salameh, P. (2017). Validation of a patient-pharmacist relationship measurement tool in Lebanon. *Research & Reviews in Pharmacy and Pharmaceutical Sciences*, **6**(2), 1–10. <https://www.rroj.com/peer-reviewed/validation-of-a-patientpharmacist-relationship-measurement-trntool-in-lebanon-85917.html>
- Cavaco, A. M., Dias, J. P. S., & Bates, I. P. (2005). Consumers' perceptions of community pharmacy in Portugal: A qualitative exploratory study. *Pharmacy World & Science*, **27**, 54–60. <https://doi.org/10.1007/s11096-004-2129-z>
- Cerulli, J. (2002). Patients' perceptions of independent community pharmacists. *Journal of the American Pharmaceutical Association*, **42**(2), 279–282. <https://doi.org/10.1331/108658002763508551>
- Chhabra, M., Gudi, S. K., Rashid, M., Goyal, A., Tripathi, R. K., & Kashyap, A. (2019). Satisfaction towards the services provided by the community pharmacist in north-west India: A qualitative exploratory study. *Clinical Epidemiology and Global Health*, **7**(4), 615–619. <https://doi.org/10.1016/j.cegh.2019.02.001>
- Das, M. (2021). Lebanon faces critical shortage of drugs. *The Lancet Oncology*, **22**(8), 1063. [https://doi.org/10.1016/S1470-2045\(21\)00396-X](https://doi.org/10.1016/S1470-2045(21)00396-X)
- Druică, E., Ianole-Călin, R., Băicuș, C., & Dinescu, R. (2021). Determinants of satisfaction with services, and trust in the information received in community pharmacies: A comparative analysis to foster pharmaceutical care adoption. *Healthcare*, **9**(5), Article 5. <https://doi.org/10.3390/healthcare9050562>
- El Bizri, L., & Dimassi, A. (2019). Lebanese community pharmacy: The role of the pharmacist in the health care. *European Journal of Pharmaceutical and Medical Research*, **6**(1), 149–158. [https://www.ejpmr.com/home/abstract\\_id/4567](https://www.ejpmr.com/home/abstract_id/4567)
- El Hajj, M. S., Salem, S., & Mansoor, H. (2011). Public's attitudes towards community pharmacy in Qatar: A pilot study. *Patient Preference and Adherence*, **5**, 405–422. <https://doi.org/10.2147/PPA.S22117>
- El-Jardali, F., Masri, R., & Sleem, Z. (2023). *LCPS - Rethinking Lebanon's healthcare system amid the economic crisis*. Lebanese Center for Policy Studies. <https://www.lcps-lebanon.org/articles/details/4799/rethinking-lebanon-s-healthcare-system-amid-the-economic-crisis>
- El-Kholy, A. A., Abdelaal, K., Alqhtani, H., Abdel-Wahab, B. A., & Abdel-Latif, M. M. M. (2022). Publics' perceptions of community pharmacists and satisfaction with pharmacy services in Al-Madinah City, Saudi Arabia: A cross sectional study. *Medicina*, **58**(3), 432. <https://doi.org/10.3390/medicina58030432>
- El-Sharif, S. I., Abd Alrahman, N., Khaled, N., Sayah, N., Gamal, E., & Mohamed, A. (2017). Assessment of patient's satisfaction with pharmaceutical care services in community pharmacies in the United Arab Emirates. *Archives of Pharmacy Practice*, **8**(1), 22–30. <https://archivepp.com/article/assessment-of-patients-satisfaction-with-pharmaceutical-care-services-in-community-pharmacies-in-the-united-arab-emirates>
- George, P. P., Molina, J. A. D., Cheah, J., Chan, S. C., & Lim, B. P. (2010). The evolving role of the community pharmacist in chronic disease management—A literature review. *Annals of the Academy of Medicine, Singapore*, **39**(11), 861–867.
- Ghatts, D., & Al-Abdallah, G. (2020). Factors affecting customers selection of community pharmacies: The mediating effect of branded pharmacies and the moderating effect of demographics. *Management Science Letters*, **10**(8), 1813–1826. <http://growingscience.com/beta/msl/3695-factors-affecting-customers-selection-of-community-pharmacies-the-mediating-effect-of-branded-pharmacies-and-the-moderating-effect-of-demographics.html>
- Gold, M., & Wooldridge, J. (1995). Surveying consumer satisfaction to assess managed-care quality: Current practices. *Health Care Financing Review*, **16**(4), 155. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4193529/>

- Hajjar, M. S., Atallah, G. M., Faysal, H., Atiyeh, B., Bakhach, J., & Ibrahim, A. E. (2021). The 2020 Beirut explosion: A healthcare perspective. *Annals of burns and fire disasters*, *34*(4), 293–300. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8717904>
- Hall, J. A., & Dornan, M. C. (1990). Patient sociodemographic characteristics as predictors of satisfaction with medical care: A meta-analysis. *Social Science & Medicine*, *30*(7), 811–818. [https://doi.org/10.1016/0277-9536\(90\)90205-7](https://doi.org/10.1016/0277-9536(90)90205-7)
- Hallit, S., Zeenny, R. M., Sili, G., & Salameh, P. (2017). Situation analysis of community pharmacy owners in Lebanon. *Pharmacy Practice*, *15*(1), 853–853. <https://doi.org/10.18549/PharmPract.2017.01.853>
- Hamadeh, N., Van Rompaey, C., Metreau, E., & Eapen, S. G. (2022, July 1). *New World Bank country classifications by income level: 2022-2023*. <https://blogs.worldbank.org/opendata/new-world-bank-country-classifications-income-level-2022-2023>
- Hasan, S., Sulieman, H., Stewart, K., Chapman, C. B., Hasan, M. Y., & Kong, D. C. M. (2013). Assessing patient satisfaction with community pharmacy in the UAE using a newly-validated tool. *Research in Social & Administrative Pharmacy*, *9*(6), 841–850. <https://doi.org/10.1016/j.sapharm.2012.10.002>
- Hermansen, C. J., & Wiederholt, J. B. (2001). Pharmacist-patient relationship development in an ambulatory clinic setting. *Health Communication*, *13*(3), 307–325. [https://doi.org/10.1207/S15327027HC1303\\_5](https://doi.org/10.1207/S15327027HC1303_5)
- Iskandar, K., Hallit, S., Raad, E. B., Droubi, F., Layoun, N., & Salameh, P. (2017). Community pharmacy in Lebanon: A societal perspective. *Pharmacy Practice*, *15*(2), 893. <https://doi.org/10.18549/PharmPract.2017.02.893>
- Ismail, A., Gan, Y. N., & Ahmad, N. (2020). Factors associated with patient satisfaction towards pharmacy services among out-patients attending public health clinics: Questionnaire development and its application. *PloS One*, *15*(11), e0241082. <https://doi.org/10.1371/journal.pone.0241082>
- Kamei, M., Teshima, K., Fukushima, N., & Nakamura, T. (2001). Investigation of patients' demand for community pharmacies: Relationship between pharmacy services and patient satisfaction. *Yakugaku Zasshi: Journal of the Pharmaceutical Society of Japan*, *121*(3), 215–220. <https://pubmed.ncbi.nlm.nih.gov/11265116/>
- Kamran, K., Iqbal, Q., Haider, S., Anwar, M., Ishaq, R., & Saleem, F. (2020). Public perception, awareness, expectations and experiences towards the role of community pharmacists in Quetta City, Pakistan. *Journal of Pharmacy Practice and Community Medicine*, *6*(1). <https://doi.org/10.5530/jppcm.2020.1.3>
- Kang, J., Rhew, K., Oh, J. M., Han, N., Lee, I.-H., Je, N. K., Ji, E., Lee, E., Yoon, J.-H., & Rhie, S. J. (2017). Satisfaction and expressed needs of pharmaceutical care services and challenges recognized by patients in South Korea. *Patient Preference and Adherence*, *11*, 1381–1388. <https://doi.org/10.2147/PPA.S141562>
- Karaca, A., & Durna, Z. (2019). Patient satisfaction with the quality of nursing care. *Nursing Open*, *6*(2), 535–545. <https://doi.org/10.1002/nop2.237>
- Kassam, R., Collins, J. B., & Berkowitz, J. (2009). Developing anchored measures of patient satisfaction with pharmaceutical care delivery: Experiences versus expectations. *Patient Preference and Adherence*, *3*, 113–122. <https://doi.org/10.2147/ppa.s5087>
- Kassam, R., Collins, J. B., & Berkowitz, J. (2012). Patient satisfaction with pharmaceutical care delivery in community pharmacies. *Patient Preference and Adherence*, *6*, 337–348. <https://doi.org/10.2147/PPA.S29606>
- Khalife, J., Ekman, B., Ammar, W., El-Jardali, F., Al Halabi, A., Barakat, E., & Emmelin, M. (2023). Exploring patient perspectives: A qualitative inquiry into healthcare perceptions, experiences and satisfaction in Lebanon. *PLOS ONE*, *18*(8), e0280665. <https://doi.org/10.1371/journal.pone.0280665>
- Khayyat, S., Walters, P., Whittlesea, C., & Nazar, H. (2021). Patient and public perception and experience of community pharmacy services post-discharge in the UK: A rapid review and qualitative study. *BMJ Open*, *11*(3), e043344. <https://doi.org/10.1136/bmjopen-2020-043344>
- Khojah, H. M. J. (2019). Privacy level in private community pharmacies in Saudi Arabia: A simulated client survey. *Pharmacology & Pharmacy*, *10*(10), Article 10. <https://doi.org/10.4236/pp.2019.1010036>
- Kristina, S. A., Lienaningrum, A. S., & Aditama, H. (2021). Assessing patient satisfaction with community pharmacy services in Yogyakarta, Indonesia. *International Journal of Pharmaceutical Research*, *13*(01). <https://doi.org/10.31838/ijpr/2021.13.01.652>
- Larson, L. N., Rovers, J. P., & MacKeigan, L. D. (2002). Patient satisfaction with pharmaceutical care: Update of a validated instrument. *Journal of the American Pharmaceutical Association*, *42*(1), 44–50. <https://doi.org/10.1331/108658002763538062>
- Lea, T., Sheridan, J., & Winstock, A. (2008). Consumer satisfaction with opioid treatment services at community pharmacies in Australia. *Pharmacy World & Science*, *30*(6), 940–946. <https://doi.org/10.1007/s11096-008-9257-9>
- Malewski, D. F., Ream, A., & Gaither, C. A. (2015). Patient satisfaction with community pharmacy: Comparing urban and suburban chain-pharmacy populations. *Research in Social & Administrative Pharmacy*, *11*(1), 121–128. <https://doi.org/10.1016/j.sapharm.2014.05.001>
- Márquez-Peiró, J. F., & Pérez-Peiró, C. (2008). Evaluación de la satisfacción y de la insatisfacción de pacientes atendidos en la unidad de atención farmacéutica a pacientes externos. *Farmacia Hospitalaria*, *32*(2), 71–76. [https://doi.org/10.1016/S1130-6343\(08\)72817-4](https://doi.org/10.1016/S1130-6343(08)72817-4)
- Marshall, G. N., & Hays, R. D. (1994). *The patient satisfaction questionnaire short form (PSQ-18)*. RAND Corporation. <https://www.rand.org/pubs/papers/P7865.html>
- Matar, M. S., Eljanzoury, A. M., Musa, S. I., Abdulwahaab, M. A., Mustafa, A. A., Yousef, B. A., & Badi, S. (2021). Evaluation of counseling services provided by community pharmacists and patients' satisfaction toward their services: A cross-sectional survey from Sudan. *Current Medical Issues*, *19*(1), 24. [https://doi.org/10.4103/cmi.cmi\\_138\\_20](https://doi.org/10.4103/cmi.cmi_138_20)

- Mera, J. A. (2002). A review of the “welfare state” and alternative ways of delivering health care. *International Journal for Quality in Health Care*, **14**(2), 87–90. <https://doi.org/10.1093/oxfordjournals.intqhc.a002605>
- Mináriková, D., Malovecka, I., & Foltan, V. (2016a). Patient choice of pharmacy and satisfaction with pharmaceutical care – Slovak regional comparison. *Farmacia*, **64**(3), 473–480. [https://farmaciajournal.com/wp-content/uploads/2016-03-art-24-Minarikova\\_473-480.pdf](https://farmaciajournal.com/wp-content/uploads/2016-03-art-24-Minarikova_473-480.pdf)
- Mináriková, D., Malovecká, I., Lehocká, Ľ., Snopková, M., & Foltán, V. (2016b). The Assessment of patient satisfaction and attendance of community pharmacies in Slovakia. *European Pharmaceutical Journal*, **63**(2), 23–29. <https://doi.org/10.1515/afpuc-2016-0002>
- Mohamud, A. I., Shire, F. A., Hussain, K. S., Mahmoud, A. N., & Taha, L. O. (2021). Assessing Patient satisfaction with the service quality provided in community pharmacies: Khartoum locality, Sudan. *Journal of Young Pharmacists*, **13**(4), 405–410. <https://doi.org/10.5530/jyp.2021.13.98>
- Naik Panvelkar, P., Saini, B., & Armour, C. (2009). Measurement of patient satisfaction with community pharmacy services: A review. *Pharmacy World & Science*, **31**(5), 525–537. <https://doi.org/10.1007/s11096-009-9311-2>
- Naser, A. Y., & Abu Sbeat, B. S. (2022). Satisfaction with community pharmacies services in Jordan: A cross-sectional study. *Saudi Pharmaceutical Journal*, **30**(11), 1646–1651. <https://doi.org/10.1016/j.jsps.2022.09.007>
- Nkansah, N., Mostovetsky, O., Yu, C., Chheng, T., Beney, J., Bond, C. M., & Bero, L. (2010). Effect of outpatient pharmacists’ non-dispensing roles on patient outcomes and prescribing patterns. *The Cochrane Database of Systematic Reviews*, **2010**(7), CD000336. <https://doi.org/10.1002/14651858.CD000336.pub2>
- Pinto, A. R., Machado, A., Gonçalves, E., Salsas, L., Vicente, T., Ribeiro, M. I. B., & Pinto, I. C. J. F. (2014). Users satisfaction regarding the service provided in community pharmacies. *Advances in Pharmacology and Pharmacy*, **2**(2), 18–29. <https://doi.org/10.13189/app.2014.020202>
- Prawitz, A. D., Garman, E. T., Sorhaindo, B., O’Neill, B., Kim, J., & Drentea, P. (2006). Incharge financial distress/financial well-being scale: Development, administration, and score interpretation. *Financial Counseling and Planning*, **17**, 34–50. <https://doi.org/10.1037/t60365-000>
- Rasheed, M. K., Alqasoumi, A., Hasan, S. S., & Babar, Z.-U.-D. (2020). The community pharmacy practice change towards patient-centered care in Saudi Arabia: A qualitative perspective. *Journal of Pharmaceutical Policy and Practice*, **13**, 59. <https://doi.org/10.1186/s40545-020-00267-7>
- Sacre, H., Hajj, A., Badro, D. A., Abou Selwan, C., Haddad, C., Aoun, R., & Salameh, P. (2022). The combined outcomes of the COVID-19 pandemic and a collapsing economy on mental well-being: A cross-sectional study. *Psychological reports*, 332941221110545. <https://doi.org/10.1177/00332941221110545>
- Sacre, H., Haddad, C., Hajj, A., Zeenny, R. M., Akel, M., & Salameh, P. (2023). Development and validation of the socioeconomic status composite scale (SES-C). *BMC Public Health*, **23**(1), 1619. <https://doi.org/10.1186/s12889-023-16531-9>
- Sakr, F., Akel, M., Sacre, H., Haddad, C., Tawil, S., Safwan, J., Hajj, A., Zeenny, R. M., Iskandar, K., & Salameh, P. (2023). The specialized competency framework for community pharmacists (SCF-CP) in Lebanon: Validation and evaluation of the revised version. *Journal of Pharmaceutical Policy and Practice*, **16**(1), 77. <https://doi.org/10.1186/s40545-023-00585-6>
- Sanmartin, C., Berthelot, J.-M., & McIntosh, C. N. (2007). Determinants of unacceptable waiting times for specialized services in Canada. *Healthcare Policy = Politiques De Sante*, **2**(3), e140-154.
- Stergachis, A., Maine, L. L., & Brown, L. (2002). The 2001 national pharmacy consumer survey. *Journal of the American Pharmaceutical Association*, **42**(4), 568–576. <https://doi.org/10.1331/108658002763029535>
- Tawil, S., Sacre, H., Sili, G., & Salameh, P. (2020). Patients’ perceptions regarding pharmacists’ healthcare services: The case of Lebanon. *Journal of Pharmacy Practice and Research*, **50**(2), 137–143. <https://doi.org/10.1002/jppr.1615>
- United Nations. (2023). *Sustainable development goal 3 (SDG3): Good health and well-being*. Sustainable Development Goals (SDGs). <https://unstats.un.org/sdgs/report/2023/Goal-03/>
- Verbeek, J. (2004). Patient satisfaction: Is it a measure for the outcome of care or the process of care? *Journal of Clinical Epidemiology*, **57**(2), 217. <https://doi.org/10.1016/j.jclinepi.2003.07.006>
- Wazaify, M., Al-Bsoul-Younes, A., Abu-Gharbieh, E., & Tahaine, L. (2008). Societal perspectives on the role of community pharmacists and over-the-counter drugs in Jordan. *Pharmacy World & Science*, **30**(6), 884–891. <https://doi.org/10.1007/s11096-008-9244-1>
- Wiedenmayer, K., Summers, R. S., Mackie, C. A., Gous, A. G. S., Everard, M., Tromp, D., Organization, W. H., & Federation, I. P. (2006). *Developing pharmacy practice: A focus on patient care - handbook (WHO/PSM/PAR/2006.5)*. World Health Organization. <https://apps.who.int/iris/handle/10665/69399>
- Wirth, F., Tabone, F., Azzopardi, L. M., Gauci, M., Zarb-Adami, M., & Serracino-Inglott, A. (2010). Consumer perception of the community pharmacist and community pharmacy services in Malta. *Journal of Pharmaceutical Health Services Research*, **1**(4), 189–194. <https://doi.org/10.1111/j.1759-8893.2010.00034.x>