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ORIGINAL RESEARCH

Pharmaceutical Care Through Women's Eyes: Insights from a Cross-Sectional Study in Jordan

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Purpose: Females play a central role in health-related decision-making for their families. This study aims to evaluate the satisfaction of female patients with pharmaceutical services in Jordan.

Patients and Methods: This is an online cross-sectional survey study that was conducted in Jordan between February 13th and April 04th 2025. This study utilized the Arabic version of a previously developed questionnaire tool focused on patient satisfaction with pharmaceutical services. Multivariable logistic regression analysis was used to identify significant predictors of satisfaction level.

Results: A total of 637 females participated in this study. Overall, patients' satisfaction with pharmaceutical services was positive. Moreover, 36.1% expressed excellent satisfaction with pharmacy services overall. Some areas showed room for improvement, only 14.8% rated the pharmacists' frequency of checking on medication effectiveness as excellent, and 20.3% rated the pharmacists' interest in their health as excellent. Participants with monthly income of 1000–1500 Jordanian dinars were more than twice as likely to report higher satisfaction compared to those earning less than 500 (adjusted odds ratio (aOR) = 2.23, 95% confidence interval (CI): 1.25–3.99, p = 0.006). Visiting government center pharmacies (aOR = 0.44, 95% CI: 0.24–0.82, p = 0.009) or government hospitals (aOR = 0.42, 95% CI: 0.21–0.84; p = 0.014) was associated with significantly lower odds of satisfaction compared to those visiting community pharmacy.

Conclusion: This study indicates that female patients in Jordan have a positive overall satisfaction with pharmaceutical services. However, training Jordanian pharmacists on updated medication information, pharmaceutical services, communications, and follow-up with patients during their treatment is required to increase satisfaction with pharmacy services and patients' health specifically in governmental healthcare settings; which warrant targeted policy.

Keywords: females, Jordan, pharmacy, satisfaction, services

Introduction

Healthcare services are now focused on enhancing patient satisfaction by providing high-quality care.[1] Pharmacists, whether they work in hospitals, health centers, or community pharmacies, are increasingly recognized as integral components of healthcare frameworks.[2–5] In recent decades, there has been significant evolution and growth in the pharmacy field, particularly a shift from medication dispensing and compounding toward more patient-focused pharmaceutical care services.[6–9] These include patient medication counseling, which is defined as providing patients with non-verbal or verbal information regarding medication, lifestyle changes, dietary considerations, proper storage, necessary precautions, potential side effects, and usage instructions.[10] Indeed, comprehensive patient education and effective consultation are considered professional pharmaceutical interventions that pharmacists can offer.[11]

Patient satisfaction is crucial in evaluating healthcare services, including pharmaceutical services,[12–16] since it reflects the clinical outcomes and effectiveness of treatment.[17,18] Hence, to optimize healthcare resources, it is essential to enhance and ensure the quality of pharmaceutical services by reviewing patient satisfaction.[19] Furthermore, a prior study found an association between patients' perception of pharmaceutical care and levels of satisfaction with this care.[20] The

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perception of healthcare is also affected by patients' gender;[21] the perception and expectations regarding pharmaceutical care services are higher among females than males.[22]

Females play a central role in health-related decision-making for their families.[23] Previous research in Jordan demonstrated that females have considerable delay between the onset of their medical conditions and actual healthcare seeking.[24] Previous research in Jordan showed that female patients face multiple barriers that restrict their access to healthcare services such as the lack of confidence in the skills of the healthcare providers, availability of female healthcare professionals, and a perceived inadequate quality of services.[25] Therefore, studying satisfaction with pharmaceutical care services among females is necessary to understand their perceptions and expectations about these services, improve the services provided, and enhance the satisfaction of female patients. Nevertheless, no previous research has assessed satisfaction with pharmaceutical services among female patients in Jordan. Therefore, our study aims to evaluate the satisfaction of female patients with pharmaceutical services in Jordan.

Materials and Methods

Study Design and Setting

This is an online cross-sectional survey study that was conducted in Jordan between February 13th and April 04th 2025.

Study Population and Sampling Procedure

Participation in the investigation was restricted to females who satisfied the inclusion criteria. The study's participants were females aged 18 years and older. This investigation employed the convenience sampling technique to invite eligible individuals to participate. Social media platforms (WhatsApp, Snapchat, and Facebook) were employed to solicit research participants.

Study Instrument

This study utilized the Arabic version of a previously developed questionnaire tool.[26] The original questionnaire was designed based on previous literature that assessed patient satisfaction with pharmaceutical care.[12,27–29]

Our study instrument is comprised of two sections. The first section focused on participants' demographic and socioeconomic characteristics utilizing multiple choice question (MCQ) format (age, marital status, education level, income, occupation, comorbidities, the frequency of visiting the pharmacy, type of pharmacy being visit, and type of drugs being used). The second section focused on patient satisfaction with pharmaceutical services. This section evaluated the pharmacist's effectiveness in explaining potential side effects, medication usage, time allocated for patient interaction, identifying medication-related issues, gathering patient-specific details, resolving said issues, the waiting area ambiance, service swiftness, tracking outcomes, and medication availability. In addition, this section evaluated the convenience of pharmacy location, comfort of the waiting area, medication quantity adequacy, medication availability, pharmacy cleanliness, and packaging quality.

Instrument Validation

The validity of the original instrument was checked using pilot testing on a group of 30 patients. The outcome of the piloting phase was used to rephrase items, shortening the length of the instrument, and making some modifications. The internal consistency for the survey tool in the current study sample was examined and demonstrated excellent internal consistency with Cronbach's alpha measure value of 0.974.

Sample Size

The minimum required sample size was 383 females, with a confidence interval of 95%, a standard deviation of 0.5, and a margin of error of 5%.

Ethical Considerations

The scientific research ethics committee granted ethical approval for this study (SREC/25/02/127).

Data Analysis

Demographic variables such as age group, marital status and income were presented using frequency and percentages. Continuous variables, including the total scale and the four subscales, were summarized using mean and standard deviation (SD). The Kolmogorov–Smirnov test was used to assess the normality of the continuous variables. The total score was calculated as summation of the four subscales. To compare groups such as type of drugs, independent *t* test was utilized. For comparisons across more than two demographic groups, one-way ANOVA was performed, followed by Tukey post hoc test for pairwise comparisons. Furthermore, multivariable logistic regression analysis was used to identify significant predictors of satisfaction level. Before conducting the regression, the total score was dichotomized based on the median value of 103. All statistical analysis were performed using SPSS version 31, with significance level set at $p < 0.05$.

Results

A total of 637 females participated in this study. The majority of female participants were aged 18–23 years (n = 435, 68.3%), followed by those aged 24–30 years (n = 158, 24.8%). Most were single (n = 501, 78.6%) and held a bachelor's degree (n = 404, 63.4%). A large portion reported a monthly income of less than 500 (n = 327, 51.3%). Regarding employment, 227 (43.5%) were not working and 247 (38.8%) were students. Most respondents had no comorbidities (n = 576, 90.4%) and used medication on as needed basis (n = 579, 90.9%), Table 1.

Table 1 Demographic Characteristics of Participants

Variables		**N**	**%**
Age (Years)	18-23	435	68.3%
	24-30	158	24.8%
	31-40	33	5.2%
	41-50	11	1.7%
Marital status	Single	501	78.6%
	Married	132	20.7%
	Divorced	2	0.3%
	Widowed	2	0.3%
Education level	High school or less	189	29.7%
	Bachelor	404	63.4%
	Postgraduate	44	6.9%
Income (JOD)	Less than 500	327	51.3%
	501-1000	202	31.7%
	1001-1500	64	10.0%
	1501 and above	44	6.9%
Occupation	Retired	5	0.8%
	Not working	277	43.5%
	Working in medical field	59	9.3%
	Student	247	38.8%
	Other fields	49	7.7%

(*Continued*)

Table 1 (Continued).

Variables		N	%
Comorbidities	No	576	90.4%
	Yes	61	9.6%
How often do you visit the pharmacy	Once weekly	91	14.3%
	Once monthly	425	66.7%
	More than once monthly	121	19.0%
The pharmacy you visit	Community pharmacy	519	81.5%
	Pharmacy in government center	58	9.1%
	Government hospital	44	6.9%
	Private hospital	16	2.5%
The drugs you used	PRN	579	90.9%
	Chronic	58	9.1%

Abbreviations: PRN, pro re nata "as needed"; JOD, Jordanian dinar.

Overall, patients' satisfaction with pharmaceutical services was positive. For instance, 237 participants (37.2%) rated the courtesy and respect shown by pharmacy staff as excellent, while 221 (34.7%) gave excellent ratings for pharmacist's instructions on medication use. Moreover, 224 (38.3%) rated the pharmacy's professional appearance as excellent, and 230 (36.1%) expressed excellent satisfaction with pharmacy services overall. However, some areas showed room for improvement, only 94 (14.8%) rated the pharmacists' frequency of checking on medication effectiveness as excellent, and 129 (20.3%) rated the pharmacists' interest in their health as excellent, Table 2.

Table 2 Patient's' Perception of Pharmaceutical Service Quality at Primary Healthcare Centers

	Weak	Normal	Good	Very Good	Excellent
"The pharmacist's interest in your health"	59 (9.3%)	112 (17.6%)	214 (33.6%)	123 (19.3%)	129 (20.3%)
"The pharmacist's professional relationship with you"	110 (17.3%)	127 (19.9%)	205 (32.2%)	98 (15.4%)	97 (15.2%)
"The courtesy and respect shown to you by the pharmacy staff"	19 (3.0%)	64 (10.0%)	150 (23.5%)	167 (26.2%)	237 (37.2%)
"The advice you get from the pharmacist about problems that might occur with your medication"	44 (6.9%)	65 (10.2%)	164 (25.7%)	190 (29.8%)	174 (27.3%)
"The help you received from the pharmacist to avoid unnecessary costs related to your prescriptions"	84 (13.2%)	124 (19.5%)	158 (24.8%)	129 (20.3%)	142 (22.3%)
"The amount of time the pharmacist spends with you"	66 (10.4%)	152 (23.9%)	176 (27.6%)	122 (19.2%)	121 (19.0%)
"The pharmacist's instructions on how to take your medication"	25 (3.9%)	72 (11.3%)	153 (24.0%)	166 (26.1%)	221 (34.7%)
"The professionalism of all the pharmacy staff"	33 (5.2%)	110 (17.3%)	195 (30.6%)	152 (23.9%)	147 (23.1%)
"The way the pharmacist answers your questions"	21 (3.3%)	72 (11.3%)	150 (23.5%)	183 (28.7%)	211 (33.1%)
"The availability of the pharmacist to answer your questions"	22 (3.5%)	75 (11.8%)	197 (30.9%)	174 (27.3%)	169 (26.5%)
"The way the pharmacist helps you in managing your medications"	31 (4.9%)	77 (12.1%)	181 (28.4%)	174 (27.3%)	174 (27.3%)

(*Continued*)

Table 2 (Continued).

	Weak	Normal	Good	Very Good	Excellent
"How frequently the pharmacist checks in with you about how well your medications are working"	179 (28.1%)	111 (17.4%)	151 (23.7%)	102 (16.0%)	94 (14.8%)
"The pharmacist's efforts in helping you improve your health"	68 (10.7%)	108 (17.0%)	177 (27.8%)	150 (23.5%)	134 (21.0%)
"The information the pharmacist gives you about the proper storage of your medication"	109 (17.1%)	95 (14.9%)	157 (24.6%)	144 (22.6%)	132 (20.7%)
"The help you get from your pharmacist when you have a health problem related to your medication"	51 (8.0%)	103 (16.2%)	164 (25.7%)	149 (23.4%)	170 (26.7%)
"The written information the pharmacist provides to you about drug therapy and/or diseases"	48 (7.5%)	100 (15.7%)	178 (27.9%)	153 (24.0%)	158 (24.8%)
"The information the pharmacist gives you about the results you can expect from your drug therapy"	70 (11.0%)	105 (16.5%)	164 (25.7%)	148 (23.2%)	150 (23.5%)
"The pharmacist's help when a medication doesn't have the expected effect"	67 (10.5%)	116 (18.2%)	169 (26.5%)	144 (22.6%)	141 (22.1%)
"How the pharmacist uses information about "previous conditions/drugs when assessing drug therapy"	55 (8.6%)	111 (17.4%)	202 (31.7%)	140 (22.0%)	129 (20.3%)
"The help received from the pharmacy staff with the administrative arrangements necessary to get therapy"	51 (8.0%)	106 (16.6%)	203 (31.9%)	145 (22.8%)	132 (20.7%)
"The way your pharmacist works together with you to plan what should be done to achieve good results from your medications"	62 (9.7%)	109 (17.1%)	181 (28.4%)	143 (22.4%)	142 (22.3%)
"The way your pharmacist works together with your doctor to make sure your medications are the best for you. "	103 (16.2%)	115 (18.1%)	174 (27.3%)	107 (16.8%)	138 (21.7%)
"The responsibility that the pharmacist assumes for your drug therapy"	106 (16.6%)	104 (16.3%)	164 (25.7%)	118 (18.5%)	145 (22.8%)
"The privacy of conversations with the pharmacist"	42 (6.6%)	97 (15.2%)	160 (25.1%)	141 (22.1%)	197 (30.9%)
"The amount of time it takes to get a prescription filled at your pharmacy"	33 (5.2%)	94 (14.8%)	154 (24.2%)	188 (29.5%)	168 (26.4%)
"The professional appearance of the pharmacy"	15 (2.4%)	63 (9.9%)	131 (20.6%)	184 (28.9%)	244 (38.3%)
"Pharmacy's services overall"	15 (2.4%)	55 (8.6%)	145 (22.8%)	192 (30.1%)	230 (36.1%)

Patients with a monthly income between 1000 and 1500 reported higher overall satisfaction (111.81 ± 24.58) compared to those earning less than 500 (99.80 ± 27.89) (p = 0.003). Those visiting community pharmacies also had higher satisfaction scores (104.74 ± 24.48) than patients visiting government centers pharmacies (93.98 ± 30.21) (p = 0.002). Furthermore, patients using PRN medications reported greater satisfaction in other parameters (11.23 ± 1.14) compared to those on chronic medications (10.71 ± 1.86) (p = 0.002). Additional differences were seen across occupational groups, particular in other parameters (10.00 ± 2.55) than those in other employment fields. More details are provided in Table 3.

Patients with monthly income of 1000–1500 were more than twice as likely to report higher satisfaction compared to those earning less than 500 (OR = 2.23, 95% CI: 1.25–3.99, p = 0.006). Additionally, visiting government center pharmacies (OR = 0.44, 95% CI: 0.24–0.82, p = 0.009) or government hospitals (OR = 0.42, 95% CI: 0.21–0.84; p = 0.014) was associated with significantly lower odds of satisfaction compared to those visiting community pharmacy, Table 4.

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Table 3 Sociodemographic and Clinical Determinants of Patient Satisfaction with Pharmacy Services

		Interpersonal Relationship	P Value	Managing Therapy	P Value	General Satisfaction	P Value	Other Satisfaction Parameters	P Value	Total	P Value
Age	18-23	30.76 ± 8.66	0.75	45.85 ± 14.97	0.97	15.02 ± 4.05	0.77	11.07 ± 1.27	0.01	102.70 ± 26.80	0.94
	24-30	31.20 ± 9.34		46.41 ± 15.35		14.71 ± 3.80		11.39 ± 1.16		103.70 ± 27.65	
	31-40	31.58 ± 8.74		45.82 ± 15.30		14.97 ± 3.81		11.48 ± 0.83		103.85 ± 26.70	
	41-50	28.64 ± 12.25		45.00 ± 19.84		14.18 ± 5.27		11.55 ± 1.21		99.36 ± 36.62	
Marital status	Single	30.79 ± 8.80	0.21	45.81 ± 15.10	0.04	15.01 ± 3.98	0.04	11.11 ± 1.27	0.05	102.72 ± 27.00	0.1
	Married	31.02 ± 9.23		45.91 ± 15.11		14.46 ± 4.01		11.42 ± 1.06		102.81 ± 27.50	
	Divorced	44.00 ± 0.00		66.00 ± 5.66		20.00 ± 0.00		12.00 ± 0.00		142.00 ± 5.66	
	Widowed	30.50 ± 4.95		68.50 ± 2.12		19.50 ± 0.71		11.00 ± 0.00		129.50 ± 6.36	
Education	High school or less	30.50 ± 8.51	0.43	46.80 ± 14.73	0.53	15.10 ± 4.19	0.71	11.11 ± 1.31	0.58	103.51 ± 26.42	0.67
	Bachelor	30.88 ± 8.98		45.46 ± 15.15		14.83 ± 3.89		11.20 ± 1.20		102.37 ± 27.15	
	Postgraduate	32.41 ± 9.68		47.07 ± 16.82		15.09 ± 4.11		11.30 ± 1.11		105.86 ± 30.32	
Income (JOD)	Less than 500	29.53 ± 9.22	0.001	44.65 ± 15.25	0.02	14.51 ± 4.22	0.006	11.11 ± 1.29	0.22	99.80 ± 27.89	0.003
	500-1000	32.26 ± 8.24		47.27 ± 14.46		15.12 ± 3.64		11.26 ± 1.14		105.90 ± 25.39	
	1000-1500	34.03 ± 7.58		50.03 ± 14.29		16.36 ± 3.67		11.39 ± 1.18		111.81 ± 24.58	
	1500-	29.91 ± 9.19		43.89 ± 17.32		15.02 ± 3.81		11.05 ± 1.22		99.86 ± 29.15	
Occupation	Retired	25.80 ± 12.07	0.48	37.60 ± 18.61	0.29	13.80 ± 5.89	0.24	10.00 ± 2.55	0.02	87.20 ± 37.00	0.56
	Not working	30.48 ± 9.03		47.01 ± 14.91		14.96 ± 4.16		11.23 ± 1.21		103.69 ± 27.27	
	Working in medical field	30.68 ± 9.56		43.44 ± 16.72		13.95 ± 4.08		11.42 ± 0.86		99.49 ± 29.43	
	Student	31.50 ± 8.34		45.43 ± 14.64		15.01 ± 3.75		11.05 ± 1.29		102.99 ± 25.87	
	Other fields	30.71 ± 9.68		46.69 ± 16.42		15.59 ± 3.89		11.35 ± 1.11		104.35 ± 29.04	
Comorbidities	No	30.98 ± 8.76	0.36	46.08 ± 14.86	0.56	14.98 ± 3.95	0.30	11.19 ± 1.22	0.44	103.23 ± 26.67	0.41
	Yes	29.89 ± 10.04		44.90 ± 17.67		14.43 ± 4.42		11.07 ± 1.30		100.28 ± 31.34	

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How often do you visit the pharmacy	Once weekly	30.68 ± 9.43	0.21	48.05 ± 15.11	0.19	15.33 ± 4.07	0.38	11.34 ± 1.19	0.28	105.41 ± 27.94	0.25
	Once monthly	30.55 ± 8.79		45.24 ± 15.24		14.78 ± 4.04		11.13 ± 1.26		101.69 ± 27.18	
	More than once monthly	32.16 ± 8.79		46.98 ± 14.71		15.15 ± 3.77		11.23 ± 1.15		105.51 ± 26.27	
The pharmacy you visit	Community pharmacy	31.50 ± 8.68	0.001	46.74 ± 14.90	0.04	15.22 ± 3.89	0.001	11.28 ± 1.08	0.001	104.74 ± 26.48	0.002
	Pharmacy in government center	27.57 ± 9.87		42.36 ± 16.57		13.24 ± 4.33		10.81 ± 1.48		93.98 ± 30.21	
	Government hospital	27.57 ± 8.67		41.68 ± 14.79		13.41 ± 4.02		10.57 ± 1.62		93.23 ± 26.93	
	Private hospital	31.56 ± 8.61		45.94 ± 16.04		15.69 ± 3.81		10.88 ± 2.47		104.06 ± 27.40	
The drugs you used	PRN	30.99 ± 8.69	0.28	46.16 ± 14.81	0.32	15.02 ± 3.89	0.05	11.23 ± 1.14	0.002	103.40 ± 26.44	0.18
	Chronic	29.67 ± 10.68		44.09 ± 18.16		13.98 ± 4.88		10.71 ± 1.86		98.45 ± 33.24	

Abbreviations: PRN, pro re nata "as needed"; JOD, Jordanian dinar.

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Table 4 Multivariable Logistic Regression of Factors Associated with Pharmacy Service Satisfaction

		aOR (95% CI)	P value
Age (years)	18–23	Reference	
	24–30	0.84 (0.52–1.36)	0.485
	31–40	0.75 (0.32–1.75)	0.513
	41-50	1.88 (0.44–8.01)	0.391
Marital status	Single	Reference	
	Married	1.05 (0.66–1.68)	0.831
Education	High school or less	Reference	
	Bachelor	0.86 (0.56–1.32)	0.480
	Postgraduate	0.81 (0.39–1.69)	0.572
Income (JOD)	Less than 500	Reference	
	501-1000	1.41 (0.97–2.06)	0.071
	1001-1500	2.23 (1.25–3.99)	0.006
	1501 and above	0.94 (0.48–1.84)	0.860
Occupation	Retired	Reference	
	Not working	1.65 (0.21–12.75)	0.631
	Working in medical field	1.19 (0.14–9.70)	0.874
	Student	1.52 (0.19–12.05)	0.694
	Other fields	2.07 (0.25–17.18)	0.499
	No	Reference	
Comorbidities	Yes	0.63 (0.33–1.17)	0.142
How often do you visit the pharmacy	Once weekly	Reference	
	Once monthly	0.82 (0.51–1.31)	0.406
	More than once monthly	0.99 (0.56–1.74)	0.966
The pharmacy you visit	Community pharmacy	Reference	
	Pharmacy in government center	0.44 (0.24–0.82)	0.009
	Government hospital	0.42 (0.21–0.84)	0.014
	Private hospital	0.52 (0.18–1.53)	0.236
	PRN	Reference	
The drugs used for	Chronic	0.92 (0.48–1.76)	0.808

Abbreviations: PRN, pro re nata "as needed"; JOD, Jordanian dinar; aOR, Adjusted odds ratio; CI, Confidence interval.

Discussion

Our study found that overall patient satisfaction with pharmaceutical services was positive. For example, 37.2% of participants rated the courtesy and respect shown by pharmacy staff as excellent. Likewise, 34.7% of participants gave excellent ratings for the pharmacist's instructions on using their medications. Additionally, 38.3% of patients rated the

pharmacy's professional appearance as excellent, and 36.1% expressed excellent satisfaction with the pharmacy's overall services. Similarly, the overall satisfaction with the pharmacy services in Pakistan was 39.6%.[30] However, the overall satisfaction with the pharmacy services in our study was lower than that of the bulk of prior studies, as the overall satisfaction with the pharmacy services was 46.2% in Eastern Ethiopia,[31] 49% in Nigeria,[32] 52.6% in Ethiopia,[33] 62.5% in Saudi Arabia,[34] 64.8% in Nablus,[35] 72.5% in Jordan,[36] and 74.6% in South Korea.[37] Additionally, earlier investigations found that participants from Romania,[38] Nablus,[35] Jordan,[39] and India[40] reported higher satisfaction with the courtesy and respect shown by pharmacy staff, the pharmacist's instructions on using their medications, and/or the pharmacy's professional appearance than our participants did. A previous systematic review that involved 59 studies in the Middle East region identified multiple factors that affect Middle Eastern women's utilization of healthcare services such as their sociodemographic characteristics, education, sources of their health information, risk factors, personal factors, service access and quality levels, and organizational factors.[41] Other research in the Middle East reported that cultural and religious factors strongly influence females' perception and utilization of healthcare services.[42,43] This underscored the need for culturally sensitive healthcare services.[41] Previous research in Saudi Arabia found that female patients delay their emergency medical care due to gender preferences and religious rules concerned with cross-gender interactions.[44] Indeed, positive pharmacists' attitude, excellent consultation, and clear explanation of pharmaceutical services and products are associated positively with patients' satisfaction.[29,45–48] Thus, training Jordanian pharmacists on updated roles of pharmacists and medication information may aid in improving their professionalism and consultation skills, thereby increasing satisfaction with pharmacy services. These may also enhance patients' health outcomes and medication regimen adherence, as patients with high levels of satisfaction are anticipated to have elevated levels of medication regimen adherence and more favorable health outcomes.[49]

Other areas in the current investigation also showed room for improvement; only 14.8% rated the pharmacists' frequency of checking medication effectiveness as excellent, and 20.3% rated the pharmacists' interest in their health as excellent. Consistent with these, in Nablus, patients rated the effort of pharmacists to check medication effectiveness and pharmacists' interest in their health as moderate.[35] Besides, approximately 50% of participants in a prior study from Jordan indicated that during their treatment with medications, they required follow-up with their pharmacist.[50] Now, the pharmaceutical care vision encompasses a wide range of responsibilities for pharmacists, extending beyond the management of patient medications to include providing patients with the most cost-effective, safe, and effective medications, checking medication effectiveness, and offering comprehensive patient consultations.[6] Thus, pharmacists must spend more consultation time to ensure they deliver comprehensive information to patients.[51] Research documented that both non-verbal and verbal communication-related consultations enhanced the level of patient satisfaction.[52] However, satisfaction with pharmacist communication is low among many participants, such as in Qatar.[53] The literature underscores that the deficiency of professional pharmacists and privacy concerns are among other barriers to consultation.[54] Consequently, training pharmacists on pharmaceutical services and checking their consultations and communications is recommended.[35] Furthermore, pharmacists must follow up with patients during their treatment.[55]

In this study, patients with a monthly income of 1000–1500 were more than twice as likely to report higher satisfaction compared to those earning less than 500 (OR = 2.23, 95% CI: 1.25–3.99, p = 0.006). Although several prior studies are consistent with this finding, other studies find no significant association, no association, or even a negative association between income and satisfaction with pharmaceutical services. For instance, in Ethiopia, the level of expectation towards pharmaceutical services was higher among individuals with higher incomes.[56,57] Moreover, Ethiopian patients were dissatisfied with pharmacy services due to high medication prices and other socioeconomic factors.[58] Similarly, satisfaction with pharmacy services was higher among US patients with higher socioeconomic status.[59] On the contrary, another earlier investigation from Romania did not find an association between patients' income and satisfaction with services provided by community pharmacies.[60] Even a significant negative association was reported between income and satisfaction with primary healthcare services in Saudi Arabia.[61] These results suggest an inconsistent and intricate association between income and satisfaction with pharmaceutical services. Besides, this association may be influenced by other factors that are documented to impact patients' satisfaction, such as differences in healthcare settings, region, and service delivery.[62] In line with this, although the level of financial satisfaction was higher with postal pharmacy services than with community pharmacy services in South Africa, the level of satisfaction with community

pharmacy services was higher due to less medication wastage and better counseling.[63] Hence, it is essential to implement strategies that ensure all patients receive equitable and adequate pharmaceutical services.

This study showed that visiting government center pharmacies (aOR = 0.44, 95% CI: 0.24–0.82, p = 0.009) or government hospitals (aOR = 0.42, 95% CI: 0.21–0.84; p = 0.014) was associated with significantly lower odds of satisfaction compared to those visiting community pharmacies. Consistent with this, levels of patient satisfaction with community pharmacy services in Spain[64] and Pakistan[65] were higher than those with hospital pharmacy services. These findings also align with observations from Saudi Arabia and South Africa, which indicate that participants have higher satisfaction levels with community pharmacy services compared to primary healthcare center pharmacies in Saudi Arabia[66] and postal pharmacies in South Africa.[63] These significantly higher satisfactions with community pharmacy services reflect better counseling and an increased interest in patients' health, as well as lower waiting times.[63,64,66] The low satisfaction with hospital pharmacy services may also be a result of poor interaction with patients due to the hospital pharmacists' workload.[65] The literature also highlights that patients' expectations and satisfaction are affected by the location of the pharmacy, waiting zone, knowledge and availability of pharmacists, and prior experience.[34,67] Therefore, educational and counseling interventions for pharmacists at government pharmacies are necessary to enhance their knowledge and skills, thereby enabling them to interact effectively with patients, reduce patient waiting times, improve their experience, and increase their satisfaction levels.

Decision makers in the healthcare sector are advised to decrease workload on the pharmacists, which might cause medication errors.[68] Besides, increasing the number of pharmacists at the dispensing window, can enhance patient throughput time. Furthermore, continuous training and knowledge assessment are recommended on regular basis to maintain up to date knowledge and skills.

This research is not free from limitations. The online cross-sectional survey research utilizing convenience sampling technique through social media platforms has limited generalizability and ability to examine causality across the study variables. Survey-based research utilizing self-reported measures is prone to reporting bias and social desirability bias. Therefore, the study findings should be interpreted carefully. Future research should target the implementation of longitudinal study design utilizing probability sampling techniques. Furthermore, female patients' satisfaction could be further examined utilizing other objective healthcare measures such as improved medication adherence rate, improved medication awareness, adverse drug monitoring, and frequency of follow-up contacts.

Conclusion

This study indicates that female patients in Jordan generally have a positive overall satisfaction with pharmaceutical services. However, many areas showed room for improvement. Moreover, patients with a high monthly income and those visiting community pharmacies report higher satisfaction. Thus, training Jordanian pharmacists on updated medication information, pharmaceutical services, consultations, communications, and follow-up with patients during their treatment is required to increase satisfaction with pharmacy services and patients' health. Furthermore, it is crucial to develop strategies that ensure all patients receive equitable and satisfactory pharmaceutical services.

Data Sharing Statement

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethical Approval and Consent to Participate

The research ethics committee at Isra University, Amman, Jordan, approved the study protocol (SREC/25/02/127). Informed consent was obtained from the study participants prior to study commencement. This study was conducted in accordance with the World Medical Association (WMA) Declaration of Helsinki.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare no conflict of interest.

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