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Original Article

Patient satisfaction with Saudi community pharmacy services (Wasfaty System)

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الملخص

أهداف البحث: شهد نظام الرعاية الصحية في المملكة العربية السعودية تحولات كبيرة كجزء من رؤية 2030. وكجزء من هذا التحول، تم تنفيذ نظام الوصفات الطبية الإلكتروني (وصفتي) لتمكين المرضى من تلقي الوصفات الطبية من صيدليات المجتمع. قامت هذه الدراسة بتقييم رضى المرضى عن خدمات صيدليات المجتمع ونظام وصفتي.

طرق البحث: استخدمت دراسة رصدية مقطعية بيانات موجودة من برنامج تجربة المرضى التابع لوزارة الصحة السعودية. تم جمع البيانات من مرضى أعمارهم أكبر من 15 سنة، والذين زاروا مراكز الرعاية الأولية الحكومية خلال النصف الأول من عام 2022. وتم إجراء إحصاءات تلخيصية، وتحليلات الانحدار اللوجستي متعدد المتغيرات، لتقييم ومقارنة الرضى بين مجموعات المرضى.

النتائج: شملت العينة 66,541 مريضاً. وكان أكثر من 70% من المرضى راضين عن خدمات صيدليات المجتمع ونظام وصفتي. أظهر التقدم في السن والإناث ارتباطا إيجابيًا بالرضى عن العديد من الخدمات. في حين أظهر المرضى الذين زاروا العيادات الوقائية احتمالات أعلى للرضى عن توافر الأدوية ووقت الانتظار، بينما كان مرضى عيادات الأمراض المزمنة أقل رضى عن توافر الأدوية. كان لدى المرضى السعوديين احتمالات أقل للرضى عن الخدمات المتعددة.

الاستنتاجات: قد تشير مستويات الرضى المرتفعة بشكل عام بين المرضى إلى نجاح نظام وصفتي في تلبية احتياجات المرضى وتوقعاتهم. ومع ذلك، لا تزال هناك مجالات للتحسين لزيادة رضى المرضى، مثل معالجة نقص الأدوية وضمان التواصل الواضح بين المريض والصيدلي. تسلط النتائج الضوء على أهمية المراقبة والتقييم المستمرة لدعم تجربة المريض مع خدمات الصيدلة التي قد تحسن تجربة\رحلة المريض، والالتزام بالدواء، ونتائج الرعاية الصحية الشاملة.

الكلمات المفتاحية: صيدلية المجتمع؛ الوصفة الإلكترونية؛ رضى المرضى؛ المملكة العربية السعودية؛ وصفتي

Abstract

Introduction: The healthcare system in KSA has been substantially transformed as part of Vision 2030, including implementation of an electronic prescribing system, called Wasfaty, to enable patients to receive their prescriptions from community pharmacies (CPs). This study assessed patient satisfaction with CPs and the Wasfaty system.

Methods: This cross-sectional observational study used existing data from the Saudi Ministry of Health's patient experience program. Data were collected from patients (≥15 years of age) visiting governmental primary care clinics in 2022. Summary statistics were determined and multivariable logistic regression analyses were conducted.

Results: The sample included 66,541 patients. More than 70% of patients were satisfied with the services of the CPs and the Wasfaty system. Being older and being female

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consistently showed a positive association with satisfaction across several services. Whereas patients in preventive clinics had higher odds of satisfaction with medication availability (OR: 1.19, 95% CI: 1.03−1.37) and waiting time (OR: 1.23; 95% CI: 1.03−1.47), patients in chronic disease clinics had lower satisfaction with medication availability (OR: 0.92, 95% CI: 0.85−0.99). Saudi patients had lower odds of being satisfied with multiple services.

Conclusions: The overall high satisfaction among patients suggested the success of the Wasfaty system in meeting patient needs and expectations. However, areas for improvement exist to increase patient satisfaction, such as addressing medication shortages and ensuring clear patient−pharmacist communication. The results highlight the importance of continued monitoring and evaluation to support the patient experience with pharmacy services, and to improve patients' journeys, medication adherence, and overall healthcare outcomes.

Keywords: Community pharmacy; E-Prescribing; KSA; Patient satisfaction; Wasfaty

Introduction

The healthcare system of the Kingdom of Saudi Arabia (KSA) has undergone substantial changes in recent years as a result of the Vision 2030 strategic plan, aimed at transforming the healthcare delivery system to address increasing demand, rates of chronic conditions, and costs of care.[1,2] Health care was previously delivered primarily through government facilities that offered care to citizens free of charge; however, private healthcare was available for those with health insurance or those able to pay for care themselves.[1,3] The transformation of the Saudi Arabian healthcare system has involved privatization of some services, such as pharmaceutical services. Before Vision 2030, most Saudi patients received their prescriptions from pharmacies within government-run primary health clinics. After the transformation, most patients using the clinics are given prescriptions to private community pharmacies, facilitated by an electronic (e)-prescription system called Wasfaty.[4] The Wasfaty system sends prescription orders to the community pharmacy closest to the patient's home. The new e-prescription system and community pharmacies are expected to increase efficiency and lower costs.[4,5]

According to Andersen,[6] utilization of health services is a function of the environment, population characteristics, health behaviors, and outcomes of service utilization.[6] One outcome of service utilization is consumer satisfaction. Patients' experience with a healthcare system affects their satisfaction and consequently their future utilization of services.[6] If patients are not satisfied with the healthcare that they receive, they may be less inclined to use the services in the future. Failure to obtain and use necessary prescriptions can result in deterioration of patients' health status, and lead to potentially greater healthcare service utilization in the future, thus increasing healthcare costs and offsetting any cost savings from use of the new system. Therefore, assessing satisfaction with all aspects of the healthcare delivery system—including new system features such as the use of community pharmacies and the Wasfaty e-prescribing system—is important. At least three prior satisfaction studies have assessed Wasfaty in local regions of KSA. One study surveyed 400 patients regarding their satisfaction with accessibility to community pharmacies, pharmacy facilities, pharmacy personnel, and Wasfaty.[5] The mean satisfaction rate for the patients' experience with Wasfaty was 3.3 on a scale of 1−5, with 5 indicating high satisfaction.[5] A second study surveyed 294 patients in the Qassim region regarding their satisfaction with Wasfaty and found a satisfaction level of 2.92 out of 5.[7] In a third study surveying 481 patients in the Al Ahsa province, 84.1% of the sampled patients were at least satisfied with Wasfaty.[8] However, those studies are limited by their convenience sampling method, which relied on distributing surveys via social media[5,7] or convenience sampling at local primary healthcare centers (PHCs).[8]

Furthermore, in a study surveying community pharmacists in the Qassim region, nearly three-fourths of the participants disagreed with the statement that Wasfaty has increased patient satisfaction.[9] Therefore, to address the limitations and discordant outcomes in prior studies, we conducted this study to assess satisfaction with services available at community pharmacies and the Wasfaty e-prescribing system among patients who received medications through community pharmacies using Wasfaty, according to a large representative sample of community pharmacy patients whose prescriptions were sent via Wasfaty.

Materials and Methods

Study design

The research used a cross-sectional observational design.

Data sources

Data were obtained from the Patient Experience Measurement Program established by the Saudi Ministry of Health (MOH). The Patient Experience Measurement Program is part of the Saudi health transformation plan, which is aimed at improving patient experience and quality of care in MOH facilities by actively involving patients and their families in enhancing healthcare services. This initiative prioritizes engaging patients and their families to drive improvements in the delivery of healthcare. Surveys designed by Health.Links/Press Ganey, an external consulting company, are used by the Saudi MOH to gather patient feedback regarding their satisfaction with healthcare services. These patient experience surveys are carefully developed to capture essential information regarding the patient journey and overall experience in navigating the healthcare system. The survey development process comprises multiple stages and involves collaboration with key stakeholders, to ensure that

all aspects of the patient experience, from registration to discharge, are considered across various specialties. The surveys are rigorously tested to ensure their validity and reliability, and studies have demonstrated strong internal consistency and validity.[10–12]

This study focused on the survey results obtained from the pharmacy domain of the modified Medical Practice Survey. This survey was conducted among patients who sought care at MOH PHCs between January 2022 and June 2022. The complete survey comprised 35 rating questions divided into nine domains, representing the different stages of the patient journey within a PHC. These domains included access, moving through the visit, nurses/assistants, care providers, laboratory tests, radiology, pharmacy, personal issues, and overall assessment. Individual questions associated with each domain are provided in the Supplementary Material (Supplementary Table S1).

The survey was delivered via SMS to all patients who provided registered mobile phone numbers during their visit, within 24 hours of the visit. Each patient received a unique survey link that they alone could access, and participation was entirely voluntary. Patients were allowed to decide whether they wanted to complete the survey after understanding its objectives. The survey questions were not obligatory, thus allowing patients to submit incomplete responses if desired.

For the purposes of this study, the analysis included only users of Wasfaty and community pharmacies who submitted complete surveys (n = 66,541). The survey did not collect demographic information such as age, sex, and nationality directly from the respondents; instead, these details were provided by the Saudi MOH through their unified data repository, which was matched to the patient's registered phone number used for sending unique SMS links by Health. Links/Press Ganey.

Measures

Dependent variables

Satisfaction with the pharmacy services provided through community pharmacies: To measure satisfaction with the pharmacy services provided through community pharmacies, we evaluated patient satisfaction across the following five aspects: availability of medications, pharmacists' explanations of prescriptions, waiting time to receive medications, clarity of instructions provided by Wasfaty, and ease of use and accuracy of Wasfaty maps to the community pharmacies. Each of these services was assessed separately through a single-item question, for which respondents chose from five response options ranging from very poor to very good. To simplify the analysis, we created a binary satisfaction variable for each aspect, and categorized responses as either 0 (indicating very poor, poor, or fair) or 1 (indicating good or very good).

Independent variables

The independent variables considered in the study encompassed various patient demographic characteristics, including age (as a continuous variable), sex (categorized as male or female), and nationality (classified as Saudi and non-Saudi). Additionally, the clinics visited by patients were considered, including family medicine clinics; chronic diseases clinics; dental clinics; obstetrics and gynecology clinics; preventive clinics; and other specialty clinics, such as ear/nose/throat, eye, or orthopedic clinics.

Statistical analysis plan

To examine the participants in this study and their responses to survey questions, we used summary statistics such as frequency distributions and percentages. Comparisons were conducted with t-tests for continuous variables and chi-square tests for categorical variables, to examine the differences between two participant groups (satisfied and unsatisfied) for the five outcomes of interest: availability of medications, pharmacists' explanations of prescriptions, waiting time to receive medications, clarity of Wasfaty's instructions, and ease of use and accuracy of Wasfaty maps. For each outcome, a multivariable logistic regression analysis was performed to identify the characteristics associated with that specific outcome. The data preparation and statistical analyses were performed in Stata/BE 17.0 (Stata Corp, College Station, TX). The significance threshold (alpha) was set at 0.05.

Results

A total of 66,541 patients who completed the survey had used the Wasfaty system, of whom 50.3% were female (Table 1). The average age of all patients was 43.20 years (standard deviation (SD): 14.33 years). Most patients were Saudi citizens (92.0% vs 8.0%). Of all clinics included in the study, family medicine clinics had the highest number of Wasfaty users (83.7%), whereas specialty clinics had the lowest number of Wasfaty users (<1%).

Satisfaction with availability of medications

Table 1 presents the characteristics of patients stratified by satisfaction with medication availability. A total of 73.3% of patients were satisfied with medication availability at community pharmacies. Compared with unsatisfied patients, satisfied patients were older (43.0 years vs 42.0 years; $p < 0.001$), were more likely to be female (75.0% vs 25.0%; $p < 0.001$), were more often non-Saudi (77.4% vs 22.6%; $p < 0.001$), and more often received care in preventive clinics (76.5% vs 23.5%; $p = 0.002$). Multivariable analysis (Table 2) showed that age, sex, nationality, and some clinic types were significantly associated with satisfaction with medication availability. Being older and being female were both associated with higher odds of satisfaction with medication availability (odds ratio (OR): 1.00; 95% confidence interval (CI): 1–1.01 and OR: 1.02; 95% CI: 1.16–1.25, respectively). Compared with patients in family medicine clinics, patients in dental and preventive clinics had higher odds of satisfaction with medication availability (OR: 1.18, 95% CI: 1.09–1.27 and OR: 1.19,

Table 1: Characteristics of respondents, overall and by satisfaction with availability of prescribed medications, pharmacists' explanations of prescriptions, waiting time to receive medications, clarity of Wasfaty's instructions, and ease of use and accuracy of Wasfaty's maps.

Variables	Overall	Satisfaction with availability of medications			Satisfaction with pharmacists' explanations of prescriptions			Satisfaction with waiting time to receive medications			Satisfaction with clarity of Wasfaty's instructions			Satisfaction with ease of use and accuracy of Wasfaty's maps		
		Yes	No	*p*-Value	Yes	No	*p*-Value	Yes	No	*p*-Value	Yes	No	*p*-Value	Yes	No	*p*-Value
	N (%)	N (%)	N (%)		N (%)	N (%)		N (%)	N (%)		N (%)	N (%)		N (%)	N (%)	
Total	66,541	48,775 (73.30)	17,766 (26.70)		54,732 (82.25)	11,809 (17.75)		56,428 (84.80)	10,113 (15.20)		59,416 (89.29)	7125 (10.71)		58,848 (88.44)	7693 (11.56)	
Sex																
Male	33,060 (49.68)	23,736 (71.80)	9324 (28.20)	<0.001*	26,516 (80.21)	6544 (19.79)	<0.001*	27,821 (84.15)	5239 (15.85)	<0.001*	29,445 (89.07)	3615 (10.93)	0.060	29,220 (88.38)	3840 (11.62)	0.665
Female	33,481 (50.32)	25,039 (74.79)	8442 (25.21)		28,216 (84.27)	5265 (15.73)		28,607 (85.44)	4874 (14.56)		29,971 (89.52)	3510 (10.48)		29,628 (88.49)	3853 (11.51)	
Nationality																
Non-Saudi	5351 (8.04)	4140 (77.37)	1211 (22.63)	<0.001*	4603 (86.02)	748 (13.98)	<0.001*	4688 (87.61)	663 (12.39)	<0.001*	4898 (91.53)	453 (8.47)	<0.001*	4909 (91.74)	442 (8.26)	<0.001*
Saudi	61,190 (91.96)	44,635 (72.94)	16,555 (27.06)		50,129 (81.92)	11,061 (18.08)		51,740 (84.56)	9450 (15.44)		54,518 (89.10)	6672 (10.90)		53,939 (88.15)	7251 (11.85)	
Clinics																
Family medicine	55,706 (83.72)	40,753 (73.16)	14,953 (26.84)	0.002*	45,751 (82.13)	9955 (17.87)	0.225	47,168 (84.67)	8538 (15.33)	<0.001*	49,691 (89.20)	6015 (10.80)	<0.001*	49,243 (88.40)	6463 (11.60)	<0.001*
Chronic diseases	3321 (4.99)	2393 (72.06)	928 (27.94)		2739 (82.48)	582 (17.52)		2857 (86.03)	464 (13.97)		2993 (90.12)	328 (9.88)		2994 (90.15)	327 (9.85)	
Dental	3548 (5.33)	2677 (75.45)	871 (24.55)		2943 (82.95)	605 (17.05)		3019 (85.09)	529 (14.91)		3193 (89.99)	355 (10.01)		3128 (88.16)	420 (11.84)	
OB/GYN	2251 (3.38)	1648 (73.21)	603 (26.79)		1853 (82.32)	398 (17.68)		1876 (83.34)	375 (16.66)		1975 (87.74)	276 (12.26)		1938 (86.10)	313 (13.90)	
Preventive	1090 (1.64)	834 (76.51)	256 (23.49)		917 (84.13)	173 (15.87)		948 (86.97)	142 (13.03)		978 (89.72)	112 (10.28)		969 (88.90)	121 (11.10)	
Specialty	625 (0.94)	470 (75.20)	155 (24.80)		529 (84.64)	96 (15.36)		560 (89.60)	65 (10.40)		586 (93.76)	39 (6.24)		576 (92.16)	49 (7.84)	
Age (continuous)	**Mean (SD)** 43.17 (14.33)	**Mean (SD)** 43.33 (14.27)	**Mean (SD)** 42.74 (14.49)	<0.001*	**Mean (SD)** 43.33 (14.25)	**Mean (SD)** 42.42 (14.63)	<0.001*	**Mean (SD)** 43.45 (14.27)	**Mean (SD)** 41.64 (14.52)	<0.001*	**Mean (SD)** 43.38 (14.27)	**Mean (SD)** 41.46 (14.71)	<0.001*	**Mean (SD)** 43.54 (14.28)	**Mean (SD)** 40.33 (14.38)	<0.001*

Notes: N = number, OB/GYN = obstetrics and gynecology, PHC = primary healthcare centers, SD = standard deviation.
Satisfaction is defined as a combination of survey responses very good and good.
*$p < 0.05$.

Table 2: Factors associated with satisfaction with availability of prescribed medications, pharmacists' explanations of prescriptions, waiting time to receive medications, clarity of Wasfaty's instructions, and ease of use and accuracy of Wasfaty's maps among Wasfaty users.

Variables	Satisfaction with availability of medications			Satisfaction with pharmacists' explanations of prescriptions			Satisfaction with waiting time to receive medications			Satisfaction with clarity of Wasfaty's instructions			Satisfaction with ease of use and accuracy of Wasfaty's maps		
	OR	95% CI	*p*-Value	OR	95% CI	*p*-Value	OR	95% CI	*p*-Value	OR	95% CI	*p*-Value	OR	95% CI	*p*-Value
Age (continuous)	1.00	1.00–1.01	<0.001*	1.01	1.01–1.01	<0.001*	1.01	1.01–1.01	<0.001*	1.01	1.01–1.01	<0.001*	1.02	1.01–1.02	<0.001*
Sex															
Male	Ref			Ref			Ref			Ref			Ref		
Female	1.20	1.16–1.25	<0.001*	1.39	1.33–1.45	<0.001*	1.18	1.13–1.23	<0.001*	1.12	1.06–1.18	<0.001*	1.12	1.07–1.18	<0.001*
Nationality															
Non-Saudi	Ref			Ref			Ref			Ref			Ref		
Saudi	0.77	0.72–0.83	<0.001*	0.71	0.66–0.77	<0.001*	0.77	0.71–0.84	<0.001*	0.75	0.68–0.83	<0.001*	0.68	0.61–0.75	<0.001*
Clinics															
Family medicine	Ref			Ref			Ref			Ref			Ref		
Chronic diseases	0.92	0.85–0.99	0.037*	0.99	0.90–1.08	0.780	1.02	0.92–1.13	0.716	1.00	0.89–1.13	0.991	1.01	0.90–1.14	0.815
Dental	1.18	1.09–1.27	<0.001*	1.12	1.02–1.22	0.017*	1.11	1.01–1.23	0.027*	1.18	1.05–1.32	0.004*	1.11	1.00–1.23	0.057
OB/GYN	0.96	0.87–1.06	0.450	0.92	0.82–1.03	0.162	0.93	0.83–1.04	0.211	0.91	0.80–1.04	0.178	0.91	0.80–1.03	0.146
Preventive	1.19	1.03–1.37	0.014*	1.15	0.97–1.35	0.098	1.23	1.03–1.47	0.022*	1.08	0.89–1.32	0.446	1.09	0.90–1.32	0.359
Specialty	1.11	0.92–1.33	0.276	1.19	0.95–1.48	0.128	1.56	1.21–2.02	0.001*	1.83	1.32–2.53	<0.001*	1.56	1.17–2.09	0.003*

Notes: OR = odds ratio, CI = confidence interval, OB/GYN = obstetrics and gynecology, Ref = reference group.
*$p < 0.05$.

95% CI: 1.03−1.37, respectively), whereas patients in chronic disease clinics had lower odds of satisfaction with medication availability (OR: 0.92, 95% CI: 0.85−0.99).

Satisfaction with pharmacists' explanations of the prescription

A total of 82.5% of patients were satisfied with pharmacists' explanations of prescriptions (Table 1). Compared with unsatisfied patients, satisfied patients were slightly older (43.3 vs 42.4 years, $p < 0.001$), and were more likely to be female (84.3% vs 15.7%, $p < 0.001$) and to be non-Saudi (86.0% vs 14.0%, $p < 0.001$). No differences between patients satisfied and unsatisfied with pharmacists' explanations prescriptions were observed across clinic types. Multivariable analysis (Table 2) indicated that patients who were older, were female, and received care in dental clinics had significantly higher odds of satisfaction with pharmacists' explanations of prescriptions (OR: 1.01; 95% CI: 1.01−1.01, OR: 1.39; 95% CI: 1.13−1.23, OR: 1.12; 95% CI: 1.02−1.22, respectively). Saudi patients had significantly lower odds of satisfaction with pharmacists' explanations of prescriptions (OR: 0.71; 95% CI: 0.71−0.84) than non-Saudi patients.

Satisfaction with waiting time to receive medications

A total of 84.8% of patients were satisfied with the waiting times to receive their medications at community pharmacies (Table 1). Satisfied patients tended to be older than unsatisfied patients (43.5 years vs 41.6 years; $p < 0.001$), to be female (85.6% vs 15.4%; $p < 0.001$), to be non-Saudi (87.6% vs 12.4%; $p < 0.001$), and to receive care in specialty clinics (89.6% vs 10.4%; $p < 0.001$). Multivariable analysis (Table 2) also indicated that older patients and female patients had significantly higher odds of satisfaction with the waiting times to receive medications (OR: 1.01; 95% CI: 1.01−1.01 and OR: 1.18; 95% CI: 1.13−1.23, respectively). Patients in dental, preventive, and specialty clinics had significantly higher odds of satisfaction with waiting times to receive medication (OR: 1.11; 95% CI: 1.01−1.23, OR: 1.23; 95% CI: 1.03−1.47, and OR: 1.56; 95% CI: 1.21−2.02, respectively) than patients in family medicine clinics. Saudi patients had significantly lower odds of satisfaction with waiting times to receive medications (OR: 0.77; 95% CI: 0.71−0.84) than non-Saudi patients.

Satisfaction with the clarity of Wasfaty's instructions

Nearly nine in ten (89.3%) included patients were satisfied with the clarity of Wasfaty's instructions. Satisfied patients tended to be older than unsatisfied patients (43.0 years vs 42.0 years; $p < 0.001$), to be non-Saudi (91.5% vs 8.5%; $p < 0.001$), and to receive care in specialty clinics (93.78% vs 6.2%; $p < 0.001$). Differences in satisfaction with the clarity of Wasfaty's instructions were observed between males and females. Multivariable analysis also indicated outcomes similar to those previously observed, wherein older patients, female patients, and patients in dental and specialty clinics had significantly higher odds of satisfaction with the clarity of Wasfaty's instructions (OR: 1.01; 95% CI: 1.01−1.01, OR: 1.12; 95% CI: 1.06−1.18, OR: 1.18; 95% CI: 1.05−1.32, OR: 1.83; 95% CI: 1.32−2.53, respectively), whereas Saudi patients had significantly lower odds of satisfaction (OR: 0.75; 95% CI: 0.68−0.83), than their counterparts (Table 2).

Satisfaction with ease of use and accuracy of Wasfaty's maps

A total of 88.4% of patients were satisfied with the ease of use and accuracy of Wasfaty's maps. Satisfied patients were more likely than unsatisfied patients to be older (43.5 years vs 40.3 years; $p < 0.001$), to be non-Saudi (91.7% vs 8.3%; $p < 001$), and to receive care in specialty clinics (92.2% vs 7.8%; $p < 0.001$). In addition, differences in satisfaction with the ease of use and accuracy of Wasfaty's maps were observed between males and females. Multivariable analysis (Table 2) revealed similar patterns to those previously observed, wherein older patients, female patients, and patients in specialty clinics had significantly higher odds of satisfaction with the ease of use and accuracy of Wasfaty's maps (OR: 1.02; 95% CI: 1.01−1.02, OR: 1.12; 95% CI: 1.07−1.18, and OR: 1.56; 95% CI: 1.17−2.09, respectively), whereas Saudi patients had significantly lower odds of satisfaction (OR: 0.68; 95% CI: 0.61−0.75), than their counterparts.

Discussion

This study examined patients' satisfaction with using Wasfaty to receive their medications from community pharmacies. A large sample size (66,541) of Wasfaty users, comprising 33,060 males and 33,481 females with an average age of 43.20 years, participated in the study. The study yielded findings of interest regarding patient satisfaction. Across the five measures of satisfaction with community pharmacies and the Wasfaty e-prescription system used in KSA, more than 70% of patients included in the study were satisfied. Compared with younger patients and male patients, older patients and female patients were more satisfied with the five assessed aspects of Wasfaty services, respectively. The odds of satisfaction with at least four aspects of Wasfaty services were relatively high among patients who visited dental clinics; in contrast, the odds of satisfaction with medication availability were relatively low among patients who visited chronic disease clinics. The likelihood of satisfaction with waiting times to receive medications was relatively high among patients who visited dental, preventive, and specialty clinics.

This overall satisfaction with the privatization of pharmaceutical services and use of the Wasfaty system was greater than reported by other studies. For example, Almaghaslah et al.[5] have reported a satisfaction with Wasfaty of 3.3 on a scale of 1 (not at all satisfied) to 5 (very satisfied). In addition, Alsalem & Al-Owayyid[7] have assessed satisfaction with Wasfaty among patients in the Qassim Region, who rated their satisfaction as 2.92 out of 5. These findings are comparable to those of a previous study performed in Madrid, Spain, wherein patients and users of

e-prescriptions reported high satisfaction, accessibility, and expenditure scores.[13] Another study assessing the patient experience with the recent nationwide e-prescription system in Finland has reported high satisfaction among most respondents. Approximately 90% of participants reported no issue with the pharmacy visits, and 79.44% of participants received information about the status of their e-prescriptions after their prescriptions were filled.[14] Although the use of e-prescription systems was slower than expected in several European countries, such as Germany, Switzerland, and Austria,[15] the COVID-19 pandemic and advances in technology provided a window of opportunity to use community-based pharmacies and accelerate the implementation of e-prescription through Wasfaty in KSA.[16] The implementation of e-prescription in Estonia, the United Kingdom, Sweden, and Denmark has been found to have positive effects in various aspects, by contributing to decreased fraud and medication errors, and increased patient satisfaction.[17] Therefore, continued monitoring is required to record the progress in the e-prescription system in KSA and determine the effects of implementation of e-prescription on the overall economy, health, and society.

In this study, the overall mean satisfaction score significantly varied depending on age, nationality, sex, and the type of clinics visited. In comparison to younger patients, older patients were more likely to be satisfied with using Wasfaty to obtain their medications from community pharmacies, in agreement with findings from a previous study in Pakistan, in which older patients were more satisfied than younger patients.[18] Our findings may be attributable to the substantial attention paid to the older population in KSA. For example, the MOH introduced "priority digital cards" for older people to decrease their waiting times for receiving healthcare services, including pharmaceutical services.[19] Moreover, older patients have been reported to have higher satisfaction than younger patients with the e-prescription system in Pennsylvania, USA. Reasons for favoring e-prescriptions over paper-based prescriptions include time savings, fewer trips to doctor's offices and drugstores, and protection against lost or damaged prescriptions. Moreover, community-based healthcare providers usually focus on person-centered care strategies that require providers, including pharmacists, to work collaboratively in supporting patients.[20,21] Although a previous study has indicated that community pharmacies are not ready to implement person-centered care in KSA, the recent implementation of person-centered care may contribute to improving the patient experience of older people who frequently use community-based pharmacies.

Understanding patient satisfaction with services available at community pharmacies and the Wasfaty e-prescribing system can guide healthcare providers and policymakers in improving the overall patient experience. The relatively low satisfaction with medication availability among young Saudi patients and those with chronic conditions might reflect medication supply shortages. Alruthia et al.[22] have reported the primary causes of medication shortages in KSA, including inadequate legislation that does not require early notification regarding drug shortages; low profit margins for some essential medications; and ineffective penalties for pharmaceutical companies, importers, and distributors. Shortages might also be attributed to the increasing demand for pharmacies that offer Wasfaty services, which are provided free of charge to all citizens. Consequently, those pharmacies may experience service delays because of the increased number of inquiries.[5] Tawfik et al.[23] have proposed modernizing the pharmaceutical and biopharmaceutical sectors by implementing creative local techniques to increase the quality of homegrown output and supply the necessary volume to meet demands in the domestic market. Accordingly, the private sector in KSA is currently more actively involved in providing pharmacy services to the general public because of the switch to e-prescribing services. Ideally, issues of medication shortages may be resolved, and overall patient satisfaction may be improved.[24]

The identification of age, sex, nationality, and clinic type as factors influencing satisfaction may guide healthcare providers in tailoring communication strategies based on patient characteristics to further enhance satisfaction with medication instructions. Our findings revealed that the odds of satisfaction among Saudi patients statistically decreased with pharmacists' explanations and the clarity of Wasfaty's instructions. Although e-prescribing may offer patients greater convenience, given its potential effects on medication-taking behavior, e-prescribing use (Wasfaty) might potentially affect patient–provider communication, perception of prescription services, and trust toward healthcare providers.[25] Communication can be challenging, because differences in operating hours between community pharmacy and providers may hinder effective communication.[26] Any effects of e-prescribing on patient–provider communication may substantially affect quality of care. Patient–provider communication has been associated with patient satisfaction,[27] medication adherence,[28] and healthcare utilization.[29] When a nationwide e-prescription system is implemented, pharmacy customers require clear information and support from healthcare experts. Implementing a pharmaceutical management program in community pharmacies could potentially address the communication obstacles existing between providers and pharmacists. This approach would empower pharmacists with the ability to modify treatment regimens.[30] These initiatives might also strengthen continuing quality improvement and consequently foster a health system capable of adapting to changing community needs. Future research could further explore the effects of patient–pharmacist communication on the satisfaction of Wasfaty's Saudi beneficiaries.

Our study has several limitations. First, because the data came from a cross-sectional study, we cannot assess the causal relationships between outcomes and predictors. The cross-sectional design is a common limitation of survey research. Future research should ideally use study designs, such as longitudinal cohort studies, that allow for assessment of casual relationships.[31] Second, nonresponse bias and incomplete records are among the limitations of survey research. In this study, only a few records were found to be incomplete and were excluded from the analysis. Third, the number of variables/predictors available for the analysis was limited. Only several demographic characteristics provided by the Saudi MOH were available and included in the analysis. Furthermore, our study could not assess the influence of other individual characteristics, such as

education level, on satisfaction with healthcare services. Finally, the ORs for age were 1 because of software rounding; however, they were statistically significant. The magnitude of the association was numerically minimal but may have practical importance. In all cases, age should be interpreted with caution.

Despite these limitations, this study contributes to the discipline of health and pharmaceutical services research in KSA. To our knowledge, this study is the first nationally representative study to explore and assess satisfaction with services available at community pharmacies and the Wasfaty e-prescribing system among patients who received medications through community pharmacies using Wasfaty. The findings of this study were based on a large representative sample of community pharmacy patients, whose prescriptions were sent via Wasfaty, with data collected through a well-known and frequently used patient-reported survey, Health.Links/Press Ganey survey, to assess patient satisfaction with healthcare services.

Conclusion

Overall, the high satisfaction among patients in the five examined aspects suggest the success of the Wasfaty system in meeting patient needs and expectations in KSA. In addition, the findings may reflect the digital readiness of the population and acceptance of the use of the Wasfaty system as an online application to facilitate the utilization of services. The results highlight the importance of accurate and ongoing data collection to support the patient experience with pharmacy services. Because the differences in patient satisfaction are influenced by various factors,[32] comprehensive incorporation of all possible factors in the analysis is crucial. The findings may guide healthcare policymakers in developing targeted interventions and addressing specific issues. Enhancing patient satisfaction with pharmacy services would improve the patient journey, medication adherence, and overall healthcare outcomes.

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Conflict of interest

The authors have no conflict of interest to declare.

Ethical approval

Ethical approval was obtained from the central IRB at the Saudi Ministry of Health (approval number: IRB log No: 22-59 E; date November 27, 2022).

Authors contributions

Conceptualization, AMA, AAA, HCF, and SSM. Data curation, AMA, AAA, KKA, MWS, TJA, and SSM. Formal analysis, AMA and AAA. Investigation, AMA and HCF. Methodology, AMA, AAA, HCF, and MWS. Project administration, AMA. Software, AMA. Supervision, AMA. Validation, AMA and HCF. Visualization, AMA, AAA, and HCF. Writing—original draft, all authors. Writing—review & editing, all authors. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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Appendix A. Supplementary data

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