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## Article

# A pilot Study to Assess Prescription Transfer and Medicines Collection through a New Electronic Prescription Service: A Cross-Sectional Survey

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**Abstract:** This study aimed to assess prescription transfer and medicines collection through Wasfaty, an electronic prescription service recently introduced in Saudi Arabia. A link to a cross-sectional online questionnaire was sent to all students and staff at the University of Jeddah, targeting beneficiaries who received e-prescriptions at the University Medical Centre (n = 2067). The questionnaire comprised 20 items under the following sections; demographics, patient perceptions and satisfaction with the Wasfaty service, and the availability of medicines. Of the 217 questionnaires received, the majority were filled by females (n = 125, 57.6%). Most were satisfied with the initial registration process of Wasfaty (n = 183, 84.1%). However, almost one-third of the participants reported that they could not find the prescribed medicines (n = 64, 29.7%), and most of them had to look for another pharmacy to obtain their treatment (n = 138, 63.9%). Respondents voiced their displeasure owing to the lack of access to certain pharmaceuticals, including anti-hypertensives and antidiabetics. This pilot study identified some challenges relating to the use of the Wasfaty service. Further attention to these challenges is required from the service providers, and a large-scale national study is warranted.

**Keywords:** Wasfaty Service; e- prescription Transfer; Medicines Collection; Questionnaire

## 1. Introduction

Electronic prescribing service (EPS) is an advanced technology several government sectors use worldwide to allow authorized practitioners to prescribe medications to their patients [1,2]. *E-prescribing* is defined as “the direct computer-to-computer transmission of electronic prescriptions (e-prescriptions) from the prescriber’s office to community pharmacies” [3]. The Saudi national EPS is called “Wasfaty” and is used to connect areas of care to selected community pharmacies in various locations to allow patients easy access to medicines from governmental and private healthcare facilities [4]. In Saudi Arabia, Wasfaty was recently introduced by the National Unified Procurement Company (NUPCO) to be used by physicians at the government’s primary healthcare centres and hospitals in the prescription process of medicines described by Oxford business group analysis paper [5]. This service assists eligible patients in obtaining their prescribed medicines free of charge throughout the country [6].

The list of medications covered by the Wasfaty service provides up to 459 different items in certain community pharmacy chains that are contracted with NUPCO, both of which have agreed profit margin from the original price of medicine taken from the public or private health facility in turn for fast dispensing services, reducing medication waste, and saving space for storing medicines [7]. According to the Saudi Ministry of Health website, as of December 2021, a total of 5 million patients had benefited from Wasfaty services in primary healthcare centres and 197 hospitals since 2018 [7]. Other Gulf countries in the region provides similar services. For example, the Dubai Health Authority provides an e-prescription option called e-ClaimLink. In Qatar, the services are similar but are provided in collaboration with Qatar Post [8,9].

Generally, an EPS may reduce the possibility of medication errors and provide effective, easy, and reliable services to patients [8]. Within a similar context, Al Azmi et al. reported significantly reduced drug-related issues in hospitalized paediatric patients and emergency care areas after implementing computerized prescriptions [8,9]. In contrast, EPS has

limitations and barriers, such as delays in receiving prescriptions and inaccuracies. In addition, many prescriptions with unclear information may lead to delays in dispensing [4].

At the University of Jeddah Medical Centre, Wasfaty service was introduced to facilitate patients who attended the clinics, whether eligible students or staff, to obtain their medicines locally and through accredited and community pharmacies close to them. Patients initially had to register and complete their information and contact details at the reception of the center prior to commencing medical care. Little is known about patients’ perceptions of and satisfaction with Wasfaty. This study aimed to assess prescription transfer and medicine collection through a new electronic prescription service, Wasfaty.

2. Methods

An online survey was conducted from August 1, 2022, to November 3, 2022. E-mails were sent to the students, staff, and beneficiaries who had previously obtained Wasfaty prescriptions from the University of Jeddah Medical Centre (n = 2067), accompanied by an invitation letter to participate. Voluntary participation was encouraged after a brief introduction to the study’s aims. To minimize response bias, we ensured the inclusion of the targeted participants by including e-mails only within the university of the Jeddah network.

2.1. Questionnaire Development

The questionnaire comprised 20 items under the following sections:

- 1. Demographics
- 2. 5-point Likert scale questions on patients’ satisfaction with initial registration on Wasfaty at the University Medical Centre
- 3. patients’ perceptions of the availability of medicines through Wasfaty and the challenges they may have experienced
- 4. The role of community pharmacists in this program
- 5. The use of supporting technology software associated with the Wasfaty service

The questionnaire ended with an open-ended question on their suggestions to improve Wasfaty services, further analyzed into themes according to the responses provided.

Before using the questionnaire, face and content validity were assessed by five academics and medical staff at the Medical Centre. Then the instrument was piloted with ten patients at the center. Because no changes were made, the pilot responses were included in the analysis dataset. The questionnaire was provided in both English and Arabic. A list of the top ten medicines prescribed by the University of Jeddah Medical Centre that was e-prescribed through Wasfaty services was extracted from the system and included in the questionnaire.

2.2. Analysis

Descriptive statistics, including frequencies and Pearson’s chi-squared test, were used to determine the association between overall satisfaction, identified as the main outcome, and each independent variable.  $p < 0.05$  was considered statistically significant.

3. Results

Two hundred and seventeen participants completed the questionnaires; most were females (n = 125, 57.6%). Over one-third were educated at the university level (n = 120, 55.1%), one-third at the postgraduate level (n = 71, 32.9%), and a minority at the secondary level (n = 26, 12%). There was an equal number of age groups (18–25 years, n = 81, 37.3%; > 40 years, n = 78, 35.9%), and the majority were university staff (n = 134, 61.6%) or students (n = 83, 38.4%) (Table 1). Responses to the questionnaire items on aspects of patients’ perceptions of and satisfaction with the Wasfaty program are given in Table 2.

Table 1. Demographic profile of Wasfaty beneficiaries over the study period (n = 217).

| Variables | No  | %    |
|-----------|-----|------|
| Gender    |     |      |
| Female    | 125 | 57.6 |

|                    |     |      |
|--------------------|-----|------|
| Male               | 92  | 42.4 |
| Age group          |     |      |
| 18–25 years        | 81  | 37.3 |
| 26–32 years        | 11  | 5.1  |
| 33–40 years        | 47  | 21.7 |
| > 40 years         | 78  | 35.9 |
| Educational level  |     |      |
| High school level  | 26  | 12.0 |
| University level   | 120 | 55.1 |
| Postgraduate level | 71  | 32.9 |
| Employment status  |     |      |
| Student            | 83  | 38.4 |
| Staff              | 134 | 61.6 |

**Table 2.** Responses to questionnaire items on aspects of patients’ perceptions and satisfaction on Wasfaty Service.

| Survey Questions  | No. | %     |
|---|-----|-------|
| <b>The procedure of initial registration of Wasfaty service at the University Medical Centre was satisfying</b> |     |       |
| Strongly Agree  | 124 | 57.2  |
| Agree   | 59  | 27.4  |
| Neutral   | 23  | 10.7  |
| Disagree  | 3   | 1.4   |
| Strongly Disagree   | 7   | 3.3   |
| <b>You have received a text-message with the prescription link within a short time</b>                          |     |       |
| Strongly Agree  | 121 | 55.6  |
| Agree   | 58  | 26.9  |
| Neutral   | 23  | 10.6  |
| Disagree  | 8   | 3.7   |
| Strongly Disagree   | 7   | 3.2   |
| <b>The location of the community pharmacy where the medicines were dispensed was satisfying</b>                 |     |       |
| Yes   | 159 | 73.3% |
| No  | 58  | 26.7  |
| <b>You found all the medicines at the community pharmacy close to you</b>                                       |     |       |
| Strongly Agree  | 67  | 30.7  |
| Agree   | 42  | 19.5  |
| Neutral   | 43  | 20.0  |
| Disagree  | 42  | 19.5  |
| Strongly Disagree   | 22  | 10.2  |
| <b>You had to visit more than one pharmacy to look for your medicines</b>                                       |     |       |
| Strongly Agree  | 74  | 34.3  |
| Agree   | 64  | 29.6  |
| Neutral   | 38  | 17.6  |
| Disagree  | 26  | 12.0  |

|  |     |       |
|--|-----|-------|
| Strongly Disagree  | 14  | 6.5   |
| <b>You are satisfied with the pharmaceutical service you had received at the community pharmacy</b>  |     |       |
| Strongly Agree   | 93  | 43.0  |
| Agree  | 82  | 38.0  |
| Neutral  | 28  | 13.0  |
| Disagree   | 7   | 3.2   |
| Strongly Disagree  | 6   | 2.8   |
| <b>Your medicines were dispensed accurately by the community pharmacist as prescribed through Wasfaty and you received full explanation on how to use them</b> |     |       |
| Strongly Agree   | 99  | 45.4  |
| Agree  | 69  | 31.9  |
| Neutral  | 35  | 16.2  |
| Disagree   | 8   | 3.7   |
| Strongly Disagree  | 6   | 2.8   |
| <b>You found your medicines at the community pharmacy but the pharmacist refused to dispense them through Wasfaty service</b>                                  |     |       |
| Strongly Agree   | 23  | 10.7  |
| Agree  | 17  | 7.9   |
| Neutral  | 37  | 17.2  |
| Disagree   | 68  | 31.2  |
| Strongly Disagree  | 72  | 33.0  |
| <b>The pharmacist dispensed a different medicine from the one the doctor prescribed without consulting him/her</b>   |     |       |
| Strongly Agree   | 19  | 8.8   |
| Agree  | 19  | 8.8   |
| Neutral  | 40  | 18.6  |
| Disagree   | 74  | 34.0  |
| Strongly Disagree  | 65  | 29.8  |
| <b>When the medicines were unavailable, the community pharmacist directed you to another pharmacy branch that may provide your medicines</b>                   |     |       |
| Strongly Agree   | 59  | 27.4  |
| Agree  | 59  | 27.4  |
| Neutral  | 61  | 27.9  |
| Disagree   | 23  | 10.7  |
| Strongly Disagree  | 14  | 6.5   |
| <b>When the pharmacist directed you to another pharmacy to collect your medicines, what did you do?</b>  |     |       |
| Purchased your medicines on your own   | 112 | 51.40 |
| Returned to the University main pharmacy   | 36  | 16.70 |
| contacted Wasfaty  | 34  | 15.70 |
| Other  | 35  | 16.20 |
| <b>You know that there is a WhatsApp number for more information about Wasfaty services</b>  |     |       |
| Strongly Agree   | 25  | 11.7  |

|  |    |      |
|--|----|------|
| Agree  | 27 | 12.6 |
| Neutral  | 33 | 15.0 |
| Disagree   | 74 | 34.1 |
| Strongly Disagree  | 58 | 26.6 |
| <b>You are aware of the toll-free number to contact Wasfaty in case of unavailable medicines</b>                     |    |      |
| Strongly Agree   | 28 | 13.0 |
| Agree  | 33 | 15.3 |
| Neutral  | 33 | 15.3 |
| Disagree   | 62 | 28.4 |
| Strongly Disagree  | 61 | 27.9 |
| <b>You are aware of the platform for Wasfaty in Tawakkalna application that displays your prescription</b>           |    |      |
| Strongly Agree   | 41 | 18.7 |
| Agree  | 39 | 17.8 |
| Neutral  | 26 | 12.1 |
| Disagree   | 63 | 29.0 |
| Strongly Disagree  | 49 | 22.4 |
| <b>You are aware of free home delivery service in case of unavailable medicines by contacting a toll-free number</b> |    |      |
| Strongly Agree   | 29 | 13.2 |
| Agree  | 20 | 9.4  |
| Neutral  | 34 | 15.6 |
| Disagree   | 63 | 29.2 |
| Strongly Disagree  | 71 | 32.5 |
| <b>In general, you are satisfied and happy about Wasfaty services</b>  |    |      |
| Strongly Agree   | 80 | 36.7 |
| Agree  | 68 | 31.2 |
| Neutral  | 41 | 19.1 |
| Disagree   | 17 | 7.9  |
| Strongly Disagree  | 11 | 5.1  |

### 3.1. Respondents' Satisfaction with Wasfaty EPS

The majority were satisfied with the initial registration process for the Wasfaty service at the University Medical Centre. Their responses were 'strongly agreed' (n = 124, 57.2%) and 'agreed' (n = 59, 26.9%) on this particular aspect. They were also satisfied with the location of the community pharmacy from which they obtained their medicines, 'strongly agreed' (n = 90, 41.4%) and 'agreed' (n = 69, 31.6%). While the respondents were satisfied with the registration process on the service, almost one-third reported that they could not find the prescribed medicines (n = 64, 29.7%). Most had to look for another pharmacy to get their medicines (n = 138, 63.9%). In the case of medicine unavailability and when the pharmacist directed the patients to another pharmacy, respondents reported that they had to pay out of pocket to obtain the medicines (n = 112, 51.4%), return to the university's main pharmacy seeking assistance (n = 36, 17.6%), or contact Wasfaty using its toll-free number (n = 34, 15.70%).

### 3.2. Community Pharmacists Role in Wasfaty EPS

The respondents (n = 168, 77.3%) either strongly agreed or agreed that the pharmacists had dispensed medicines accurately and explained the method of usage. Most respondents (n = 140, 64.2%) disagreed that the pharmacists had dispensed different treatments without a doctor's consultation, nor had they (n = 139, 63.8%) refused to dispense medicines through the Wasfaty service. Pharmacists also directed patients to another pharmacy in cases of medicine unavailability (n = 118, 55%); however, some respondents were neutral (n = 61, 27.9%) about this question, and a minority disagreed or strongly disagreed (n = 37, 17.2%).



3.3. Supporting Technology Software for Wasfaty EPS

Most respondents disagreed and strongly disagreed (n = 123, 56.3%) they were aware of Wasfaty’s toll-free number, WhatsApp number (n = 132, 60.7%), or the existence of the Tawakkalna application (n = 112, 51.4%), all of which provided the recipients with valuable information relating to the location of community pharmacies that deliver the services and their medicines.

3.4. Respondents’ Perceptions on How to Improve Wasfaty EPS

The respondents provided insights and suggested ways to improve Wasfaty’s services (Table 3). While 120 respondents preferred not to disclose any suggestions through the study questionnaire, 25 indicated that they expressed gratitude and appreciation for the services received, and 24 voiced their displeasure due to the lack of access to certain pharmaceuticals, including anti-hypertensives, anti-diabetics, cosmetics, colds, and flu medications (Table 3). Multivitamin oral tablets were the most prescribed medicines in the Wasfaty service (n = 718, 19.5%) (Table 4). There was no significant association between overall satisfaction with Wasfaty and educational level (p = 0.461), sex (p = 0.868), or employment status (p = 0.945).

Table 3. Suggestions to Improve Wasfaty Services.

|  |          |
|--|----------|
| Preferred not to submit a suggestion via the questionnaire   | n<br>120 |
| Express gratitude and appreciation for the services received   | 25       |
| Voiced their displeasure at the lack of access to certain pharmaceuticals including anti-hypertensives, anti-diabetics, cosmetics, colds and flu medications | 23       |
| Emphasized the necessity to increase advertising campaigns   | 8        |
| Expanding pharmacy locations and expanding partnerships with pharmacies  | 7        |
| Improvement of services  | 7        |
| Make it possible to check the stock status of medications at individual locations through a central database.  | 5        |
| An adequate explanation of the platform  | 4        |
| Enhance Response speed   | 3        |
| Maintaining a regular schedule of at-home chronic disease treatments   | 3        |
| Communicating with the patients after dispensing the medication  | 3        |
| Educating pharmacists about the platform   | 3        |
| Adding alternatives if the medicine is unavailable.  | 3        |
| Connecting “Wasfaty” to the medical center and health centers  | 2        |
| Automatic prescription refill  | 1        |

Table 4. Wasfaty prescriptions (top 10 medicines prescribed at UJ Medical Centre).

| Medicine                                     | Number of e-prescriptions | Percent (%) |
|--|---------------------------|-------------|
| MULTIVITAMINS: TABLETS [ORAL]                | 718                       | 19.5        |
| VITAMIN B COMPLEX FILM COATED TABLETS [ORAL] | 572                       | 15.6        |
| MOMETASONE FUROATE: 0.05% SPRAY [NASAL]      | 545                       | 14.8        |
| LORATADINE: 10 MG TABLETS [ORAL]             | 381                       | 10.4        |

|   |     |     |
|---|-----|-----|
| COLECALCIFEROL: 50000<br>INTERNATIONAL UNITS CAPSULES<br>[ORAL] | 319 | 8.7 |
| OMEPRAZOLE: 20 MG CAPSULES<br>[ORAL]                            | 259 | 7.0 |
| METFORMIN HCL: 500 MG TABLETS<br>[ORAL]                         | 251 | 6.8 |
| ESOMEPRAZOLE: 20 MG GASTRO-<br>RESISTANT TABLETS [ORAL]         | 220 | 6.0 |
| ROSUVASTATIN (AS CALCIUM): 10 MG<br>FILM COATED TABLETS [ORAL]  | 211 | 5.7 |
| PARACETAMOL: 500 MG TABLETS<br>[ORAL]                           | 201 | 5.5 |

4. Discussion

This pilot study identified some challenges relating to the Wasfaty Program and the services received by patients from medical center at the University of Jeddah. Most respondents were satisfied with the Wasfaty service and the process of opening a Wasfaty account at the University Medical Center. These results are similar to those of a recent study in Madrid, Spain, where e-prescription users and patients reported very high satisfaction, access, and expenditure scores [10].

The participants expressed the issue of medication supply shortage in this study; almost one-third reported that they could not find the prescribed medicines and had to search for another pharmacy to obtain them. In 2018, Alruthia et al. listed the main reasons for the shortage of medications in Saudi Arabia [11]. Recently, Tawfik et al. suggested upgrading the pharmaceutical and biopharmaceutical industries by applying innovative local strategies to improve the quality of local production and provide the quantity required to cover the demand in the national market [12]. As reported by the beneficiaries of this study, approximately 50% had to purchase medicines. Similar findings were reported in recently published studies. Long-term beneficiaries in Saudi Arabia reported that they could afford to buy medication and were willing to share financial responsibilities with the government [13,14]. However, the reasons for the unavailability and shortage of some medicines in community pharmacies are yet to be discovered. Whether community pharmacies prefer to obtain direct cash from customers rather than collect these amounts in complex financial transactions needs to be studied in a broader study involving pharmacy chains and NUPCO.

4.1. Limitations

While this study has added to the literature on the new e-prescription service, Wasfaty, introduced in Saudi Arabia, some limitations may limit the generalizability of the findings, including recruitment biases (participants were attending the medical center and may not have been representative of the general population in Jeddah or Saudi Arabia) and inadequate responses, which has also been observed in other studies using the same population [15]. Additionally, the number of refusals to participate should have been recorded.

5. Conclusions

This pilot study identified some challenges relating to the newly introduced Wasfaty services in Saudi Arabia. Further attention to these challenges is required from the service providers, and a large-scale national study is warranted.

**Author Contributions:** Conceptualization, Mansour Tobaiqy; Data curation, Mansour Tobaiqy and Bayan Ainousah; Formal analysis, Mansour Tobaiqy; Investigation, Mansour Tobaiqy and Nasser Alorfi; Methodology, Mansour Tobaiqy, Bayan Ainousah, Nasser Alorfi and Alaa Alghamdi; Project administration, Mansour Tobaiqy and Nasser Alorfi; Resources, Mansour Tobaiqy, Bayan Ainousah and Alaa Alghamdi; Software, Alaa Alghamdi and Sulafa Alqutub; Supervision, Mansour Tobaiqy; Validation, Mansour Tobaiqy and Sulafa Alqutub; Visualization, Mansour Tobaiqy and Sulafa Alqutub; Writing – original draft, Mansour Tobaiqy, Bayan Ainousah, Nasser Alorfi and Alaa Alghamdi; Writing – review & editing, Mansour Tobaiqy and Sulafa Alqutub. All authors have read and agreed to the published version of the manuscript.

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**Institutional review board statement:** This study was conducted according to the guidelines of the declaration of Helsinki. Ethical approval was obtained from the Biomedical Research Ethics Committee of Al-Qura University (HAPO-02-K-012-2022-09-1197). Participation was voluntary, and the questionnaires were anonymous.

**Informed consent statement:** Informed consent was obtained from all subjects involved in the study.

**Data availability statement:** The data presented in this study are available on request from the corresponding author.

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