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ORIGINAL RESEARCH

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

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Introduction: The introduction of electronic prescription services has been a significant development in healthcare systems worldwide. In Saudi Arabia, the Wasfaty electronic prescription service was recently introduced, aiming to streamline prescription transfer and medicine collection.

Aim: This study assesses the implementation of Wasfaty by investigating prescription transfer, patient satisfaction, and medicine availability among beneficiaries at the University of Jeddah.

Methods: A cross-sectional online questionnaire was distributed to students and staff at the University of Jeddah who had received e-prescriptions from the University Medical Centre (n = 2067) in July-December 2022. The questionnaire consisted of three sections: demographics, patient perceptions and satisfaction with the Wasfaty service, and the availability of prescribed medicines. A total of 217 completed questionnaires were received and analyzed.

Results: Among the respondents, a majority were female (n = 125, 57.6%). A significant proportion of participants expressed satisfaction with the initial registration process of the Wasfaty service (n = 183, 84.1%). However, a noteworthy finding was that nearly one-third of the participants reported difficulties in locating their prescribed medicines (n = 64, 29.7%). Consequently, a majority of these individuals had to seek alternative pharmacies to obtain their prescribed treatment (n = 138, 63.9%). Of concern were reports of limited access to specific pharmaceuticals, such as anti-hypertensives and antidiabetic medications, which elicited dissatisfaction among respondents.

Conclusion: This study sheds light on the challenges associated with the implementation of the Wasfaty electronic prescription service in Saudi Arabia. While initial registration satisfaction is notable, the study highlights issues concerning medicine availability and access to essential pharmaceuticals. Addressing these challenges requires the attention of service providers, and further investigation on a national scale is warranted to better understand and address these issues effectively.

Keywords: Wasfaty service, e-prescription transfer, medicines collection, questionnaire

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

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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.

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.

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.

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.

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.

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%).

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.	%
The procedure of initial registration of Wasfaty service at the University Medical Centre was satisfying		
Strongly Agree	124	57.2
Agree	59	27.4
Neutral	23	10.7
Disagree	3	1.4
Strongly Disagree	7	3.3
You have received a text-message with the prescription link within a short time		
Strongly Agree	121	55.6
Agree	58	26.9
Neutral	23	10.6
Disagree	8	3.7
Strongly Disagree	7	3.2
The location of the community pharmacy where the medicines were dispensed was satisfying		
Yes	159	73.3%
No	58	26.7
You found all the medicines at the community pharmacy close to you		
Strongly Agree	67	30.7
Agree	42	19.5
Neutral	43	20.0
Disagree	42	19.5
Strongly Disagree	22	10.2
You had to visit more than one pharmacy to look for your medicines		
Strongly Agree	74	34.3
Agree	64	29.6
Neutral	38	17.6
Disagree	26	12.0
Strongly Disagree	14	6.5

(*Continued*)

Table 2 (Continued).

Survey Questions	No.	%
You are satisfied with the pharmaceutical service you had received at the community pharmacy		
Strongly Agree	93	43.0
Agree	82	38.0
Neutral	28	13.0
Disagree	7	3.2
Strongly Disagree	6	2.8
Your medicines were dispensed accurately by the community pharmacist as prescribed through Wasfaty and you received full explanation on how to use them		
Strongly Agree	99	45.4
Agree	69	31.9
Neutral	35	16.2
Disagree	8	3.7
Strongly Disagree	6	2.8
You found your medicines at the community pharmacy but the pharmacist refused to dispense them through Wasfaty service		
Strongly Agree	23	10.7
Agree	17	7.9
Neutral	37	17.2
Disagree	68	31.2
Strongly Disagree	72	33.0
The pharmacist dispensed a different medicine from the one the doctor prescribed without consulting him/her		
Strongly Agree	19	8.8
Agree	19	8.8
Neutral	40	18.6
Disagree	74	34.0
Strongly Disagree	65	29.8
When the medicines were unavailable, the community pharmacist directed you to another pharmacy branch that may provide your medicines		
Strongly Agree	59	27.4
Agree	59	27.4
Neutral	61	27.9
Disagree	23	10.7
Strongly Disagree	14	6.5

(*Continued*)

Table 2 (Continued).

Survey Questions	No.	%
When the pharmacist directed you to another pharmacy to collect your medicines, what did you do?		
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
You know that there is a WhatsApp number for more information about Wasfaty services		
Strongly Agree	25	11.7
Agree	27	12.6
Neutral	33	15.0
Disagree	74	34.1
Strongly Disagree	58	26.6
You are aware of the toll-free number to contact Wasfaty in case of unavailable medicines		
Strongly Agree	28	13.0
Agree	33	15.3
Neutral	33	15.3
Disagree	62	28.4
Strongly Disagree	61	27.9
You are aware of the platform for Wasfaty in Tawakkalna application that displays your prescription		
Strongly Agree	41	18.7
Agree	39	17.8
Neutral	26	12.1
Disagree	63	29.0
Strongly Disagree	49	22.4
You are aware of free home delivery service in case of unavailable medicines by contacting a toll-free number		
Strongly Agree	29	13.2
Agree	20	9.4
Neutral	34	15.6
Disagree	63	29.2
Strongly Disagree	71	32.5

(*Continued*)

Table 2 (Continued).

Survey Questions	No.	%
In general, you are satisfied and happy about Wasfaty services		
Strongly Agree	80	36.7
Agree	68	31.2
Neutral	41	19.1
Disagree	17	7.9
Strongly Disagree	11	5.1

Community Pharmacists Role in Wasfaty EPS

The respondents (n = 168, 77.3%) either strongly agreed or agreed that the pharmacists had dispensed medicines correctly 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%).

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.

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

	n
Preferred not to submit a suggestion via the questionnaire	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

(*Continued*)

Table 3 (Continued).

	n
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: 50,000 INTERNATIONAL UNITS CAPSULES [ORAL]	319	8.7
OMEPRAZOLE: 20 MG CAPSULES [ORAL]	259	7.0
METFORMIN HCL: 500 MG TABLETS [ORAL]	251	6.8
ESOMEPRAZOLE: 20 MG GASTRO-RESISTANT TABLETS [ORAL]	220	6.0
ROSUVASTATIN (AS CALCIUM): 10 MG FILM COATED TABLETS [ORAL]	211	5.7
PARACETAMOL: 500 MG TABLETS [ORAL]	201	5.5

Discussion

E-prescribing services play a pivotal role in modern healthcare, revolutionizing the way medications are prescribed and managed. By seamlessly integrating technology into the prescribing process, these services enhance patient safety, improve medication adherence, and streamline communication between healthcare providers and pharmacies. The elimination of handwritten prescriptions reduces the risk of medication errors and misinterpretations, ultimately safeguarding patient well-being. Furthermore, e-prescribing promotes convenience for both patients and healthcare professionals, facilitating quicker access to medications and reducing administrative burdens. This study identified some challenges relating to the Wasfaty Program and the services received by patients from medical services 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 a recent study that conducted 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 which included poor medication supply chain management, inadequate legislations to mandates early notification of drug shortages, low profit margins of some essential drugs and ineffective penalties to be applied against drugs companies and the importers and distributor of pharmaceuticals.[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.[7,9] 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.

E-prescribing is more widespread in Europe than in the Gulf States. In many European countries such as France, Germany, Italy, Spain, and the United Kingdom, e-prescribing is mandatory for all healthcare providers.[15,16]

Of note, wasfaty and other e-prescribing solutions provide several potential benefits, such as improved accuracy and efficiency of prescribing and dispensing medications and enhancing patient safety.[17,18] Such systems reduce the risk of medication errors; E-prescriptions can be checked automatically for drug interactions and allergies.[15] Furthermore, it is more convenient for patients to obtain their medications at any participating pharmacy. However, some limitations are also to consider, such as cost, technical issues, and compatibility with electronic health record (HER) systems. E-prescribing errors, such as incorrect drug selection, wrong patient, or incomplete medical instructions, can still occur.[15–18] There are concerns about the privacy and safety of patient data when it is transmitted electronically. Additionally, E-prescribing controlled substances can be more complex and time-consuming than e-prescribing other medications.[17,18]

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.[19] Additionally, the number of refusals to participate should have been recorded.

Conclusions

This study sheds light on the challenges associated with the implementation of the Wasfaty electronic prescription service in Saudi Arabia. While initial registration satisfaction in Wasfaty was notable, the study highlighted issues concerning medicine availability and access to essential pharmaceuticals. Addressing these challenges requires the attention of service providers, and further investigation on a national scale is warranted to better understand and address these issues.

Data Sharing Statement

The data available from the corresponding author, upon a reasonable request.

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.

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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 conflicts of interest in this work.

References

1. Mizranita V, Sim TF, Sunderland B, Parsons R, Hughes JD. Pharmacists' and pharmacy technicians' scopes of practice in the management of minor ailments at community pharmacies in Indonesia: a cross-sectional study. *Pharm Pract*. 2021;19(2):2295. doi:10.18549/PharmPract.2021.2.2295
2. Rupp MT, Warholak TL. Evaluation of e-prescribing in chain community pharmacy: best-practice recommendations. *J Am Pharm Assoc*. 2008;48 (3):364–391a. doi:10.1331/JAPhA.2008.07031
3. Odukoya OK, Chui MA. Relationship between E-Prescriptions and Community Pharmacy Workflow. *J Am Pharm Assoc*. 2013;52:e168.
4. Almaghaslah D, Alsayari A, Almaghaslah S, Alsanna H. Patients' Satisfaction with E-Prescribing (Wasfaty) in Saudi Arabia: a Survey of Country-Level Implementation. *Healthcare*. 2022;10(5):806. doi:10.3390/healthcare10050806
5. Oxford business group. Saudi Arabia optimising pharmaceutical manufacturing and supply chains. Available from: https://oxfordbusinessgroup.com/reports/saudi-arabia/2022-report/health-life-sciences/healthy-payoff-investment-in-local-pharmaceuticals-manufacturing-and-modernisation-of-processes-proves-beneficial/. Accessed August 18, 2023.
6. Alomi YA, Alghamdi SJ, Alattyh RA. National Corporate Pharmacy and Therapeutic Committee at the Ministry of Health, Saudi Arabia. *Pharmacol Toxicol Biomed Rep*. 2019;4(3):24–27. doi:10.5530/PTB.2018.4.9
7. Ministry of Health * MOH News. Over 24,000 Prescriptions Dispensed via 'Wasfaty' Service in Jazan. Available from: https://www.moh.gov.sa/en/Ministry/MediaCenter/News/Pages/News-2020-12-10-003.aspx. Accessed August 18, 2023.
8. Ahmed Elnour A. The Future of Pharmacist's Prescribing in Developing Countries. *SOJ Pharm Pharm Sci*. 2014;1:2014.
9. AlAzmi AA, AlHamdan H, Ahmed O, et al. Impact of the e-prescribing system on the incidence and nature of drug-related problems in children in a Saudi hospital. *Int J Pharm Pr*. 2019;27(6):67.
10. Bonilla Guijarro A, Bonilla Guijarro E, Bailén M, Hernando A. Percepción y satisfacción del paciente con el sistema de receta electrónica: resultados del cuestionario PERSA-RE. *Farm Comunitarios*. 2022;14(1):9–16. doi:10.33620/FC.2173-9218.(2022/Vol14).002.03
11. Alruthia YS, Alwhaibi M, Alotaibi MF, et al. Drug shortages in Saudi Arabia: root causes and recommendations. *Saudi Pharm J*. 2018;26 (7):947–951. doi:10.1016/j.jsps.2018.05.002
12. Tawfik EA, Tawfik AF, Alajmi AM, et al. Localizing pharmaceuticals manufacturing and its impact on drug security in Saudi Arabia. *Saudi Pharm J*. 2022;30(1):28–38. doi:10.1016/j.jsps.2021.12.002
13. Al-Hanawi MK, Alsharqi O, Almazrou S, Vaidya K. Healthcare Finance in the Kingdom of Saudi Arabia: a Qualitative Study of Householders' Attitudes. *Appl Health Econ Health Policy*. 2018;16(1):55–64. doi:10.1007/s40258-017-0353-7
14. Alqutub ST. Assessment of Beneficiaries' Satisfaction with Access to Health Care and Barriers within the Health Delivery System in Saudi Arabia. *Saudi J Heal Syst Res*. 2022;2(4):156–163. doi:10.1159/000527562
15. Osmani F, Arab-Zozani M, Shahali Z, Lotfi F. Evaluation of the effectiveness of electronic prescription in reducing medical and medical errors (systematic review study). *Ann Pharm Fr*. 2023;81(3):433–445. doi:10.1016/j.pharma.2022.12.002
16. Samadbeik M, Ahmadi M, Sadoughi F, Garavand A. A Copmarative Review of Electronic Prescription Systems: lessons Learned from Developed Countries. *J Res Pharm Pract*. 2017;6(1):3–11. doi:10.4103/2279-042X.200993
17. Abramson EL. Causes and consequences of e-prescribing errors in community pharmacies. *Integr Pharm Res Pract*. 2015;5:31–38. doi:10.2147/IPRP.S64927
18. Porterfield A, Engelbert K, Coustasse A. Electronic prescribing: improving the efficiency and accuracy of prescribing in the ambulatory care setting. *Perspect Health Inf Manag*. 2014;11(Spring):1g.
19. Tobaiqy M, Thomas D, MacLure AK, et al. Staff and student experiences and attitudes towards smoking and smoking cessation, University of Jeddah, Saudi Arabia. *Tob Prev Cessat*. 2021;7:73. doi:10.18332/tpc/144178