ARTICLE

PrescripLine: a prototype internet-based platform for the storage of prescription and medication history in telemedicine

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ABSTRACT

Background: E-prescribing is a computerized system of generating, transmitting, and filling prescriptions. However, the available e-prescribing platforms in the Philippines do not include the repository and filling process area of electronic prescriptions. **Objective:** The study had three specific objectives: (1) to determine the desirable features in an electronic prescription/electronic prescribing application based on the perception of the physicians, community pharmacists, and patients, (2) to create a software prototype where patients can reposit their prescriptions and physicians can prescribe medications that may aid the telemedicine, and (3) to alpha test and evaluate the software prototype using an adopted questionnaire from the International Organization for Standardization/International Electrotechnical Commission 25010 (ISO/IEC 25010). **Methods:** The study utilized a descriptive research study with two parts: a cross-sectional study with an open-ended question for the baseline survey and a descriptive quantitative design for the alpha testing of the prototype software. **Results:** The lowest frequency approval recorded for the baseline survey was 90%. Among the seven themes identified from the open-ended question, four themes were applied to develop the prototype software. Evaluation of the prototype software during the alpha test yielded a rating of "Excellent" following the ISO/IEC 25010 criteria. **Conclusions:** In conclusion, PrescripLine works as a storage of prescription and medication history, and as a tool for updating an electronic prescription that may aid telemedicine as it conforms to the criteria set by ISO/IEC 25010.

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KEYWORDS

PrescripLine, e-prescription, telemedicine, prototype, software, e-prescribing, telehealth

BACKGROUND

Following the recent COVID-19 pandemic, the provision of healthcare services has been affected due to the implementation of precautions (e.g. quarantines, lockdowns, social distancing) that limit direct physical contact between the healthcare provider and consumer. One way to try and work around this problem is the use of telemedicine and telehealth in patient care. This study focused specifically on e-prescribing. In the Philippines, it is hard to implement and maintain telemedicine as the telemedicine industry is still not well established in the country and there is only limited literature that studies its impact and importance (Dela Cruz & Tolentino, 2021). Platforms under the e-prescribing system in the Philippines do not include a repository of electronic prescriptions and this lack of a database may increase the likelihood of repeated use and misuse of said e-prescriptions. This problem limits the role of pharmacists in updating e-prescriptions, but this can be easily performed in the traditional setting. With this, the researchers decided to create a prototype software, PrescripLine, that may be used in e-prescribing in which the features are based on the potential target users - physicians, community pharmacists, and patients.

OBJECTIVES

The main objective of this study was to create a storage of prescriptions and medication histories . The study had three specific objectives:

(1) To determine the desirable features in an electronic prescription/electronic prescribing application based on the perception of the physicians, community pharmacists, and patients.
(2) To create a software prototype where patients can reposit their prescriptions and physicians can prescribe medications that may aid telemedicine.
(3) To alpha test and evaluate the software prototype using an adopted ISO/IEC 25010 questionnaire.

INTRODUCTION

Telemedicine, the combination of devices and technology to gather information on patients' health status at distant locations, aids healthcare professionals in determining if there is a need or urgency to intervene in a patient's condition (Galliero, et al., 2020). Telehealth, on the other hand, is the application of telecommunication technologies and electronic information to assist and encourage remote public health in managing healthcare and health education of patients and professionals (Unni, et al., 2021). Telemedicine and telehealth became very significant means of communication between healthcare professionals and patients during the pandemic due to the precautions made to mitigate the transmission of the COVID-19 virus such as lockdowns and social distancing.

E-prescribing is one type of telemedicine that has been widely used during the pandemic to mitigate the use of paper prescriptions, as the traditional paper-based prescribing is known to be a vector for the transmission of COVID-19. E-prescribing which is under telepharmacy utilizes telehealth to patients located at a distance to provide healthcare by licensed pharmacists and qualified pharmacies (Hedima & Okoro, 2021).

As mentioned, the use of technologies such as e-prescribing mitigates the transmission of the virus due to the contactless process of prescribing and dispensing of medicines. Patients do not need to physically go to pharmacies because their medicines can be delivered to the convenience of their homes. However, in low- to middle-income countries such as the Philippines, it is difficult to implement and maintain telemedicine as improvement in technology has been tied down with economic development.

In the Philippines, telemedicine was only given serious attention during the pandemic. Being an archipelagic country, telemedicine has been very beneficial as this can be used to deliver equal services to underserved areas in the country (Dela Cruz & Tolentino, 2021). According to a study conducted by Lim et al. in 2020, physicians find telemedicine applications to be useful even after the COVID-19 pandemic and it is very suitable in transmission control during the pandemic. Their study also shows that physicians found it convenient to use telemedicine and it is accessible for the patients. However, the telemedicine industry is still not well established in the country and there is only a little literature that studies its impact and importance.

METHODS

Study design

The research design of this study was descriptive and it was composed of two parts. The first part was the baseline survey conducted to determine the desirable features for an e-prescribing/e-prescription application of the participants (physicians, community pharmacists, and patients) in which cross-sectional (with an open-ended question) design was utilized. The features of the prototype software were based on the baseline survey, and then, the development of the prototype software was done. The second part of the study was the alpha testing for the prototype software using the adopted ISO/IEC 25010 questionnaire which has a descriptive quantitative design.

Participants and study area

There were three categories of participants in this study: the physicians, community pharmacists, and patients. The inclusion criteria in the study were: (1) physicians with or without specializations who give prescriptions by electronic means (2) community pharmacists who have experience dispensing medications with electronic prescriptions, or (3) individuals who have experience in using telemedicine applications. Individuals who met the criteria were then asked by the researchers if they were willing to participate in the study. There were 10 respondents in each category who participated in the baseline survey. Moreover, the internal team which included the four researchers and the developer were also the participants in the study for alpha testing to ensure that the software prototype conformed to the standards set by the ISO/IEC 25010.

The sampling technique used was purposive sampling, and there was no specific area where the study was conducted, however, the respondents involved in the study were mainly from Luzon, Philippines. There were also no calculations done in selecting the participants as purposive sampling is under the non-probability sampling technique. On the other hand, the alpha testing for the created software prototype was done in the comfort of researchers' and developers' own places.

Procedures

For the data collection, since the study was a cross-sectional study with an open-ended question and a descriptive quantitative study, both qualitative and quantitative data were gathered. The

baseline survey, which served as the first data-gathering procedure, may decrease biases as its results were used as the basis of the features present in the prototype software. After the analysis of the baseline questionnaire, the development of the software prototype was done and tested through alpha testing. The second phase of the procedure was the data collection through the questionnaire adopted from the ISO/IEC 25010. This was performed to assess if the software conforms to the standards for it to assure its quality (Fahmy et al. 2015).

Measures

The baseline questionnaire was measured through a score ranging from 0 to 2. The score 0 indicates "not applicable" or absence of the applicability of the proposed features, score 1 indicates "No" or dislikeness on the proposed features, and score 2 indicates "Yes" or likeness on the proposed features. There was also an open-ended question that allowed the respondent to give suggestions for their desirable features that were not included in the provided list of features.

In determining the performance of the prototype software, a questionnaire adopted from the ISO/IEC 25010 was utilized. Seven criteria were assessed, namely, functional suitability, performance efficiency, compatibility, usability, reliability, security, and portability. The measurement of the ISO/IEC 25010 questionnaire was achieved through a 5-point Likert scale adopted from Balahadia & Urera (2019).

The baseline questionnaires utilized in the study were evaluated by four (4) experts: one (1) physician, one (1) community pharmacist, one (1) software engineer, and one (1) professor of Bachelor of Science Major in Pharmacy.

Data analysis

The data gathered from the baseline survey and ISO/IEC 25010 questionnaire were then analyzed through basic descriptive statistics such as mean, range, and the use of frequency distribution tables. As for the evaluation of the performance of the prototype software, the 5-point Likert scale was analyzed through the determination of the mean or the average responses. The acquired results from baseline questionnaires and ISO/IEC 25010 questionnaire were presented through tables and graphs. As for the open-ended question in the baseline questionnaire, the data analysis utilized Claurk and Braun thematic analysis.

RESULTS

Table 1: Respondents' frequency of approval of the features in an electronic prescribing/electronic prescription application

	Frequency of approval (%)		
Feature	**Physicians (n=10)**	**Community pharmacists (n=10)**	**Patients (n=10)**
Registration	100	-	100
Data Entry	100	90	90
Prescription Status	-	100	100
User Profile	100	-	90
Medication Instructions	100	-	-
Cloud Data Storage	100	-	90
Database of Medication History	100	-	90
Database of Prescriptions	100	-	90
Physician-Patient Interaction	100	-	90
Sync/Export/Print data	100	-	100
Cross-platform	100	-	90
Free-only prototype website	90	-	100

Table 1 shows the frequency of approval and its percentage based on the responses of 10 physicians, 10 community pharmacists, and 10 patients regarding their desirable features that may help them in the electronic prescribing/electronic prescription process. 10 out of 11 features acquired a 100% frequency of approval from physicians. 90% of the pharmacists agreed that data entry would be beneficial for electronic prescribing. Meanwhile, all the pharmacist respondents said that prescription status would be a helpful feature for the e-prescribing website. 100% of the patients agreed that the features such as registration, prescription status, ability to sync/print/export data, and make the website completely free would be beneficial features for electronic prescribing. Furthermore, 90% of the respondents believe that the features such as data entry, user profile, cloud data storage, database of medication history, database of prescriptions, physician-patient interaction, and the capability of the system to be viewed using any device given an internet connection would be useful features of the electronic prescribing prototype. This indicates that the said features were desirable for the respondents and these should be applied in the electronic prescribing/electronic prescription software as the lowest approval rate was 90%

Table 2: Identified themes and categories based on the suggested features of the participants

Theme	Sub theme/s	Sample quote/s
Attachment of Supplemental Health Information	Actual prescription	*"Upload the actual prescription"* *(Community Pharmacist 04, 30)*
	Patients Electronic medical records	*Will be able to access or be incorporated to the electronic medical records of the patients" (Physician 05)*
	Patient's laboratories and imaging records	*"Other laboratories and imaging of patient can also be added" (Physician 01)*
	Patient's demographics and ancillaries	*"Patient's demographic. And also program should be able to store patient's ancillaries" (Physician 03)'*
Data Protection Privacy	Information	*"Data privacy" (Physician, 09)* *"Confidentiality" (Physician 08)* *"Security Platform to ensure people information safety" (Patient 08, 20)*
Communication	Messaging system	*"Messaging system for patients and respective doctors. So that whenever there are changes in the*

		prescription, there is a way of communication that allows the doctor to tell the patient if there are changes to the prescription" (Patient 02, 20
	Chatbox	*"Chatbox, a person always available to talk to" (Patient 10, 20)*
	Alert facility	*"Alert facility to ensure if any of the medicines are already expired or time to visit the doctor for consultation." (Physician, 02)*
System Notification	Safety alerts or information alerts for e-prescription	*"I would like to suggest safety alerts or information alerts for online prescription, also when it comes to reviewing the patient's track records or medical history so that the patients are also aware of what kinds of information they are disclosing and they're also aware of how physicians prescribe drugs online." (Patient 03, 22)*
Syncing and Exportation	Ability to send and print e-prescriptions	*"I would suggest e-prescription could be sent through emails and can be printed through PC or laptops inside the pharmacy to avoid the hassle of bringing prescriptions especially those customers or patients who are into smartphones or tablets." (Community pharmacist 08, 23)*
Scopes Specifications drugs	Dangerous	*"Does it also apply to dangerous drugs like drugs that needs triplicate and yellow Rx" (Community pharmacist 05, 24)*
Inserting Additional Notes	Pharmacist's instruction on the prescription	*"Hope you can also come up with a feature where you can input the readings and instructions of the medications on the prescription. It will help the customers who are not familiar with their medications." (Community pharmacist 02, 30)*

Table 2 presents the identified themes and categories based on the suggested features of the participants in the baseline survey. There were seven themes that had been generated out of 14 categories. Two themes, such as data protection and attachment of supplemental health information, were composed of four categories, one theme which was communication was composed of two categories, while four themes had one category each. The four themes were applied in the prototype software such as data protection, scopes specification, syncing and exportation, and inserting additional notes. The remaining three themes were not applied in the prototype software as these were outside the scope of the study, which is store-and-forward telemedicine.

Table 3: Result of the alpha testing for the prototype software (PrescripLine)

Measure	Weighted mean	Descriptive rating
Functional Suitability	4.80	Excellent
Performance Efficiency	4.80	Excellent
Compatibility	4.90	Excellent
Usability	4.90	Excellent
Reliability	4.87	Excellent
Security	4.95	Excellent
Portability	4.90	Excellent
Grand Mean	**4.87**	**Excellent**

Table 3 presents the result of the alpha testing based on the criteria of ISO/IEC 25010 which are functional suitability, performance efficiency, compatibility, usability, reliability, security, and portability. The overall rating of the system based on the average of the weighted means for each criterion was 4.87, interpreted as "Excellent". This implies that PrescripLine meets and performs the required quality characteristics set by the ISO/IEC 25010 criteria as a prototype software.

DISCUSSION

The prototype software's (PrescripLine) prospective users are physicians, community pharmacists, and patients. It is found that the stated features in the baseline questionnaire were desirable for the majority of the respondents as the lowest frequency of approval gathered was 90%. With this, the following features exist in the prototype software (PrescripLine). Respondents were also asked to give suggestions regarding the features that they think will be beneficial for the electronic prescribing process (physician), electronic prescription (patient), and dispensing of the electronic prescription (community pharmacist). These suggested features were categorized into different themes such as Data Protection, Attachment of Supplemental Health Information, Communication, Scope Specifications, Syncing and Exportation, Inserting Additional Notes, and System Notification. Four out of seven themes identified for the respondents' suggested features were applied by the researchers such as (1) Data Protection by including terms and conditions, (2) Scope Specifications, where the prototype software may be applicable for prescribing dangerous drugs which require a triplicate and yellow prescription whenever the Dangerous Drugs Board in the Philippines allows, particularly in a state of calamity (DDB, 2020), (3) The electronic prescription as well can also be printed and downloaded through the prototype software but this will not be valid to be used in acquiring medicines in the pharmacy, and (4) community pharmacists will not only be capable of updating the electronic prescription through the electronic software, but they are also allowed to insert additional notes for patient counseling. This addresses the problem that pharmacists can only fill e-prescriptions and not update them as they would on traditional prescriptions. This limited the role of pharmacists in telemedicine as someone whose task is to only dispense medications coming from e-prescriptions.

On the other hand, the remaining three themes were not applied by the researchers as these were not within the scope of the study as the prototype software is under the store-and-forward telemedicine which includes the storing of clinical information of the patient (Xiao, et. al., 2015), and in this case is the electronic prescription. Software under this type of telemedicine is found to be more feasible and preferable for rural areas and developing countries like the Philippines due to a cheaper cost when implemented (Macabasag, et. al., 2016). System notification is not possible as PrescripLine is not an installable application, but a website-based one.

Furthermore, the prototype software, PrescripLine, acquired a general weighted mean of 4.87 which indicated an "Excellent" performance. The performances of the prototype software were measured by different factors based on ISO/IEC 25010 such as Functional Suitability, Performance Efficiency, Compatibility, Usability, Reliability, Security, and Portability. Based on the results of the alpha testing, the functionalities of PrescripLine satisfy the claimed and suggested specifications when used under specific conditions. PrescripLine makes it easier to complete the activities and goals that have been outlined, and it ensures that the desired outcomes are obtained with the required level of accuracy. To the researchers' knowledge, PrescripLine is the first e-prescribing/e-prescription storage software in the Philippines. With the promising results of the alpha test for PrescripLine, this software prototype may address the lack of repositories for e-prescriptions for better management of clinical data and decrease the likelihood of repeat prescriptions, especially if PrescripLine should undergo beta testing and eventually be released into the mainstream market.

Moreover, the amount of resources that are utilized in the given settings directly correlates to the level of performance that can be achieved using PrescripLine. It exhibits excellent performance in meeting the system requirements with the least waste of time, effort, and resources. In addition, multi-tenancy of the system is observed when using PrescripLine. The same features can be seen in both laptops and mobile phones. For instance, in exchanging information, physicians can use a laptop to create prescriptions while patients can use a mobile phone to receive the prescription. It is feasible for them to utilize PrescripLine in order to accomplish certain goals in a certain setting, and do so in a manner that is effective, efficient, and satisfactory. The system is deemed to be easy to operate and control, with the user interface itself enabling a pleasing and satisfying interaction when in use.

Additionally, PrescripLine can carry out particular tasks while conforming to particular requirements for a predetermined amount of time. This implies that all features are working in a normal operation and accessible when needed for use.

Also, information and data are safeguarded by PrescripLine so that potential users can have the level of data access that is consistent with the types and level of authorization they have been permitted. When logging into the system, the data pertinent to the users is only accessible to the user or those authorized to have access. Since the user provided her/his own personal email address to sign up and create an account in PrescripLine, the identity of the user can be verified. The prototype software also prevents unauthorized access and modification of data, and actions within the system can be traced uniquely to a user or an entity.

Furthermore, PrescripLine is portable since it can be switched from different hardware, software, and operating systems in a way that is both effective and efficient. As for the hardware, Prescripline can be used both in mobile phone and laptop while in software it can be visited through google chrome, safari, and other web browsers. This can also be used in any operating system such as iOS and android.

With the features of the prototype software, PrescripLine may be useful in synchronous telemedicine settings. Synchronous telemedicine is one type of telemedicine in which physicians provide medical attention through phone and video (Khosla, 2020). Physicians who utilize Google meet and Zoom line to connect with their patients may utilize PrescripLine for the process of e-prescribing and sending e-prescription. Additionally, PrescripLine may allow the physician to view the prescription status of the patient whether it is filled or not. In this case, the physician may know the compliance of the patients with their medications. Moreover, unlike e-prescription, traditional paper-based prescriptions are much prone to deterioration and misplacement (Lanham, Cochran & Klepser, 2015). PrescripLine may offer a unique feature wherein it stores the e-prescription of the patient. Another problem that may be addressed with the use of PrescripLine is the repeated use of prescription. Once the community pharmacist fills the prescription, the prototype software automatically marks the prescription in which it cannot be used again. In terms of security, the prescription is uneditable after the physician has given the prescription to the patient. The pharmacist cannot edit the physician's prescribed medication for the patient. The pharmacist can update the filling of the prescription, and not the text that the physician has inputted into the e-prescription. The "Filling" button will be locked wherein once the pharmacist marks the prescription as filled, he or she cannot edit anymore the prescription in any case, and just update it with additional notes. Meanwhile, patients can only view the list of prescriptions received and cannot do any modifications. Furthermore, with the Prescripline, users may reduce their expenses in upgrading their software and hardware systems and devices since this is a web application. Also, users will appreciate the flexibility of use provided by website applications, which are specifically built to adapt to both mobile and non-mobile devices (Turner-McGrievy, 2016). It is evident in other countries like Australia that their electronic prescribing system is managed by the government itself which includes Medisecure and eRx (Australian Digital Health Agency, 2020). This differs from the Philippine setting since one can develop a software that will support telemedicine in the country. There are a variety of telemedicine applications that are available in the Philippines such as KonsultaMD, Medifi, AIDE, eZConsult, and HealthNow. Through the said softwares, electronic prescriptions can be easily accessed by the patient, but the difference of the prototype software developed (PrescripLine) is that the electronic prescriptions can be updated by the community pharmacist and its status can also be seen by the physician. This will minimize the probability that a specific prescription will be filled multiple times which is the essence of electronic prescribing (Bassett et al., 2017). In addition, medication history can also be seen as PrescripLine stores electronic prescriptions of a specific patient which can improve the intervention to be given by the patient which is similar to what Adane et al. (2019) had stated that an efficient and effective storage and management of patient's data, electronic prescription in this case allows physicians and other healthcare professionals to deliver an evidence-based intervention, in which some of the electronic prescribing system lacks (Oktarlina, 2021).

Moreover, as compared to the suggested system in Japan by their Health Ministry, PrescripLine also allows the physician to identify and prescribe medications through their patient ID or quick response (QR) code. With regard to the filling process of Japan's system, the pharmacist scans the access code of the patient in order to retrieve a prescription through the cloud-based prescription system using the QR code technology from the cloud-based prescription system after the patient has picked

up the drug at the pharmacy (Health Ministry of Japan, 2019). Meanwhile, the prototype software, PrescripLine, generates a QR code for each pharmacy or drugstore partner that needs to be scanned in order to input the valid partner code and to fill the prescription. Making partnerships with some pharmacies and drugstores is also utilized by some electronic prescribing/prescription applications in the Philippines such as KonsultaMD, eZConsult, and HealthNow which are DOH-vetted third-party telemedicine service providers. These said applications provide pharmacists with information regarding the health of their patients (Department of Health). Prescripline, on the other hand, can also be used by pharmacies through the use of the mobile device of the patient. In order to gain access in the patient information repository which contains prescription information, the pharmacist must have permission from the patient with respect to data privacy.

CONCLUSION

PrescripLine, as a prototype software, works as a storage of prescription and medication history which may aid in telemedicine. The features included were desirable for the selected potential users of the software. Hence, there will be no generalization on the desirability of the features. The study was also limited to 30 respondents and only an internal testing of the prototype software was performed.

As the prototype software passed the criteria measure of ISO/IEC 25010 for alpha testing, it can be tested for beta testing to test its acceptance to the prospective users.

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CONFLICT OF INTEREST

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CONTRIBUTIONS OF INDIVIDUAL AUTHORS

Alonte, Rosemarie, Arenas, Justine, Bagas, Bryce, and Supendio, Miles, conceived the idea, performed the data collection, analysis and interpretation, and are the primary authors.

Alonte, Denzel, programmed, designed and created the software prototype.

Marcos, Mark Kenneth and Carandang, Rogie Royce, provided supervision and consultation throughout the process of making the paper.

REFERENCES

Adane K, Gizachew M, Kendie S. The role of medical data in efficient patient care delivery: a review. Risk Management and Healthcare Policy. 2019; 12: 67–73.

Australian Digital Health Agency. Electronic prescriptions. https://www.digitalhealth.gov.au/initiatives-and-programs/electronic-prescriptions. Accessed October 2021.

Australian Digital Health Agency. Electronic prescriptions. https://www.digitalhealth.gov.au/initiatives-and-programs/electronic-prescriptions. Accessed October 2021.

Haslinda, Fahmy, Sukinah, et al. Evaluation of e-Book Applications Using ISO 25010. International Symposium on Technology Management and Emerging Technologies (ISTMET). 2015: 114-118.

Balahadia F, Urera F. ICTeachMUPO: an evaluation of information E-learning module system for faculty and students. International Journal of Computing Sciences Research. 2019; 3: 163-188.

Bassett J, Thal C, Cotton S. ePrescribing: an important part of medication. Journal of the International Society for Telemedicine and EHealth. 2017; 5: 1-4.

Lanham AE, Cochran GL, Klepser DG Electronic prescriptions: opportunities and challenges for the patient and pharmacist. Advanced Health Care Technologies. 2016; 2: 1-11.

Dela Cruz LA, Tolentino LKS. Telemedicine implementation challenges in underserved areas of the Philippines. International Journal of Emerging Technology and Advanced Engineering. 2021; 11: 60-70.

Ngah NH, Fahmy S, Aziz, NS, Roslina.. Evaluation of e-Book Applications Using ISO 25010. 2nd International Symposium on Technology Management & Emerging Technology. 2015; 115-118.

Galliero R, Pafundi PC, Nevola R, et. al. The Importance of Telemedicine during COVID-19 Pandemic: A Focus on Diabetic Retinopathy. Journal of Diabetes Research. 2020: 8.

Hedima, EW, Okoro RN. Telepharmacy: an opportunity for community pharmacists during the COVID-19 pandemic in Sub-Saharan Africa. Health policy and technology. 2021; 10: 23–24.

ISO. ISO/IEC 25010:2011(en). https://www.iso.org/obp/ui/#iso:std:iso-iec:25010:ed-1:v1:en. Accessed February 14, 2022.

Khosla S. Implementation of synchronous telemedicine into clinical practice. Sleep Med Clin. 2020; 15(3): 347-358.

International Organization for Standardization. ISO/IEC 25010:2011 Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — System and software quality models. https://www.iso.org/standard/35733.html. Accessed January 30, 2022.

Lim KL, Johari NA, Wong ST, et al. A novel strategy for community screening of SARS-CoV-2 (COVID-19): sample pooling method. PLOS ONE. https://doi.org/10.1371/journal.pone.0238417.

Macabasag RLA, Magtubo KMP, Fernandez-Marcelo PGH. Implementation of telemedicine services in lower-middle income countries: lessons for the Philippines. J Int SocTelemed eHealth. 2016;4:24.

Oktarlina RZ. E-Prescribing: Benefit, Barrier, and Adopting Challenge in Electronic Prescribing. Journal of Medicine. 2020; 21(2): 98-101.

Turner-McGrievy GM, Hales SB, Schoffman DE, et al.. Choosing between responsive-design websites versus mobile apps for your mobile behavioral intervention: presenting four case studies. Transl Behav Med. 2017; 7(2): 224-232.

Unni EJ, Patel K, Beazer IR, Hung M. Telepharmacy during COVID-19: a scoping review. Pharmacy. 2021; 20:12.

Xiao D, Vignarajan J, Boyle J, et al. Development and practice of store-and-forward telehealth systems in ophthalmology dental and emergency. Studies in Health Technology and Informatics. 2015; 214:167-1.