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A Review on Telepharmacy Services during Covid-19 Pandemic in ASEAN Countries

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ABSTRACT:

This scoping review's goal is to provide an overview of how telepharmacy was used during the COVID-19 epidemic. Four topics will be addressed in this review: (1) What various telepharmacy activities were implemented during the COVID-19 pandemic? (2) What difficulties did the implementation of telehealth programs encounter? What were pharmacies' (3) tactics for overcoming difficulties, and what were some of their creative approaches to putting telepharmacy into practice? Using the PubMed Central database and Google searches, a literature search was done to find articles about the deployment of telepharmacy that were published after March 2020. A set of predetermined criteria were used to determine whether or not to include or exclude each article. Virtual consultations, medication delivery to patients' homes, and patient education were the telepharmacy programs that were most frequently seen. Major obstacles to the deployment of telepharmacy included limited access to technology, lack of digital access, and low levels of digital literacy. This study aims to make people aware of the existence of telepharmacy, how it works, and how it is relevant during the COVID-19 pandemic in the ASEAN countries, where telepharmacy makes healthcare services more easily attainable to people in remote communities which should beneficial to people with comorbidities, especially in elderly people.

Introduction

The coronavirus of 2019, commonly referred to as COVID-19, is the current public health concern affecting the entire world. [65]. This disease is caused by SARS-CoV-2 which is also referred to as the severe acute respiratory syndrome coronavirus 2, which emerged in the year 2019 month of December in Wuhan, Hubei province, China and later then spread across the globe, with contagious effects that were felt worldwide. [64]. As reported by the World Health Organization (2021), out of 203 million positive cases, there have already been roughly 4 million fatalities from COVID-19 confirmed cases.

Cold, breathing difficulties and coughing were respiratory symptoms associated with COVID-19 infection. [51]. Moreover, there are various transmissions for this infectious disease namely droplet transmission and both long-distance and short-distance of airborne transmission [63]. The spread of the disease was slowed in an effort to initial mitigation measures including wearing of face masks as it increases protection of an individual from being infected [55]. Fear and anxiety were widespread, especially in those who required medical attention for problems unrelated to COVID-19. Due to orders to stay at home or issues and concerns over the spreading infection, many chose not to seek hospital care [54]. As stated by the World Health Organization (2021), general measures for COVID-19 to combat pandemic includes reducing and avoiding crowds and adapting flexible work arrangements, specifically teleworking.

In the field of pharmacy, teleworking is adopted and this is referred to as telepharmacy. Telepharmacy is when a pharmacist may use telecommunications technology to supervise certain areas of pharmacy operations or to offer patient care [52]. It provides a range of services including dispensing, sterile and nonsterile compounding validation, pharmaceutical person centered approach, patient assessment, patient counseling, clinical consult, outcomes evaluation, decision support, and drug information wherein hese are all components of the drug review and monitoring process. Furthermore, Remote medical assistance during the pandemic has shown to be advantageous to the healthcare system and enhancing general health [51].

ASEAN countries have already adopted telepharmacy and some of these countries together with the implementation of telepharmacy provide guidelines on this kind of healthcare service [59]. In using telepharmacy, various advantages and disadvantages were identified in different studies and provided suggestions with regards to its implementation. Moreover, development of telepharmacy services can use these various evidence-based studies for a better implementation of the telepharmacy services in ASEAN countries.

Methodology

A review of Telepharmacy services in ASEAN countries is conducted through a systematized search of available literature that plays a key role in expanding patient's accessibility to pharmaceutical treatment and the possibility of reducing dispensing mistakes in pharmacies during the times of pandemic [12]. The search criteria were configured to only display recently published articles from 2018 to the present day utilizing the following reliable databases but not limited to such: PubMed/Medline, Google Scholar, Cochrane Library, and ScienceDirect. Ensuring the capture of all essential existing kinds of literature, relevant publications pertinent to the study subject were manually searched in the databases. From the search, related terms to "Telepharmacy services," "Telepharmacy during the CoVID-19 pandemic," "Telepharmacy in ASEAN countries," and more were made use of in establishing the review.

The literature review was searched by five investigators (E Bayla, D Gido, MA Penarroyo, TM Tajora, A III Timosan) who individually carried out the searches and found pertinent studies released between 2018 to present. The literatures were then classified according to the types/kinds of telepharmacy service during the Covid-19 pandemic in the varying Asean countries to assess its impact towards patients. Estimates were considered such as the literatures made accessible during the Covid-19 outbreak, including the pre- and post- Covid era in ASEAN countries. Inclusion criteria for the literature search in this review are the following: articles on telepharmacy services during Covid-19, populations of outpatients during COVID-19 pandemic, articles on perception of pharmacists with telepharmacy during Covid-19, articles on patients preference for telepharmacy during Covid-19, and articles on telepharmacy as a growing scheme across ASEAN countries, while the following were included in the exclusion criterion: articles that were not related to telepharmacy during Covid-19, articles that were not covered in ASEAN countries, and articles that were not written in English language. The investigators carefully examined all of the articles and literature that had been retrieved and that fulfilled the said criteria.

Results and Discussion

Telepharmacy is the profession of pharmacists who use information and communication technologies to deliver pharmaceutical treatment to patients in remote locations (ICTs). Telepharmacy is especially beneficial in supporting healthcare facilities with pharmacy operations when pharmacists are unavailable or pharmacy resources are lacking [15]. These services are probably going to have a big impact on increasing patients with access to pharmaceutical care and reducing the possibility of making errors when filling prescriptions in community drug stores [12]. Telehealth use grew dramatically in the COVID-19 epidemic in 2020. The aim of telehealth in the post-pandemic era must be determined by care plans for telemedicine or in-person care [20]. Online telepharmacy system was expanded to enhance counseling services at a time when traditional health information sources are becoming less reachable and accessible [3].

These telemedicine services have proven to be beneficial to elders with how it combated the limitations brought by the pandemic in healthcare access and procedures on several medical assessments that the elders require [26]. It became an aid for even those in isolation with the availability of teleconsultation [29]. More rural areas will no longer be neglected with telepharmacy, the new technology becoming a cheaper alternative due to them no longer having to spend on transportation [39]. Telepharmacy has posed many positive outcomes during highs and lows of COVID-19, advantages outweighing the opposite. Majority in the literature found have mentioned implementing telepharmacy after the pandemic with adhering to patient rights and medical ethical requirements in mind [49].

Table I. Telepharmacy Services during COVID-19 across ASEAN countries

Author and Year	Methods	Results	Evidence
1. Hefti, E., Wei, B., & Engelen, K. (2022)	Double-arm cohort study	From 2019 to 2020, hospitalization rates increased in both patient categories. When compared to the non-access group, the access group's hospitalization rates grew less.	Telepharmacy services may contribute to better patient outcomes and cost savings, even if this study is just the beginning of research into the possible effects of telepharmacy on hospitalization rates.

2. Isleem *et al.,* (2022)	Qualitative study of semi-structured study	Physicians and nurses were the subjects of 129 and 200 interviews, respectively. These connections revealed several key themes, including: a reasonable awareness of the responsibilities of isolated clinical pharmacists among clinical setting and personnel which are doctors and nurses; additional, significant responses on the explanation of the isolated clinical pharmacy service; knowledge by "frontline" health workers of the recognizable distinctions among isolated and in-person scope of clinical pharmacists; and ability to reflect from both perspectives.	Healthcare professionals had a favorable opinion of the pandemic-driven tele-pharmacy service, according to our research.
3. Plantado *et al.,* (2021)	Retrospective study	In total, 271 questions were reviewed. Over time, the number of requests decreased as information became more accessible and quarantine restrictions were relaxed. Inquiries spiked after regular business hours. Users made up 93.8% of the general public, while 61.20% of users preferred text responses. The bulk of users from the general public (41.1%) were between the ages of 15 and 25 and sought out their own information. The majority of entries dealt with topics linked to COVID. However, the general public was more interested in drug evidence, supplements, herbal remedies and vitamins than healthcare professionals. There was unanimity in the response from users who reported satisfaction with the service and the data obtained.	As part of basic healthcare, pharmacological information can be disseminated and clarified using an online telepharmacy platform.
4. Alhmoud *et al.,* (2022)	Descriptive, Qualitative study	Five clinical pharmacist focus groups generated seven themes (CPs). Telepharmacy was challenging for CPs, who felt unprepared. Telepharmacy's key benefits were reduced infection risk, greater care quality, patient happiness, and workplace efficiency. Telepharmacy's main hazards were the violation of patient privacy, the loss of pharmaceutical care opportunities, and the erosion of working relationships with other healthcare providers. Compared to drug regimens, inadequate digital health literacy, complex diseases, a lack of defined protocols, lack of funding, and cultural reluctance to virtual treatment. Participants suggested standardization, coaching, resource allocation, and service marketing as telepharmacy facilitators.	Pharmacy professionals saw telepharmacy as having a number of advantages despite its alleged disadvantages, and they suggested some potential motivators that might be used to embrace and maintain the method in the future.
5. Li *et al.,* (2021)	Chi-square test and Independent t-test	According to the COVID-19 epidemic condition, clinical pharmacists are essential in driving the industry in developing work instructions, disseminating drug information to front-line medical professionals, and creating novel pharmacy services to encourage the responsible use of medications. In fact, the growth of remote pharmacy services has been influenced by anti-epidemic activities.	Clinical pharmacists have the logical analysis skills, rapid telehealth strategy development, and successful teamwork to deliver cutting-edge pharmacy services that guarantee medication safety and appropriate medication usage.

6. Bruns, B. E., Lorenzo-Castro, S. A., & Hale, G. M. (2022)	Retrospective single-center cohort study	There were 77 patients in total. Between in-person and telepharmacy visits, the main outcome did not differ. Adverse effects of the antihypertensive medications, targets for blood pressure that were below or equivalent to 140/90 mmHg, and medication compliance as a secondary aim did not change either.	Studies have shown that the services offered by pharmacists for pharmaceutical therapy management and drug adherence might enhance the clinical outcomes in chronic illnesses like hypertension.
7. Tjiptoatmadja, N. N., & Alfian, S. D. (2022)	Cross-sectional study	51% of the 203 people who took part in this study had known of telepharmacy. More than 98% of those surveyed approved of telepharmacy services. Most persons who had never used telepharmacy services in the future were eager to do so. Educational level and age were significantly connected with knowledge of telepharmacy services. Demographic characteristics and attitudes toward or desires for telepharmacy services did not appear to be correlated.	The older population and those with lesser levels of education must be the focus of interventions to increase telepharmacy knowledge in Indonesia.
8. Muhammad *et al.*, (2022)	Cross sectional study	Most of the 380 pharmacists are 27.67 and 3.67 years, with more men than women. The introduction of telepharmacy, according to pharmacists, has increased quality of life while reducing patient visits. Pharmacists generally had a negative opinion of the adoption of telepharmacy, but they had a positive opinion of eligibility, regulatory obstacles, and telepharmacy in pandemics and other situations. Age and gender were significantly correlated with the perception of regulatory concerns in chi-square testing. Age and perception of telepharmacy were significantly correlated amidst the COVID-19 pandemic. The location of pharmacists' workplaces and opinions of their eligibility were significantly correlated.	The vast majority of pharmacists concurred that telepharmacy could still be valuable for patients amidst the COVID-19 pandemic.
9. Ibrahim *et al.*, (2020)	Prospective, disguised, observational study	19,974 people received pharmacy services from the test group (telepharmacy), of whom 6371 and 1213 had COVID-19 confirmed as a probable and definite case, respectively. Of the 9151 patients seen by the control group pharmacies, 1074 and 33 had expected and confirmed cases of COVID-19.	It is one of the very first studies to prepare concrete proof of how telepharmacy affects patients with COVID-19's ability to obtain medical treatment and drug delivery security.
10. Wattana *et al.*, (2022)	Descriptive, cross-sectional study	436 patients in total were selected to take part in the study; Table 1 lists the study participants' characteristics. The most prevalent demographics were women, people under 60, CSMBS participants, people who lived close to the hospital, people with hypertension , and people who received prescription medication refills every three months using conventional medicine delivery services.	The increased levels of attitude score across all criteria suggests that patients favor drug store medicine distribution methods.

11. Muflih *et al.,* (2021)	Cross-sectional survey design	The study was agreed upon by 364 pharmacists in total. Majority of the participants found telepharmacy to be favorable. Nearly 91 percent agreed that telepharmacy services provided patients immediate medical feedback. In contrast, more than half of the participants discovered that a lack of reimbursement and evidence-based studies may make it difficult to use telemedicine technology for remote clinical services.	The critical advantages of telepharmacy innovation in advancing successful medical care benefits somewhat in crisis circumstances have expanded the interest for its utilization.
12. Ibrahim *et al*., (2020)	Prospective Study	Pharmacies that utilize telepharmacy (n = 63,714) as opposed to those who do not (n = 15,539), pharmacist recommendations regarding COVID-19 were likely to be (1) close contact with testing center , (2) follow home quarantine , and (3) copes fever with paracetamol ,When comparing pharmacies with telepharmacy to those who do not, the rates of medication dispensing errors respectively were, 15.81% vs. 19.43%, 5.38% vs. 10.08%, and 10.42% vs. 9.35%. However, telepharmacy-equipped pharmacies had a higher incidence of incorrect patient errors.	Telepharmacy can be used to reduce demands on the healthcare system and improve safety of drug dispensing at community pharmacies.
13. Margusino *et al.,* (2020)	N/A	N/A	Telepharmacy as an additional tool using a hybrid approach that includes outpatient counseling, informed drug distribution and delivery, healthcare coordination, and clinical follow up.
14. Al Ammari *et al.,* (2021)	Prospective study	The study included 270 patients in total.The INR therapeutic range of 57.81 percent , 59.39 percent was the mean percentage range. Anticoagulation control was good in 31% of the sample (time within the therapeutic range was greater than 70%).The maximum score was 40, with a median score of 32 (IQR 28-36).	Clinical pharmacists now have more time to focus on a variety of other improvement projects in clinics specifically for adult ambulatory to ensure top quality and patient care to be safer thanks to the implementation of tele-pharmacy.
15. Van Dat *et al.,* (2022)	Descriptive Cross-sectional study	In total, 87.2% participants would implement telepharmacy into pharmacy practice and 86.7 percent had used telepharmacy applications. Their multivariate analysis revealed a positive attitude and readiness (OR = 4.67;95 percent confidence interval:2.26-9.66), and exemplary conduct (OR = 11.34;95% CI:3.84-33.45).	To address the needs of pharmaceutical operations in the midst of the COVID-19 pandemic, developing a telepharmacy system with the proper qualities is crucial.
16. Ameri *et al.,* (2020)	N/A	Two person discussions between the (1)physician, (2) pharmacist, or (3) hospital ward are a priority for implementation. Barriers such as difficulties with payments and installments as well as the lack of access to a framework for data innovation needed to be explored in order to make drug-related training beneficial to all parties.	Instead of speaking with pharmaceutical technicians, pharmacists found it more appealing to provide doctors and other pharmacists with teleconsultation services.

17. Baldoni S, Amenta F, & Ricci G. (2019)	Literature Analysis	Studies were grouped into three categories that highlight specific pharmaceutical practices and they were found to bring satisfactory effects to their focus targets.	A potential solution to issues like the scarcity of medical professionals, particularly pharmacists, could be the adoption of innovative technology like telepharmacy.
18. Le T *et al.,* (2020)	Literature Review	N/A	Improvement in resources and access to patient data depict tele pharmaceutical growth in the future, following telemedicine trends.
19. Livet M *et al.,* (2021)	NA	Unresolved COVID-19 concerns were identified in a SDOH screening. The concerns were addressed through three interventions, identified by the pharmacist as provisional/educational (71%), resource access (21%), and coordination for any additional care (7%). SDOH results were satisfactory amongst patients and clinic team members after the service.	The participation of patients with their pharmaceutical regimen and general health state can be directly impacted by the gaps in population health that are now present.
20. Predmore *et al.,* (2021)	-N/A	Post-covid, where costs like transportation fares are once again an element of expense, 49.8% would still prefer having in the flesh care while 23.5% settled with digital visits. On the contrary, 18.9% remain in preferring digital visits rather than the 61.7% who switched to in-person visits.	The discoveries suggest that telehealth's future importance in the arrangement of medical care will be better figured out by considering patient inclinations.
21. Joseph Braga Samuela III *et al.,* (2022)	descriptive statistics, Fisher test, Chi-square, and R version 4.2.0.	Community pharmacists who worked in privately owned and chained pharmacies in Metro Manila were the study's respondents, and 33% of them were primarily from the City of Manila. 77% of respondents are female, 76% are between the ages of 21 and 30, 96% have a BS in pharmacy as their highest level of education, 48% make between Php 20,001 and 30,000 per month, 41% have been registered pharmacists for 1-3 years, 66% work 7-8 hours per day, 50% have been working as community pharmacists for 1-3 years, and 42% have not yet offered online medicine sales services but plan to adopt.	The pharmaceutical services offered online specifically acquisition of medications online during the lockdown is very important during this kind of pandemic. During the COVID-19 pandemic it was proven that even during pandemic direct patient care is executed even in online set up.
22.Khoshnam-Rad *et al.,* (2022)	Cross-sectional Qualitative study	600 intensive care unit teleconsultations for COVID-19 cases were carried out through the telepharmacy service in resident centers and nonresidence facilities. In three months, 1200 messages were sent and received between the specialists wherein a standard response time to a message was 1.30 hours. Four primary themes and 15 sub concepts were identified through thematic analysis as being important to take into account in telepharmacy consultations for COVID-19 management. A conceptual model for establishing a telepharmacy program was developed based on the elements that were collected.	In using telehealth, clinical pharmacists can offer pharmacotherapy counselling through interdisciplinary collaboration to ill patients. In this study through thematic analysis main concepts and subconcepts were identified in considering telepharmacy consultation for COVID-19.

23. Karattuthodi *et al.,* (2022)	cluster-randomized study	In a tertiary care hospital in Thailand for COVID-19 patients with severe kidney injury receiving continuous renal replacement therapy, clinical pharmacists used tele-monitoring services to alter the drug dosages. In 93 (18.64%) CKD patients getting home medicine delivery during the COVID-19 epidemic, another investigation from Thailand found 37 (15.04%) DRPs. When patients received intervention via tele-monitoring systems, a cluster-randomized research with CKD patients found a statistically significant (p 0.001) reduction in systolic and diastolic blood pressure.	The role of pharmacists in providing healthcare services through telemedicine is to provide drug information especially to those COVID-19 patients who are restricted with hospital access. They also play a big role in the expanding roles of pharmacists in delivering healthcare services during the crisis.
24. Umayam KA *et al.,* (2022).	descriptive quantitative correlational study	N/A	The current breakthroughs in telemedicine were made possible by the expansion of internet accessibility. Alternate methods of conducting medical consultations by imposing limitations and restrictions as well as rules to prevent transmission risk.
25. Mohiuddin AK *et al.,* (2020)	Literature Review	Home care is absolutely essential in these situations because hospitals don't seem to be safe during pandemic outbreaks. Furthermore, when the house is on lockdown, there aren't many opportunities to purchase essentials nor ask for important questions such as medications. Telephone-based interventions increase effectiveness by connecting pertinent data and feedback. On a variety of health-related themes and situations, it can also aid in providing education distantly.	For patients who are located distant from the pharmacy, telepharmacy offers patient counseling, medication reviews, and prescription reviews by a licensed pharmacist. It provides services with resilience and allows pharmacists to operate from home, which reduces the need for lengthy commutes and boosts job satisfaction.
26. Ang A (2022).	semi-structured interviews	N/A	The study discovered that the areas of study view telepharmacy as beneficial for elderly in combating limited healthcare access and enhancing procedures ranging from receiving a medical assessment to obtaining prescribed medications.
27. Wulandari *et al.,* (2022)	In-depth Interview	Participants were selected for the 21 in-depth interviews from 16 different provinces. Majority of participants were pharmacists who had spent at least three years working for the same company. The study sample's age range was 26 to 51. All participants worked at individually operated small pharmacies with less than 11 employees, excluding a pharmacy technician who was hired by a major retail chain.	This opens an advantage and opportunities for businesses who are able to adapt with telepharmacy as consumers in Indonesia do prefer to acquire medication through online services.

28. Intan Sabrina & Defi, (2021)	A Scoping Review	Six papers from alternative sources were found in addition to the 62,300 selected articles were obtained through the various search engines specifically, Google with 62,203 articles, PubMed with 77 articles, and Cochrane with 20 articles. Out of 68 full-text articles only 34 articles met the inclusion criteria based on telemedicine standards. These 24 articles were 9 from Indonesia, 7 from Malaysia, 5 from Singapore, 2 from Thailand and 1 from Vietnam. Six statutes, six advisory guidelines, five policy statements, and 2 regulations were published by the respective nations' Ministries of Communication and Multimedia, Health, or Medical Councils.	Application of telemedicine in South East Asian countries includes telepharmacy wherein some countries implement the following healthcare services and furtherly develop such guidelines.
29.Pinyopornpanish *et al.*, (2022)	Retrospective Study	213 patients signed up for the trial and consented to have their data utilized in the analysis. The majority of the patients (58.69%) were female. The average age according to those who signed up was 32.26 years ± 16.92 months. During the seclusion period, 150 patients came up with a total of 475 queries. 63 patients (29.58%) never asked a question.	In this study subjects receive telemedicine services while they are in home isolation due to COVID-19. Telemedicine services, specifically the teleconsultation is very helpful during COVID-19 pandemic and may also be a useful tool if implemented in managing future infectious diseases. Despite the advantages, implementation of the services still needs improvement.
30. Li H *et al.*, (2021)	Statistical analysis	In the consultation, there were 35 cases (89.7%) involving the use of medications or health goods, and there were 4 cases (10.3%) involving the management of illness states and the use of supplements. The selection of medications, dosage and usage of medications, pharmaceuticals for particular populations, medication therapy management of chronic diseases, and adverse drug responses were the top five drug-related concerns. With a positive rating rate of 97.4%, all consultations were finished within 4 hours.	Telepharmacy can help with the issue of waiting times and lower patient transportation expenses. One benefit is that medical practitioners may effectively track patients' symptoms and offer advice at any time. This is a low-cost, practical, and reliable pharmacy service model that can be used by unwell people, persons with chronic illnesses, and healthy people who want pharmacy advice on a daily basis. It is also appropriate for emergency situations.
31. Surapat *et al.*, (2020)	Literature Review	N/A	Having a goal of reducing direct patient contact by conducting telemonitoring methods by clinical pharmacists in providing healthcare services is not impossible. It is even more advantageous as risks of being infected with COVID-19 are reduced. Furthermore, an established and proper implementation of these methods is very important to provide optimum care.

32.Iftinan *et al.*, (2021)	Literature Review	The following studies that were included in this article review differed depending on the level of care given to the control group. The majority of studies didn't describe the treatment they provided or the pharmacist's role in the routine care of the control group. Additionally, the majority of therapies demonstrate a beneficial effect both before and after the epidemic. Only three studies offered any conclusive evidence about the underlying causes of non-adherence to drug treatment. Additionally, research cited in this literature review demonstrates promising outcomes for an alternative strategy for diabetes patients.	Telepharmacy contributes to the patient adherence therapy and improved clinical outcomes for the treatment of diabetic patients. Also, during the COVID-19 pandemic despite data limitations if formally integrated for diabetes care and furtherly replace in-person care visits.
33. Ng WL & Sze WT (2022)	Cross-sectional Study	In this study a cross-sectional online survey was carried out. A response rate of 45% out of 217 responses were collected in this study. It shows that 37.8% of the respondents perceived the benefits positively, 53.9 % of respondents showed a moderate positive perception while the remaining 8.3% of the respondents expressed benefits of telepharmacy in a negative perspective. Overall, respondents showed positive results with regards to its compatibility with telepharmacy as this may be convenient for them due to work routine and also their attitude on trying telepharmacy.	The use of telepharmacy has improved access to pharmacy healthcare services in remote locations as well as to pharmacists' ability to control diseases. Telepharmacy may raise the standard of medical care. In contrast to a typical healthcare context where pharmacists have other jobs to complete or where there is no designated location for counsel.
34. Chaomuang N *et al.*, (2022)	Cross-Sectional Study	246 participants (49.30%) had DRPs. 60.72% of participants were female and had completed elementary school. with an average of 63.69 years old (SD=12.97). There are top 5 Drug Related Problems wherein 6. 81% were disorders or conditions needing extra prescriptions, 5.21% were adverse drug responses, 17.43% were nonadherence, 18.84% were due to drug packaging or brand changes (18.84%), and 18.44% were leftover meds beyond. Univariate analysis identified DRP predictors such diabetic mellitus, dyslipidemia, chronic renal disease, education level, and drug administration technique. Drug usage frequency and dyslipidemia were found to predict DRPs. Additionally, leftover medication caused nonadherence (aOR 4.22 [95% CI 2.44-7.28], P 0.001).	Telepharmacy was quickly adopted due to COVID-19 pandemic's disruption of health services. A scheme for the home delivery of medications for people with chronic illnesses was put into place in Phayao, Thailand.
35.Abdel-Wahab *et al.*, (2020)	- N/A	N/A	In Singapore, telepharmacy has proven to be very effective in medical areas where the an actual clinical interaction can be substituted, such case was throughout the crisis where Information and Communication Technology tools were facilitated by the interventional radiologist, physicians, and radiopharmacists for patients to undergoing Y90 selective internal radiation therapy.

36. LAW JM., Chew R., & Lee HW (2020)	- N/A	N/A	Telemedicine, according to the Singaporean Ministry of Health, is the delivery of medical services over physically separated environments using information technology. It also covers the transmission of clinically pertinent information between patients and healthcare professionals via messaging, websites, or mobile apps. but might put private information at danger.
37. Sami SA *et al.,* (2021).	Comprehensive Review	N/A	They are lowering patient exposure to the virus by offering telemedicine services, switching medications via mails, collaborating with outside laboratory facilities, and remaining in touch with patients undergoing treatment in the clinic. Clinical pharmacists maintain insurance coordination for infusion and self-monitoring devices, which enhances patient care.
38. Yong *et al.,* (2021)	Literature Review	N/A	In this study, Malaysian Pharmaceutical Services Program introduced and furtherly utilized Virtual Medication Counselling Service (VMCS) in which receives positive feedback. It is a server that is secured by the hospital to ensure data privacy. Furthermore, VMCS is found to be beneficial to patients especially who could not attend face-to-face sessions. This is very helpful especially during pandemic since it reduces physical contact and avoids crowds.
39. Mohiuddin AK (2020)	Literature Review	Benefits of making use of the large number of unemployed pharmacists and improving accessibility to healthcare for common patients, the idea of using pharmacists in telemedicine is favorable. In this Covid-19 pandemic condition, where vaccines and treatments are almost nonexistent, this inexpensive yet potent technology support can provide the highest level of security and safety towards virus spread. The minimum requirements for adequate clinical, hospital, and community pharmacy practice are not met by Bangladesh's pharmacy education. The system also needs to be handled carefully.	Clinical pharmacists with advanced training now have the opportunity to provide healthcare needs in urban and neglected areas because of telepharmacy. Both the usefulness of telemedicine in times of epidemic crisis and the credibility of pharmacists. Before employing pharmacists in telemedicine, a structured training program should be set up for them.
40. Limwilairatana K (2020)	Exploratory Research and Descriptive Research	The study gathered information on perceptions of the adoption of telepharmacy based on 30 thorough interviews. Participants had visited a pharmacy at least once in the previous 90 days and lived in the Bangkok Metropolitan Region. More than half of those surveyed said that dependability and cost are their primary considerations when selecting a drugstore. As a result, pharmacies may garner a sizable number of consumers despite their location. In the analysis of the adoption of telepharmacy, attitudes do apply.	Many of the participants in this study who are from the Bangkok Metropolitan Region claimed that they would definitely use the idea of telepharmacy to save time since they clearly value it more than money.

41.Susi *et al.,* (2020)	Cross-Sectional Online Survey	Among the 320 pharmacists, 65.63 percent had three to five years of professional experience, and 378.1% had attended three or more coronavirus-related seminars. Pharmacists used social media the most with a percentage of 72.19% as a source of information. Generally, pharmacists were largely successful in providing patient care and dispensing medications. The perception of pharmacists was significantly higher among men, hospital pharmacists, and pharmacists with at least five years of experience. Moreover, the duties of a pharmacist in supporting infection control and giving patient care were more crucial for pharmacists that are male, hospital pharmacists, pharmacists working for five years or more, and pharmacists attending three or more Covid-19 workshops. Thus, a pharmacist's role in overseeing the supply of medications was also better understood by pharmacists who worked in hospitals, were between the ages of 35 and 55, or had been there for at least five years.	Pharmacist's role in providing healthcare is very important especially today that the world is experiencing a crisis. Occurrence of COVID-19 pandemic, allows pharmacists to be adaptable with the new responsibilities and also to play their role. Additionally, pharmacists through conducting telepharmacy reduced risks of exposing viruses to patients.
42. Porwasin A. (2021)	N/A	The Covid-19 epidemic and the rise of e-commerce are driving the trend. Furthermore, the accessibility of big data and artificial intelligence encourages the development of services and goods that address the requirements of individuals in the healthcare industry.	As asserted by the managing director of Bangkok Drugstore Co Ltd., who stated that "After the third wave of Covid-19 outbreak, we sped up the launch of telepharmacy service through the Bangkok Drugstore app."
43. Lertvittayachaikul C, Tangsiri S, & Anantaseriwittaya N, (2021)	N/A	N/A	In Thailand, Despite recent major advancements in telecommunications technology, the Ministry of Public Health (the "MOPH") has yet to adopt any particular legislation governing the delivery of telepharmacy services.
44. Jindasook C, (2020)	Qualitative Method	Pharmacists with more than five years' experience working in retail view technology as a hindrance. They were worried about the caliber of the equipment. It could influence the diagnosis and result in inappropriate recommendations from both sides giving customers incorrect information or prescription drugs. In addition, the oldest 42-year-old pharmacist who participated in the study highlighted how simple the program is to use. This illustrates the elder generation's resistance to change, particularly the technical development. Unexpectedly, a different group of pharmacists with less than five years of Technology was not perceived by experience as a barrier. Even yet, they claimed to be truly confident in trying the new technology because they are knowledgeable about the changes.	Pharmacists with more than five years' experience working in retail, view technology as a barrier. While an additional group of pharmacists with less than five years of work experience did not evaluate technology as a hindrance. They even said that they are very acquainted with the improvements and that they feel comfortable experimenting with the new technologies.
45. Chaiyakul N, (2020)	N/A	N/A	The "Notification on Guidelines in Respect of Telemedicine and Online Clinics No. 54/2563" was published by the Medical Council of Thailand and went into effect on October 20, 2020.

46. Aquino PMA, Garcia KE, & Ngo L, (2021)	N/A	N/A	The UPCP's Telepharmacy Service has provided more than 600 patients with up-to-date, verified replies to their prescription issues as of May 2021.
47. Zaskia *et al.,* (2022)	Quantitative, Quasi Experimental Research Design	The patients who got the intervention fared much better than those who did not, as seen by the medication adherence and blood pressure profiles before and after the intervention. Patients receiving intervention had stabilized blood pressure and had started taking their medications consistently after two months of telepharmacy. This means that the evidence supporting the usage of telemedicine in the control of hypertension is that the ability to alert doctors to act more quickly and the remote nature of monitoring make it beneficial.	Telepharmacy intervention was found to have an effective impact on patients' blood pressure and medication adherence.
48. Elnaem *et al*., (2022)	Cross-Sectional Study	A total of 178 replies were gathered for the survey. Fourth-year response rates were 49.4% and 50.6%, respectively. A high level of readiness was demonstrated by 68%, while 67% exhibited high knowledge. In contrast, telepharmacy services were viewed favorably by 61% of the replies. Items relating to telepharmacy showed a particularly outstanding level of expertise. The percentage of the role played during the epidemic that was required for the supplier of services (96.1%). A 91% agreement rate among study participants indicated that they agreed with the useful role of telepharmacy in saving patients' expenses. The preparation materials pertaining to the high workload and lack of incentive were 33.7% and 45.5%, respectively, and are associated with lower levels of agreement.	Participants in the study exhibited ready to utilize telepharmacy services in their future pharmacy practices and had sufficient knowledge and favorable impressions of the practice.
49. Hartono N., & Hartini MC (2022)	Analytical descriptive research	In this study, which discusses (1) Patients' rights, the Law of the Republic of Indonesia No. 36 of 2009 Concerning Health and the State Regulation No. 47 of 2021 of the Republic of Indonesia Regarding the Healthcare Industry's Application, analytical descriptive research with primary and secondary legal materials was used. Patient rights are governed by Article 44 of the Patient Protection and Affordable Care Act (PP 47/2021); among other things, (2)Telemedicine, including during the COVID-19 epidemic, the Indonesian Council issued Regulation No. 74 of 2020 regulating medical authority and medical practice via telehealth, and The Central Medical Ethics Honorary Council (MKEK) issued a Decree of the Medical Ethics Honorary Council Number: 017/PB/K.MKEK/05/2020 concerning the Fatwa for Telemedical	Its implementation must adhere to patient rights and medical ethical requirements to ensure that the health services offered are of the highest caliber and continue to place a priority on patient safety. Medical records and medical privacy are still upheld by health services (medical records).

50. Yong *et al.,* (2021)	-N/A	N/A	This service is available to patients who have been referred by medical professionals due to adverse drug reactions, outpatients who have begun using prescribed drug and medical equipment, patients who are non-compliant with their medication regimens, patients who are physically unable to attend the counseling session, and patients' caregivers.

Conclusion:

Telepharmacy is the practice of providing pharmacological treatment across a distance to people who might not otherwise have access to a pharmacist. This is an example of the broader telemedicine phenomenon as it is being used in the pharmacy industry. A hybrid model of outpatient pharmacy consultation services, clinical follow-up, healthcare coordination, outpatient counseling, and informed drug distribution and delivery uses telepharmacy as an additional tool. Clinical pharmacists' time has been freed up by the use of telepharmacy, which they can now commit to a number of other continuous improvements in adult ambulatory clinics to guarantee the provision of safe and high-quality patient care.

In facing local and global threats to human health, potential solutions should be continually studied to aid and overcome those threats. The introduction of cutting-edge technology like telepharmacy could be a potential answer to problems like the shortage of medical staff, specifically pharmacists. In ASEAN countries, researchers suggested that local government units must consider this kind of healthcare services and include them in the curricula to provide healthcare services through available technology. Clinical pharmacists can provide pharmacological counseling to sick patients through interdisciplinary teamwork by employing telemedicine. Thus, it is evident and proven that telepharmacy is the technology that medical professionals need in providing more effective and efficient health care.

Conflict of Interest:

No conflict of interest among authors.

REFERENCES:

1. Hefti E, Wei B, Engelen K. Access to telepharmacy services may reduce hospital admissions in outpatient populations during the COVID-19 pandemic. Telemed J E Health [Internet]. 2022;28(9):1324–31. Available from: http://dx.doi.org/10.1089/tmj.2021.0420
2. Isleem N, Shoshaa S, AbuGhalyoun A, Khatib M, Naseralallah LM, Ibn-Mas'ud Danjuma M, et al. Critical care tele-pharmacy services during COVID-19 pandemic: A qualitative exploration of healthcare practitioners' perceptions. J Clin Pharm Ther [Internet]. 2022;47(10):1591–9. Available from: http://dx.doi.org/10.1111/jcpt.13709
3. Plantado ANR, de Guzman HJ dV, Mariano JEC, Salvan MRAR, Benosa CAC, Robles YR. Development of an online telepharmacy service in the Philippines and analysis of its usage during the COVID-19 pandemic. J Pharm Pract [Internet]. 2021;8971900211033120. Available from: http://dx.doi.org/10.1177/08971900211033120
4. Alhmoud E, Al Khiyami D, Barazi R, Saad M, Al-Omari A, Awaisu A, et al. Perspectives of clinical pharmacists on the provision of pharmaceutical care through telepharmacy services during COVID-19 pandemic in Qatar: A focus group. PLoS One [Internet]. 2022;17(10):e0275627. Available from: http://dx.doi.org/10.1371/journal.pone.0275627
5. Li H, Zheng S, Liu F, Liu W, Zhao R. Fighting against COVID-19: Innovative strategies for clinical pharmacists. Res Social Adm Pharm [Internet]. 2021;17(1):1813–8. Available from: https://www.sciencedirect.com/science/article/pii/S1551741120303284
6. Bruns BE, Lorenzo-Castro SA, Hale GM. Controlling blood pressure during a pandemic: The impact of telepharmacy for primary care patients. J Pharm Pract [Internet]. 2022;8971900221136629. Available from: http://dx.doi.org/10.1177/08971900221136629
7. Tjiptoatmadja NN, Alfian SD. Knowledge, perception, and willingness to use telepharmacy among the general population in Indonesia. Front Public Health [Internet]. 2022;10:825554. Available from: http://dx.doi.org/10.3389/fpubh.2022.825554
8. Muhammad K, Baraka MA, Shah SS, Butt MH, Wali H, Saqlain M, et al. Exploring the perception and readiness of Pharmacists towards telepharmacy implementation; a cross sectional analysis. PeerJ [Internet]. 2022 [cited 2022 Nov 3];10:e13296. Available from: https://peerj.com/articles/13296/
9. Ibrahim OM, Ibrahim RM, Z Al Meslamani A, Al Mazrouei N. Role of telepharmacy in pharmacist counselling to coronavirus disease 2019 patients and medication dispensing errors. J Telemed Telecare [Internet]. 2020;1357633X20964347. Available from: http://dx.doi.org/10.1177/1357633X20964347

10. Wattana K, Yongpraderm S, Sottiyotin T, Adulyarat N, Suntonchainugul C, Chinakarapong N, et al. Desires and attitudes towards telepharmacy medicine delivery. Int J Environ Res Public Health [Internet]. 2022 [cited 2022 Nov 3];19(20):13571. Available from: https://www.mdpi.com/1660-4601/19/20/13571
11. Muflih SM, Al-Azzam S, Abuhammad S, Jaradat SK, Karasneh R, Shawaqfeh MS. Pharmacists' experience, competence and perception of telepharmacy technology in response to COVID-19. Int J Clin Pract [Internet]. 2021 [cited 2022 Oct 28];75(7):e14209. Available from: https://pubmed.ncbi.nlm.nih.gov/33819372/
12. Mohamed Ibrahim O, Ibrahim RM, Abdel-Qader DH, Al Meslamani AZ, Al Mazrouei N. Evaluation of telepharmacy services in light of COVID-19. Telemed J E Health [Internet]. 2021 [cited 2022 Oct 28];27(6):649–56. Available from: https://pubmed.ncbi.nlm.nih.gov/33030986/
13. Margusino-Framiñán L, Illarro-Uranga A, Lorenzo-Lorenzo K, Monte-Boquet E, Márquez-Saavedra E, Fernández-Bargiela N, et al. Pharmaceutical care to hospital outpatients during the COVID-19 pandemic. Telepharmacy. Farm Hosp [Internet]. 2020 [cited 2022 Oct 28];44(7):61–5. Available from: https://pubmed.ncbi.nlm.nih.gov/32533674/
14. Al Ammari M, AlThiab K, AlJohani M, Sultana K, Maklhafi N, AlOnazi H, et al. Tele-pharmacy anticoagulation clinic during COVID-19 pandemic: Patient outcomes. Front Pharmacol [Internet]. 2021 [cited 2022 Oct 29];12:652482. Available from: https://pubmed.ncbi.nlm.nih.gov/34566632/
15. Van Dat T, Tran TD, My NT, Nguyen TTH, Quang NNA, Tra Vo Nguyen M, et al. Pharmacists' perspectives on the use of telepharmacy in response to COVID-19 pandemic in ho chi Minh city, Vietnam. J Pharm Technol [Internet]. 2022 [cited 2022 Oct 28];38(2):106–14. Available from: https://pubmed.ncbi.nlm.nih.gov/35571348/
16. Ameri A, Salmanizadeh F, Keshvardoost S, Bahaadinbeigy K. Investigating pharmacists' views on telepharmacy: Prioritizing key relationships, barriers, and benefits. J Pharm Technol [Internet]. 2020 [cited 2022 Oct 28];36(5):171–8. Available from: https://pubmed.ncbi.nlm.nih.gov/34752571/
17. Baldoni S, Amenta F, Ricci G. Telepharmacy services: Present status and future perspectives: A review. Medicina (Kaunas) [Internet]. 2019 [cited 2022 Oct 28];55(7):327. Available from: https://pubmed.ncbi.nlm.nih.gov/31266263/
18. Le T, Toscani M, Colaizzi J. Telepharmacy: A new paradigm for our profession. J Pharm Pract [Internet]. 2020 [cited 2022 Oct 28];33(2):176–82. Available from: https://pubmed.ncbi.nlm.nih.gov/30060679/
19. Livet M, Levitt JM, Lee A, Easter J. The pharmacist as a public health resource: Expanding telepharmacy services to address social determinants of health during the COVID-19 pandemic. Explor Res Clin Soc Pharm [Internet]. 2021 [cited 2022 Oct 28];2(100032):100032. Available from: https://pubmed.ncbi.nlm.nih.gov/35481124/
20. Predmore ZS, Roth E, Breslau J, Fischer SH, Uscher-Pines L. Assessment of patient preferences for telehealth in post-COVID-19 pandemic health care. JAMA Netw Open [Internet]. 2021 [cited 2022 Oct 28];4(12):e2136405. Available from: https://pubmed.ncbi.nlm.nih.gov/34851400/
21. Joseph Braga Samuela III, Mendoza BT, Entac CAL, Madriaga DV, Cajayon JMV, Santos JPN, et al. Community pharmacists' perspective and professional fulfillment regarding online selling of over-the-counter and prescription drugs during COVID-19 in Metro Manila. GSC biol pharm sci [Internet]. 2022;20(1):056–66. Available from: http://dx.doi.org/10.30574/gscbps.2022.20.1.0266
22. Khoshnam-Rad N, Gholamzadeh M, Gharabaghi MA, Amini S. Rapid implementation of telepharmacy service to improve patient-centric care and multidisciplinary collaboration across hospitals in a COVID era: A cross-sectional qualitative study. Health Sci Rep [Internet]. 2022;5(6):e851. Available from: http://dx.doi.org/10.1002/hsr2.851
23. Karattuthodi MS, Thorakkattil SA, Abdulsalim S, Sridhar SB, Parakkal SA, Arain S, et al. The pharmacist's role in managing COVID-19 in chronic kidney disease patients: A review of existing strategies and future implications. Pharmacy (Basel) [Internet]. 2022;10(4):94. Available from: http://dx.doi.org/10.3390/pharmacy10040094
24. Umayam KAD, Rosadia ANN, Tan RNR, Salazar DJR, Masakayan RLL, Santiago GMB, et al. Knowledge, Attitudes and Perceptions on the Use of Telemedicine Among Adults Aged 18-34 in Manila, Philippines During the COVID-19 Pandemic. Journal of Medicine, University of Santo Tomas. 2022 Apr 30;6(1):858–67.
25. Mohiuddin AK, Dr. M. Nasirullah Memorial Trust, Tejgaon, Dhaka, Bangladesh. Prospect of Tele-pharmacists in pandemic situations: Bangladesh perspective. Eur J Clin Exp Med [Internet]. 2020;18(2):101–9. Available from: https://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.mhp-27efe976-db70-4e2c-8779-026660dacbb3/c/prospect_of_tele-pharmacists_in_pandemic_situations.pdf
26. Ang A. Pharmacists' active involvement needed to bolster telepharmacy in Japan's rural communities: study [Internet]. Healthcare IT News. 2022 [cited 2022 Oct 30]. Available from: https://www.healthcareitnews.com/news/asia/pharmacists-active-involvement-needed-bolster-telepharmacy-japans-rural-communities-study
27. Wulandari LPL, Khan M, Probandari A, Batura N, Ferdiana A, Mashuri YA, et al. "We face the same risk as the other health workers": Perceptions and experiences of community pharmacists in Indonesia during the COVID-19 pandemic. PLOS Glob Public Health [Internet]. 2022;2(7):e0000606. Available from: http://dx.doi.org/10.1371/journal.pgph.0000606
28. Intan Sabrina M, Defi IR. Telemedicine guidelines in South East Asia-A scoping review. Front Neurol [Internet]. 2020;11:581649. Available from: http://dx.doi.org/10.3389/fneur.2020.581649
29. Pinyopornpanish K, Nantsupawat N, Buawangpong N, Pliannuom S, Vaniyapong T, Jiraporncharoen W. Concerns of home isolating COVID-19 patients while receiving care via telemedicine during the pandemic in the northern Thailand: A qualitative study on text messaging. Int J Environ Res Public Health [Internet]. 2022;19(11):6591. Available from: http://dx.doi.org/10.3390/ijerph19116591

30. Li H, Zheng S, Li D, Jiang D, Liu F, Guo W, et al. The establishment and practice of pharmacy care service based on internet social media: Telemedicine in response to the COVID-19 pandemic. Front Pharmacol [Internet]. 2021;12:707442. Available from: http://dx.doi.org/10.3389/fphar.2021.707442
31. Surapat B, Sungkanuparph S, Kirdlarp S, Lekpittaya N, Chunnguleum K. Role of clinical pharmacists in telemonitoring for patients with Coronavirus Disease 2019 (COVID-19). J Clin Pharm Ther [Internet]. 2021;46(1):236–9. Available from: http://dx.doi.org/10.1111/jcpt.13293
32. Nguyen NH, Nguyen AQ, Ha VTB, Duong PX, Van Nguyen T. Using emerging telehealth technology as a future model in Vietnam during the COVID-19 pandemic: Practical experience from Phutho General Hospital. JMIR Form Res [Internet]. 2021 [cited 2022 Oct 30];5(6):e27968. Available from: https://formative.jmir.org/2021/6/e27968
33. Ng WL, Sze WT. Perception and attitude of Malaysian community pharmacists towards the implementation of telepharmacy [Internet]. Available from: https://medic.upm.edu.my/upload/dokumen/2022091409122310_MJMHS_1045.pdf
34. Chaomuang N, Dede AJO, Saokaew S, Umnuaypornlert A. Effects of home drug delivery on drug-related problems: preliminary evidence for improved patient outcomes during the COVID-19 pandemic in Thailand. J Am Pharm Assoc (2003) [Internet]. 2022;62(4):1206-1213.e3. Available from: https://www.sciencedirect.com/science/article/pii/S1544319122000152
35. Abdel-Wahab M, Rosenblatt E, Prajogi B, Zubizarretta E, Mikhail M. Opportunities in telemedicine, lessons learned after COVID-19 and the way into the future. Int J Radiat Oncol Biol Phys [Internet]. 2020;108(2):438–43. Available from: https://www.sciencedirect.com/science/article/pii/S0360301620314024
36. Law JM. Client Update: Singapore [Internet]. Rajahtann.com. [cited 2022 Oct 30]. Available from: https://eoasis.rajahtann.com/eoasis/lu/pdf/2020-06-Telemedicine_before_during_and_after_COVID-19.pdf
37. Sami SA, Marma KKS, Chakraborty A, Singha T, Rakib A, Uddin MG, et al. A comprehensive review on global contributions and recognition of pharmacy professionals amidst COVID-19 pandemic: moving from present to future. Futur J Pharm Sci [Internet]. 2021;7(1):119. Available from: http://dx.doi.org/10.1186/s43094-021-00273-9
38. Yong W-Y, Chang C-T, Chew C-C, Khoo T-E. Interactive virtual medication counselling in outpatient pharmacy: An accessible and safe patient counselling method during the COVID-19 pandemic. Res Social Adm Pharm [Internet]. 2021;17(10):1860–2. Available from: http://dx.doi.org/10.1016/j.sapharm.2021.07.002
39. Mohiuddin AK. Pharmacists in telemedicine: Meeting the ongoing demand of Bangladesh [Internet]. Core.ac.uk. [cited 2022 Oct 30]. Available from: https://core.ac.uk/download/pdf/327073497.pdf
40. Limwilairatana K. A Study of Thais' Attitudes toward telepharmacy [Internet]. [cited 2022 Oct 30]. Available from: https://doi.nrct.go.th/ListDoi/Download/592985/3d9a829d741bbd5073b4b618d4c634c1?Resolve_DOI=10.14457/TU.the.2020.366
41. The perception of role and responsibilities during covid-19 pandemic: A survey from Indonesian pharmacists. Int J Pharm Res [Internet]. 2020;12(sp2). Available from: http://dx.doi.org/10.31838/ijpr/2020.sp2.369
42. Pornwasin A. Bangkok Drugstore gets into telepharmacy to help reduce hospital workload [Internet]. Thestorythailand.com. dev; 2021 [cited 2022 Oct 30]. Available from: https://www.thestorythailand.com/en/25/07/2021/35949/
43. Telepharmacy: The Future of Digital Healthcare [Internet]. Kudun. Kudun and Partners; 2021 [cited 2022 Oct 30]. Available from: https://www.kap.co.th/telepharmacy-the-future-of-digital-healthcare/
44. Exploring drivers and barriers towards utilizing telepharmacy among pharmacists in Bangkok chanida jindasook a thematic paper submitted in partial fulfillment of the requirements for the degree of master of management college of management Mahidol university 2020 copyright of Mahidol university [Internet]. Mahidol.ac.th. [cited 2022 Oct 30]. Available from: https://archive.cm.mahidol.ac.th/bitstream/123456789/3781/1/TP%20GM.028%202020.pdf
45. Chaiyakul N. Understanding Telemedicine in Thailand and its Relevant Regulations [Internet]. Silk Legal. Silk Legal | Thailand's Law Firm For Business; 2020 [cited 2022 Oct 30]. Available from: https://silklegal.com/understanding-telemedicine-in-thailand-and-its-relevant-regulations/
46. UPCP COVID-19 Pandemic Telepharmacy Service marks 1st year [Internet]. Edu.ph. [cited 2022 Oct 30]. Available from: https://www1.upm.edu.ph/node/3294
47. Zaskia G, Aca-Ac M, Ken H, Andawit A, Kyle N, Blando A, et al. The effectiveness of telepharmacy intervention on hypertensive patients [Internet]. Denpasarinstitute.com. [cited 2022 Oct 30]. Available from: https://jhpsm.denpasarinstitute.com/index.php/jhpsm/article/download/59/47
48. Elnaem MH, Akkawi ME, Al-shami AK, Elkalmi R. Telepharmacy knowledge, perceptions, and readiness among future Malaysian pharmacists amid the COVID-19 pandemic. Ind J Pharm Educ [Internet]. 2022 [cited 2022 Oct 30];56(1):09–16. Available from: https://www.ijper.org/article/1614
49. Hartono N, Hartini MC. Fulfillment of patient rights in the implementation of telemedicine in the era of covid-19 pandemic in Indonesia. In: Proceedings of the 2nd International Conference on Law, Social Science, Economics, and Education, ICLSSEE 2022, 16 April 2022, Semarang, Indonesia. EAI; 2022.
50. Yong W-Y, Chang C-T, Chew C-C, Khoo T-E. Interactive virtual medication counselling in outpatient pharmacy: An accessible and safe patient counselling method during the COVID-19 pandemic. Res Social Adm Pharm [Internet]. 2021 [cited 2022 Oct 30];17(10):1860–2. Available from: http://dx.doi.org/10.1016/j.sapharm.2021.07.002

51. Centers for Disease Control and Prevention. Using Telehealth to Expand Access to Essential Health Services during the COVID-19 Pandemic. 2022-05-11 12:30 [Internet]. Cdc.gov. [cited 2022 Oct 31]. Available from: https://www.cdc.gov/coronavirus/2019-ncov/hcp/telehealth.html
52. American Society of Health-Systems Pharmacists. ASHP Statement on Telepharmacy. Available online:https://www.ashp.org/-/media/assets/pharmacy-informaticist/docs/sopit-bp-telepharmacy-statement.ashx (accessed on 14 October 2021).
53. Bashshur R, Doarn CR, Frenk JM, Kvedar JC, Woolliscroft JO. Telemedicine and the COVID-19 pandemic, lessons for the future. Telemed J E Health [Internet]. 2020;26(5):571–3. Available from: http://dx.doi.org/10.1089/tmj.2020.29040.rb
54. Birkmeyer, J.D.; Barnato, A.; Birkmeyer, N.; Bessler, R.; Skinner, J. The impact of the COVID-19 pandemic on hospital admissions in the United States. Health Aff. (Millwood) 2020, 39, 2010–2017.
55. Brooks JT, Butler JC. Effectiveness of mask wearing to control community spread of SARS-CoV-2. JAMA [Internet]. 2021;325(10):998–9. Available from: http://dx.doi.org/10.1001/jama.2021.1505
56. Diaz, A.; Sarac, B.A.; Schoenbrunner, A.R.; Janis, J.E.; Pawlik, T.M. Elective surgery in the time of COVID-19. Am. J. Surg. 2020, 219, 900–902.
57. Health Resources & Services Administration. Office for the Advancement of Telehealth. Available online: https://www.hrsa.gov/rural-health/telehealth (accessed on 14 October 2021).
58. Humphreys J. The importance of wearing masks in curtailing the COVID-19 pandemic. J Family Med Prim Care [Internet]. 2020;9(6):2606–7. Available from: http://dx.doi.org/10.4103/jfmpc.jfmpc_578_20
59. Iftinan GN, Wathoni N, Lestari K. Telepharmacy: A potential alternative approach for diabetic patients during the COVID-19 pandemic. J Multidiscip Healthc [Internet]. 2021 [cited 2022 Oct 31];14:2261–73. Available from: https://www.dovepress.com/telepharmacy-a-potential-alternative-approach-for-diabetic-patients-du-peer-reviewed-fulltext-article-JMDH
60. Miller, I.F.; Becker, A.D.; Grenfell, B.T.; Metcalf, C.J.E. Disease and healthcare burden of COVID-19 in the United States. Nat. Med. 2020, 26, 1212–1217.
61. Unni, EJ., Patel, K., Beazer, IR., Hung M. (2021). Telepharmacy during COVID-19: A Scoping Review. Pharmacy (Basel). 2021 Nov 11;9(4):183. doi: 10.3390/pharmacy9040183. PMID: 34842823; PMCID: PMC8628897.
62. Waller M, Stotler C. Telemedicine: A primer. Curr Allergy Asthma Rep [Internet]. 2018 [cited 2022 Oct 31];18(10):54. Available from: https://link.springer.com/article/10.1007/s11882-018-0808-4
63. World Health Organization. WHO Coronavirus (COVID-19) Dashboard. Available online: https://covid19.who.int/ (accessed on 4 August 2021).
64. Dhama K, Khan S, Tiwari R, Sircar S, Bhat S, Malik YS, et al. Coronavirus disease 2019-COVID-19. Clin Microbiol Rev [Internet]. 2020;33(4). Available from: http://dx.doi.org/10.1128/CMR.00028-20
65. Mohan BS, Vinod N. COVID-19: An insight into SARS-CoV2 pandemic originated at Wuhan city in Hubei province of China. J Infect Dis Epidemiol [Internet]. 2020;6(4). Available from: http://dx.doi.org/10.23937/2474-3658/1510146