WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

A Review of Telepharmacy in Asia

Escalona, Yen; Espiritu, Joshanne Coadey; Natividad, Dawn; Tambuli, Kyla; Rampak, Sittie Madeyah; Dr. Erwin M. Faller

Pharmacy Department, School of Allied Health Sciences, San Pedro College, Davao City, Philippines
DOI: https://doi.org/10.55248/gengpi.2022.31246

ABSTRACT

This review article is composed of different perspectives from various countries in Asia that are involved in the pharmaceutical scope of online services that provide healthcare amidst certain circumstances. This paper inspects and evaluates the knowledge, attitude, behavior, and relationship of different conditions to be consulted in the services of Telepharmacy in Asia. The information collected for this review article was extracted from PubMed, Google Scholar, ScienceDirect, MHealth, Research gate, National Center for Biotechnology Information, Frontiers, National Center for Biotechnology Information. Multiple countries in Asia offer this type of pharmaceutical online services but the most abundant places include Philippines, Malaysia, Thailand, Vietnam, Singapore, Indonesia, China, Japan, United Arab Emirates, Bangladesh, India, and Qatar. This method of services offered by some pharmacies have assisted patients that are mostly homebound which creates a favorable and efficient assistance for these individuals. Including the interventions of Telepharmacy towards different conditions. In this paper, it expands the role of pharmacists in cases of inquiries in regards to the patient's illnesses which are mainly the concerns within the scope of the COVID-19 pandemic, but also there were studies and articles involved with epilepsy and hypertension. Telepharmacy is an instrument in providing healthcare services towards patients in need of consultation without any face-to-face interaction. It ensures the privacy and exclusiveness of the pharmacists' counseling and attendance towards patient concerns.

Introduction

Telepharmacy, which enables the pharmacy to connect with a patient via a device, such as a landline or a deliver information service, is another service provider for pharmaceutical care. They can thus contact a pharmacist at any time and from any location. However, it appears that the majority of clients are unaccustomed to this style of service, having a hard time adjusting to it. And some online pharmacies may charge for their services. [2] It would be difficult for pharmacies to persuade clients to adopt telepharmacy. Nowadays, purchasing medication is fairly convenient. Consequently, pharmacies who want to enter the telepharmacy business must provide clients by offering cheaper items, such as practical and time-saving services. However, It was shown that attitudes do play a crucial part in the acceptance of telepharmacy as Only the distance between pharmacies appears to be the main issue for drawing customers. Customers alone are not the best way to encourage consumer adoption. Rather, dependability, Convenience and price tactics have proven to be more successful. [3] In thailand. The general people in Indonesia was the subject of a different research on how they perceived and adapted to telepharmacy. The 203 participants on the survey found that the majority are open to come adapt this new service and have favorable impressions of the telepharmacy service. Future usage of telepharmacy was also a concern for those who had never used it. Targeting elderly folks and those with lower levels of education can help boost awareness of telepharmacy in Indonesia.

[4] A telepharmacy experimental trial has recently been undertaken in distant islands or parts of Japan prior to the formal introduction due to the country's aging population and geographic barriers to accessing healthcare. By using telepharmacy, they will conduct a semi-structured interview in a rural or remote part of Japan where senior patients may find it challenging to find pharmacies and healthcare services. The participants believed that telepharmacy would be helpful in overcoming limited access to a clinic and in improving convenience in procedures ranging from medical examination to receiving prescription medications. However, the technological literacy of elderly did not have a positive feedback toward the use of telemedicine and find it difficult in utilising it, which was supposed to be the main goal of implementing telemedicine in japan. Although elderly find it difficult, the younger generation was able to help the elderly on utilising it and allow any individual to communicate healthcare professional in isolated area.

Asia has seen major changes in its demographic and health patterns throughout time (United Nations, 2019) [5]. At the same time, many groups that are dispersed over wide physical areas have grown more connected as a result of the fast emergence and expansion of digital technology. Most 1st world

countries in Asia have emerged more in digital technology to improve its connection between patients and medical staff. However, Southeast Asia has adapted the use of digital medicine in their health system. Significant changes in which demographic and health trends are now occurring.

[6] In order to deliver appropriate pharmaceutical and healthcare services from in-person to online contacts, telepharmacy has to be committed to the patient's responsibility and involvement. It does not just include pharmacists or other healthcare practitioners in this regard.

Methodology

The journal review gathered data of information from various literatures and articles affiliated to the Telepharmacy in Asia. These literatures were gathered from the authors' public databases, which comprise PubMed, Google Scholar, ScienceDirect, MHealth, Research gate, National Center for Biotechnology Information, Frontiers, National Center for Biotechnology Information. The search was guided through utilizing the search phrases: Telepharmacy in Malaysia, Telepharmacy in Indonesia, Telepharmacy in Japan, Telepharmacy in China, Telepharmacy in Nepal, Telepharmacy in Bangladesh, Telepharmacy in Pakistan, Telepharmacy in Singapore, Telepharmacy in South Korea, Telepharmacy in Hong Kong, Telepharmacy in Philippines, Telepharmacy in Taiwan or Telepharmacy in Asia including various diseases involving the stated keywords. The literatures gathered were limited to a publication year of 2002 to present. Literature that contained limitations towards language were excluded from the journal review. To guarantee that no pertinent material was missed, each item was manually searched.

Results and Discussion

Table 1: Result in the impact of the intervention of telepharmacy on the health system of certain countries.

Country	Author and Year	Method	Result
Asia	1. Sabrina (2021)	1. Electronic databases such as Google, PubMed, and Cochrane reviews were searched for articles using keywords. No language restrictions were imposed. Only the first 100 Google searches were included for eligibility based on its relevance to telemedicine guidelines. [7]	1. The guidelines on telemedicine, Indonesia, Malaysia, Singapore, Thailand, and Vietnam. There were six laws and advisory guidelines, five policy statements, and two circular regulations issued by either the Ministry of Communication and Multimedia, Ministry of Health, or Medical Councils from the respective countries. The Singapore National Telemedicine Guidelines contained the most domains compared with other guidelines from South East Asia. [7]
	2. Iftinan et al. (2021)	2. This review includes research articles from the PubMed journal database that were published during 2011–2021. Additional criteria are that: articles will be reviewed in the form of reports or research results that explain the practice of pharmaceutical services by pharmacists through telepharmacy technology, the provision of interventions is carried out at the patients home, and research outputs are in the form of clinical outcomes of diabetic patients and patient adherence with drug therapy. [8]	2. Of the 67 articles identified, 14 research articles met the specified inclusion and exclusion criteria. The articles obtained were published between 2011 and 2021. All studies used the experimental method, such as randomized or non-randomized controlled trial and prospective single-cohort study. [8]

Bangladesh	1. Mohiuddin AK (2020)	1. Research conducted a month-round comprehensive literature search, which included technical newsletters, newspapers journals, and many other sources. PubMed, ALTAVISTA, Embase, Scopus, Web of Science, and the Cochrane Central Register were thoroughly searched. The keywords were used to search for different publishers' journals such as Elsevier, Springer, Willey Online Library, and Wolters Kluwer which were extensively followed. [9]	1. Employing pharmacists via telemedicine benefits not only people' access to healthcare, but also the usage of a large number of jobless pharmacists. In this Covid-19 pandemic condition, where vaccines and treatments are almost non-existent, this low-cost but effective technology-based support can offer optimum protection and safety against viral propagation. [9]

China	1. Huibo Li et al. (2021)	1. Ever since the declaration of lockdown in China, China has made use of social media as a way to monitor chronic ill patients, such as weibo, wechat, etc. this way the patient does not have to go out for a check up. [10]	1. Using "Cloud Pharmacy Care," the long-term medicine consumption issues of patients with chronic diseases were successfully handled during the COVID-19 epidemic. Eighty-two percent of the 39 instances' patients were under the age of forty. All consultations were completed within 4 h, with a positive review rate of 97.4%. [10]
	2. Deshuang tao et al. (2021)	2. On February 20, 2020, doctors at the epilepsy department performed a questionnaire study on PWE.Through the use of telemedicine technology, the intervention (IG) group received weekly compassionate care and follow-up whereas the nonintervention (NIG) group did not. Three months later, the questionnaire poll was repeated. [11]	2. study discovered that telemedicine and compassionate care were beneficial in controlling PWE in northeastern China during the COVID-19 outbreak, while patients were under lockdown. It is an effective way to lessen stress and sadness while enhancing the patients' quality of life. It is required to conduct further study on compassionate care strategies for PWE. [11]
	3. Chenglin Sun et al. (2019)	3. The study's objective was to examine how elderly Chinese patients with type 2 diabetes are managed using mobile phone-based telemedicine applications. A total of 91 older (over 65) T2DM patients who visited our department were divided into one of two groups at random. Glucometers with data transmission capabilities were given to 44 patients, who also got guidance on medication, nutrition, and exercise via the system. [12]	3. Patients in the intervention group had significantly improved postprandial plasma glucose levels after three months (P .05.) In comparison to the baseline and the patients in the control group, patients in the intervention group showed a lowering trend in postprandial plasma glucose and glycated hemoglobin levels after 6 months (P .05. Telemedicine apps for mobile phones enable older Chinese patients with T2DM maintain better glycemic control. [12]
		4. A prospective randomized controlled trial with a single center and a 6-month duration made up this study. A total of 276 people with type 1 or type 2 diabetes were registered, and they were then randomly assigned to one of three groups: control (group A), app self-management (group B), or app interactive management (group C). Glycated hemoglobin (HbA1c) level variation was the main result. Using multiple imputation, missing data were addressed. [13]	4. By utilizing an app for self-management alone, it was difficult for Chinese patients with poorly managed diabetes to achieve long-term effective glucose improvement, but combining it with interactive management can assist achieve immediate and sustained glycemic control. [13]
	4. Lei zhang et al. (2019)	5. The study used a probability approach proportionate to size sampling in order to gather information from 161 tertiary hospitals in 29 provinces, autonomous areas, and municipalities. To examine the association between telemedicine service and other factors, an ordinal logistic regression was performed. [14]	5. The majority of tertiary hospitals—93.8% (151/161)—offered telemedicine services, with the virtual private network accounting for 55.3% (89/161) among all telemedicine network usage. The two main charging services were teleconsultation and telediagnosis. Although sustainability and standardization are still far from being achieved, telemedicine has a great potential. [14]
		6. The study conducted remote consultations that were done in years 2015 to 2020 using the regional telemedicine platform. Data on the opinions of 225 medical professionals and 225 patients on telemedicine were gathered using	6. Telemedicine in Henan Province has an annual growth rate of 0.64%, telemedicine development in China has demonstrated a growing trend. It provides significant advantages, particularly to senior citizens and

Hong Kong	1. Mei po yip (2022)	1. Low-cost video conferencing equipment (Escort 25, VCON) was installed. This made it possible for a diabetes education program to be transmitted in real time from the diabetic center to the health center. The research was open to 41 participants who had recently been sent to a district hospital's diabetes center between July and December 2000.[19]	1. The main conclusion of the study was that patients found telemedicine-delivered diabetic education to be very acceptable. The outcomes showed that telemedicine might effectively deliver diabetes education to small groups. This discovery prompts us to feel that telemedicine offers interactive education for patients in a primary care environment and might be an efficient way to spread information about diabetes. [19]
Indonesia	1. Indria et al. (2020)	1. The study utilized a mixed methodology using a 12-item questionnaire and semi-structured interviews. A total of 100 clinicians participated in the study from 39 primary care clinics in Makassar City, whereas 15 were interviewed. [20]	1. Results showed that 78% of clinicians were impressed with the telemedicine system, which benefits patients by making diagnoses faster and simpler. One major barrier in telemedicine was the lack of internet connectivity. [20]
Iran	1. Moulaei et al. (2022) 2. Ameri et al. (2020)	1. The study utilized a cross-sectional study. An electronic questionnaire was distributed to 313 patients involved in the study. The questionnaire included inquiries in relation to the motivations in adopting telepharmacy and face-to-face visits, perception of telepharmacy's advantages and disadvantages, and its declining factors. SPSS 22 was utilized in analyzing the results to determine the perspective and preferences of patients in relation to utilizing telepharmacy instead of in-person visits. [21] 2. The descriptive-analytical study utilizes a questionnaire distributed to the randomly selected 40 pharmacists in pharmacies of Kerma to determine the most important 2-person discussion in telepharmacy, barriers and attitudes towards telepharmacy. The study utilized SPSS to analyze the data gathered. [22]	1. 77% of the 313 respondents prefer telepharmacy via appointments while 23% prefer face-to-face services. There was a significant difference recorded between the percentage of telepharmacy and in person services. reducing costs, reducing incidence of contagious disease, and time saving were the most significant factors in preferring telepharmacy with 90.87%,87.13%, and 89.21% respectively. [21] 2. Physician-pharmacist, pharmacist-hospital ward, and pharmacist-physician relationships were the most important 2-person discussions recorded in the study with a mean of 3.88, 3.73, and 3.65 respectively. The perceived benefits in implementation were efficient training for patients, pharmacists, and physicians, assistance in decision making and the diagnosis of drug interactions, and prevention of unnecessary trips to the clinic. [22]

Japan	1. Kayo waki et al. (2014)	1. This study identify the patient with diabetes and assess them through the use of communication through device. The four components that make up DialBetics are (1) data transfer, (2) evaluation, (3) communication, (4) A dietary assessment. The safety and usefulness of a remote health-data monitoring system, as well as its effect on changing patients' lifestyles to enhance diabetic self-management and, therefore, clinical results, were examined in a three-month randomized research. The 54 patients with type 2 diabetes were split into two groups at random, 27 in the DialBetics. [23]	1. Fasting blood sugar (FBS) and HbA1c values significantly decreased in the DialBetics group: FBS decreased by an average of 5.5 mg/dl in the DialBetics group while HbA1c increased by an average of 16.9 mg/dl in the non-DialBetics group (P =.019). HbA1c decreased by an average of 0.4% (from 7.1 1.0% to 6.7 0.7%) in the DialBetics The DialBetics group saw better BMI improvement, albeit this was not statistically significant due to the small sample size. [23]
	2. Kenjiro kikuchi et al. (2022)	2. For 30 days patients with childhood-onset epilepsy who visited an outpatient clinic at Saitama Children's Medical Center in Saitama, Japan, were the subject of a retrospective analysis of their medical data. The researcher separated the patients into the telemedicine group and the face-to-face group in order to identify the clinical characteristics of patients who used telemedicine consultation (via telephone call). Next, we went through the clinical characteristics. For new patients, telemedicine consultation was not used. [24]	2. 294 individuals, or 37.9% of the total 776 outpatients we registered, used telemedicine consultations. 2,299 visits were made in total, with 373 (16.2%) of those being telemedicine sessions. The only clinical characteristic related with telemedicine consultations was the age of epilepsy start. 23 of the 776 patients (or 3.0%) who did not develop status epilepticus or worsening of their seizures had fewer prescriptions for oral antiepileptic medications. [24]
	3. Dat et al. (2022)	3. The review followed the preferred reporting items for systematic reviews and meta-analyses (PRISMA) statement (Supplementary data). Extracted data on primary outcomes, including fields of use, benefits, and limitations of telepharmacy models. Secondary outcomes, including requirements for building an effective telepharmacy model and current regulations governing telepharmacy, were also discussed. [25]	3. The pharmaceutical supply chain is a crucial application of telepharmacy, especially in remote or underserved regions. Telepharmacy helps improve patient medicines availability during hospital night shifts, patients in remote areas, and creates favorable conditions to support remote drug delivery by courier companies. [25]
	4. Miyawaki et. al. (2021)	4. The study used available data from a large internet survey that was conducted between August 25th and September 30th of 2020. The relationship between participant age and SES (educational attainment, urbanity of location, and income level) and their usage of telemedicine were examined [26]	4. Excluding those in their 70s, younger people used telemedicine more regularly than older people. During the pandemic, telemedicine utilization varied depending on educational attainment and urbanity of residence. [26]
	5. Matsumoto et al. (2022)	5. The study conducted an exploratory study to understand perceptions on telepharmacy especially in mountainous depopulated areas in Japan. Four (4) elderly patients from Toyone village, Japan, took part in semi-structured	5. Telepharmacy was considered to be beneficial, particularly for people with limited access to clinics

Jordan	1. Muflih et al. (2021)	1. The study utilized a cross-sectional survey in recruiting eligible participants from community pharmacy and hospital pharmacies. A web-based survey was used in order to examine the attitudes of pharmacists to the clinical benefits and challenges in the use of telepharmacy during the COVID-19 pandemic. [29]	1. Out of all 364 pharmacists who participated in the study, 181 were working in community pharmacies, and 183 were working in hospital pharmacies. 70.6% were in favor of telehealth services including telepharmacy in capturing and reporting COVID-19 signs and symptoms, 90.7% agree that there is timely feedback in using telemedicine and 87% agree about having the role of monitoring the patients several times a day. Half of the pharmacists lack reimbursement and were discouraged to use telepharmacy due to lack of studies. The study concluded that the majority supported the concept and utilization of telepharmacy services towards the patients. [29]
Malaysia	1. Elnaem (2022)	1. A cross-sectional study was conducted using a self-developed, pre-tested, and validated 35-item questionnaire among penultimate and final year students in a Malaysian public pharmacy school. [30]	1. The study received a total of 178 responses to the questionnaire. The response rates of the third and fourth years were 50.6% and 49.4%, respectively. Overall, participants' knowledge of telepharmacy significantly impacted their expressed readiness to implement telepharmacy services in their future practice. [30]
	2. Ng & Sze. (2022)	2. The study utilized a cross-sectional study through an online questionnaire using the 5-point Likert scale to evaluate the perceptions on the benefits, barriers, and attitude towards telepharmacy. The Klang Valley was sampled using a convenience sampling method and 217 community pharmacists were selected. [31]	2. Community pharmacists in Malaysia appear to share a favorable perception of the benefits of telepharmacy. The study consistently observed that younger community pharmacists and those with work experience expressed a more positive attitude toward the implementation of telepharmacy ($p<0.0001$). [31]
	3. Manzoor et. al. (2022)	3. The study utilized a community-based cross-sectional analytical study with a technique by Krejcie and Morgan (1970) to determine sample size. In order to conduct the test, respondents were chosen using a convenience sampling method and questionnaires were given out. [32]	3. Results showed a mean score of 3.83 (76.6%) which indicates a positive attitude towards telemedicine and variable confidence has a mean score of 13.84 (65.9%) indicating moderate level of confidence. Telemedicine has the potential to improve healthcare service accessibility while significantly reducing healthcare disparities. [32]

Nepal	1. Hemav rajbhandari et al. (2019)	1. Four locals of Nepal's remote district of Myagdi were given epilepsy fieldwork training. raised people's awareness of epilepsy in their neighborhoods. When they discovered someone who may have epilepsy, they utilized a smartphone app to calculate the chance that an episode was epileptic and then phoned an epilepsy expert. As safety indicators, we tracked death, diagnostic changes during in-person consultations, and drug-related incidents. Additionally, the frequency of seizures and general well-being were noted, and a questionnaire was developed to gauge satisfaction. [32]	1. In 18 months, 112 individuals with app scores indicating epileptic seizures were found and handled; 15 of these patients experienced induced seizures. 43 percent of epilepsy sufferers were not receiving treatment. One had passed away at the time of the checkup from an unrelated cause. At the face-to-face evaluation, there was 93% diagnostic agreement. 5% of people had drug side effects overall. 33% of seizures were halted, while 57% were decreased. Patients choose this service over visiting other doctors 96% of the time. [32]
	2. Paudel (2020)	2. A user-friendly operating system and internet services like Skype, Facebook Messenger, Viber video calls, Zoom Meetings, Google Duo, etc. are all included in the program. The most crucial aspect of a TD is connectivity, which enables connections via the very small aperture terminal (V-SAT), public switched telephone network (PSTN), mobile data network on cellular phones, or wireless local area network/wide area network (LAN/WAN). [33]	2. Both benefits and drawbacks of TD exist. It has been discovered that TD may aid in infectious disease pandemics, reduce the frequency of direct consultations, identify worrisome skin lesions more quickly, and triage patients for surgical operations. Due to low picture quality, it has some limitations and misses malignant skin disorders. Its process has challenges with permission, identity protection, human rights, professional ethics, and other medicolegal, ethical, and other issues. Additionally, TD is not very useful in dermato-aesthetic procedures.3 In the middle of the COVID-19 epidemic, people are using commercially accessible social media and teleconsultation platforms like Facebook Messenger, WhatsApp, Viber, Skype, Hamro-doctor, etc. [33]

Pakistan	1. Syed Sarosh Mahdi et al. (2022)	1. This study is the determination of research and article regarding on telepharmacy in pakistan For document searches, databases including PubMed (Medline), CINAHL (Cumulative Index to Nursing and Allied Health Literature), Scopus (EMBASE), and Google Scholar were utilized. The Newcastle-Ottawa Scale (NOS), which measures study quality, was used. The Newcastle-Ottawa scale revealed that the majority of the studies (n=8) that were included in the review were of good quality. Selected research features were further examined in light of many factors, including publication year, sample size, study design, procedures, and goals. [34]	1. 11 articles out of 955 found through the search were eventually chosen for the evaluation. These experiments were further described as implementations of telemedicine depending on regions. Out of the 11, eight studies were carried out in the metropolitan area and three in the country's rural parts. Numerous research have published data on smartphone telehealth interventions using SMS, apps, and web-based telemedicine. [34]
	2. Mahrukh Siddiqui et al. (2015)	2. Mobile health care can be an effective way to slow this growth and enhance the quality of life for such patients. A non probability convenient sampling strategy was used to contact 100 patients in a big tertiary care government hospital in Karachi, Pakistan. After receiving agreement from each participant, co-authors conducted an interview-based sample of a modified questionnaire. On SPSS 16, all information was gathered and examined. [35]	2. This study included 100 patients in total, with 66 (66%) men and 34 (34%) women, with a mean prevalent age of 54.27. All 100 participants had easy access to cell phones, and 88% of them (88/100) said they would be willing to take part in interventions based on mobile health. They preferred getting phone calls (85.2%) over SMS (14.8%) reminders for these treatments, which is statistically significant (p=0.014). Even more than 85% of the participants consented to take part in the intervention using financial incentives. The use of SMS or phone call reminders appears to be a desirable and acceptable approach for diabetic and hypertensive patients. This can substantially enhance their ability to govern themselves and assist in reducing this rise in the future. [35]
	3. Muhammad et al. (2022)	3. The study utilized a cross-sectional study through a 35-items study instrument to examine perceptions of pharmacists towards telepharmacy. For inferential analysis on perceptions of tele-pharmacy implementations with their demographics, a chi-square test was employed. [36]	3. Positive perception on tele-pharmacy was observed in the majority of pharmacists. Tele-pharmacy plays a crucial role in delivering effective and better patient care. It may also aid in the prevention and treatment of numerous infectious diseases especially in remote patient areas. [36]

Philippines	1. Plantado et al. (2021)	1. The service utilized various platforms for receiving and processing queries, communication, and promotion. Submissions received from March 20 to May 31, 2020 were processed for analysis. Parameters analyzed were time patterns of query submission, response time, service feedback, user and patient demographics, and subjects of inquiry. [37]	1. A total of 271 queries were analyzed. Query frequency decreased over time, consistent with relaxation of quarantine restrictions and increasing availability of information. Peak hours of query influx were outside typical business hours. The majority of users were from the general public (93.8%) and preferred to receive responses through text (61.2%). The majority of users from the general public belonged to the 15- to 25-year-old age group (41.1%) and sought information for themselves. [37]
	2. Noceda (2022)	2. This study used a mixed-methods design through online surveys and in-depth interviews. An online survey using Consumer Assessment of Healthcare Providers and Systems (CAHPS) Clinician & Group Adult Visit Survey 4.0 (beta) and Telehealth Usability Questionnaire (TUQ) was accomplished by 200 participants aged 18 to 65 years. [38]	2. Participants were generally satisfied with telemedicine services, with most reporting that this was an efficient and convenient alternative to face-to-face consultations. However, only 2 in 5 perceived telemedicine as affordable. [38]
	3. Aca-ac et al. (2022)	3. This study utilized a quantitative, quasi-experimental research design involving hypertensive patients from Poblacion 6, Buenavista, Agusan del Norte. A quasi-experimental research design was used to estimate a causal impact of an intervention on a target population without random assignment, which attempts to establish a cause and effect relationship. [39]	3. Results in a patient are rather evident because many measures are utilized to quantify diastolic function, each with insufficient statistical significance. Consequently, it is mentioned in the book that even mild hypertension (blood pressure 140/90 mm Hg) raises the risk of end-organ damage in the long run. In adults over the age of 60, systolic hypertension (blood pressure of 150 mm Hg in the context of normal diastolic blood pressure) is a serious cardiovascular risk factor that must be addressed. [39]
	4. Umayam et al. (2022)	4. This study utilized a cross-sectional community survey design with a descriptive quantitative correlational method. Quantitative data collected through a survey questionnaire will help in determining the respondents' attitude towards telemedicine and if there is a significant relationship between their KAP on telemedicine and their intent of use.This research made use of purposive sampling and 322 eligible respondents participated in the study. [40]	4. A total of 390 respondents participated in the online survey and only 322 were eligible after data cleaning based on the inclusion and exclusion criteria of the study. [40]

Qatar	1. Almouhd (2022)	1. A descriptive, qualitative approach using face-to-face focus group (FG) discussions was used. CPs across Hamad Medical Corporation (HMC) were purposively invited to participate in the study. [41]	1. We conducted five focus groups that included 23 CPs and led to seven themes. Overall, CPs reported inadequate preparedness for the practice of telepharmacy, which they perceived as challenging. [41]
Saudi Arabia	1. Asseri et al. (2020)	1. The study employed a new workflow setup on outpatient (OPD) and inpatient (IPD) pharmacies using both local and remote staff through the use of a secured virtual private network (VPN) to prevent direct contact between pharmacists and patients without risking patient care and safety. [42]	1. Implementing tele-pharmacy by means of medication home deliveries, remote access, and modification of previous work produced significantly better results in the delivery of effective and high-quality pharmaceutical care while avoiding distribution setbacks and ensuring patient safety. [42]
	2. Al Ammari et al. (2021)	2. The study conducted a prospective study with prescribed anticoagulation patients for 3 month from March 2020. The study collected the patient's information namely: age, gender, indication for anticoagulation, comorbidities, duration of treatment, dose of warfarin, International Normalized Ratio, INR target, INR value range, INR time, and complications to assure the continuous patient care provided through telepharmacy anticoagulation clinic. [43]	2. 270 patients participated in the study. 59.39% ± 32.84 is the mean percentage of the overall INR values 59.39% ± 32.84 is the mean percentage of the overall INR values, 57.81 ± 32.08 was the mean time of the INR within the therapeutic range. With a TTR > 50%, approximately half had intermediate to good anticoagulation control. The telepharmacy consultation was considered as effective as the in-person consultations. [43]

Singapore	1. Hossain et al. (2019)	1. A self-administered cross-sectional survey was routinely presented to patients at Singapore General Hospital. Participants had to be at least 18 years old, have a smartphone, and be able to speak and understand basic English. There was no identifying data gathered. Descriptive statistics were used to summarize responses. Multiple logistic regression analysis was utilized to find characteristics related to mHealth awareness, usage, and attitudes. [44]	1. Four hundred and two eligible replies were collected, with the majority of participants (63.7%) reporting having finished higher education and having chronic medical issues (71.1%), with a mean age of around 43 years. Most (76.3%) participants were eager to learn how to utilize mHealth in the future, and 63.2% believed that mHealth may help them better manage their health. [44]
	2. James low alvin et al. (2020)	2. The eight nursing facilities in Singapore where this study was done. The research included all nursing home patients who were referred to the program for teleconsultation between December 2010 and May 2017. The individual telemedicine consultation was the unit under observation and study. Each distinct patient made at least one observation point. Dates of consultations, patient demographics, comorbid conditions from the patient's past, grounds for referral, physical exam results, main diagnoses, and general care strategies suggested by the doctors were all recorded. [45]	2. With 850 different patients, there were 1673 teleconsultations done. These patients were classified as having moderate to severe disabilities for the majority of them. 95 percent of the consultations had planned times. Medication review (47.6% of referrals) and behavioral issues (22.1%) were the top causes. Hypertension (57.0%), dementia (40.0%), diabetes (39.0%), and hyperlipidemia (38%) were the 4 most prevalent comorbidities. Dementia was the most typical main diagnosis (21.6%), and 227 of those diagnosed (62.8%) had behavioral and psychological signs of dementia. [45]
	3. Yang Chang et. al. (2021)	3. The study utilized a single-center, randomized-controlled and open-label trial with 160 patients. The Generalized Anxiety Disorder Assessment (GAD-7) and Anderson Symptom Inventory (MDASI) were utilized to evaluate the patient's anxiety and cancer symptoms, respectively. The Client Satisfaction Questionnaire was used to gauge client satisfaction (CSQ-8). To gather qualitative data about patient's perceptions of TIPMA, the study conducted semi-structured interviews. [46]	3. There were no significant differences between the patient's anxiety score (GAD-7) and disease symptoms (MDASI), while the patient satisfaction score (CSQ-8) was significantly higher ($p<0.001$). Patients value TIPMA services because they are timely, provide a better response, and minimize the number of hospital and clinic visits, according to qualitative analysis. [46]

South Korea	1. Chan-young et al. (2020)	1. The COVID-19 Telemedicine Center of Korean Medicine (KM) has been created in South Korea for COVID-19 patients as well as the general public. More than 20% of all COVID-19 patients in South Korea will have sought treatment at this facility by March 9th, 2020. Notably, individuals expressing concerns about their mental health were given a guidebook for mental health counseling that included mindfulness-based treatments (MBIs) centered around mindfulness meditation. [47]	1. Revealed the advantages of MBIs as a method that had promise for enhancing public mental health during the COVID-19 pandemic, and our results may be applied to improve tactics during pandemics like COVID-19. [47]
	2. Hyung-gi kim et al. (2015)	2. A comparative analysis was made based on reports and a thesis on the satisfaction rate of patients and providers, patient compliance to treatment, and economic assessment of Gangwon telemedicine service, which were carried out in three periods: years 2006, 2010, and 2012. [48]	2. The Gangwon Province's telemedicine services improved patient adherence to medication delivery, blood glucose management, blood pressure control for hypertensive patients, and economic benefit. [48]
	3. Jeong-ah oh et al. (2003)	3. A randomized comparison experimental design of pre and post-test groups was used to assess the effectiveness of tele-medicine intervention on diabetic people. Participant were recruited from the endocrinology outpatient department of a tertiary care hospital located in the urban city of South Korea. [49]	3. The DCCT reported the adverse consequences associated with the intensive management, such as weight gain in a particular group. However majority finds their glucose level to lower extent than before due to patient intervention with pharmacy. [49]
	4. Ji yun jeong (2018)	4. 338 adult patients with type 2 diabetes were included in this 24-week prospective multi-center randomized controlled study at four university hospitals in South Korea. The patients were divided into three groups: telemonitoring (group B, n = 113), telemedicine (group C, n = 112), and controls (group A, n = 113). Regular visits to the outpatient clinic were made by patients in the telemonitoring group, who also received a second telemonitoring service that comprised remote glucose monitoring and text-based automated patient decision assistance. In the telemedicine group, remote glucose monitoring was same, but video conferencing with an endocrinologist took the place of outpatient visits for evaluation [50]	4. The traditional, telemonitoring, and telemedicine groups all saw comparable adjusted net decreases in HbA1c concentration (-0.66% 1.03% vs. -0.66% 1.09% vs. -0.81% 1.05%; $p > 0.05$ for each pairwise comparison). In comparison to the traditional group, fasting glucose levels decreased in the telemonitoring and telemedicine groups. The telemedicine group had lower rates of hypoglycemia than the other two groups, and telemonitoring and telemedicine patients had greater medication compliance than the traditional group. There were no significant adverse connected to telemedicine. [50]
	5. Mi jung rho et al. (2017)	5. This study used type 2 diabetes data from participants in China (n = 92) and Korea (n = 81). Patients' views of telemonitoring were compared using two independent sample t-tests, and the variables influencing their behavioral intentions to utilize telemonitoring were identified using multiple regression analysis. To evaluate the variations in hemoglobin A1c (HbA1c) levels from baseline to follow-up, we used Wilcoxon signed rank tests. [51]	5. In South Korea and China, telemonitoring proved a helpful intervention in lowering blood sugar levels in diabetic patients, although the factors affecting its utilization differed. offer helpful advice for creating telemonitoring for glucose control that takes into account the unique peculiarities of various nations. [51]

Thailand	1. Chaomuang et al. (2022)	1. The cross-sectional study utilized structured interview data utilizing a purpose-developed questionnaire distributed to the randomly selected patients from 6 hospitals between July and August 2020. To examine multivariate factors that might be connected to DRPs, logistic regression was performed. [52]	1. The prevalence of home delivery drug related problems in Northern Thailand rural areas was 49.30%. The five most common DRPs include changes of drug packaging or brands, leftover medications of more than 2 weeks, nonadherence, having conditions or diseases requiring additional medications, and ADRs with 18.84%, 18.44%, 17.43%, 6.81%, and 5.21% respectively. Overall, the DRP prevalence was lower than the usual and may have decreased than the normal conditions. Patients were highly satisfied and wanted to continue the home delivery even on post COVID-19 conditions. [52]

United Arab Emirates	1. Ibrahim et al. (2021) 2. Jirjees et al. (2022) 3. Meslamani (2022) 4. Kharaba et al. (2022)	1. This is a prospective study carried out for 4 months in 52 community pharmacies across the United Arab Emirates (UAE) using disguised direct observation. Multivariable logistic regression was used as a tool to predict factors associated with effective telepharmacy services in improving dispensing safety and increasing access of patients to pharmaceutical care. Data were entered and analyzed using the Statistical Package for Social Science (SPSS) software version 26. [53] 2. A cross-sectional study was conducted using a self-administered questionnaire that was distributed to community pharmacists in the UAE. The survey used to collect information on the type of telepharmacy services and related topics such as constraints and supports. The evaluation of services was done for three periods: before, during and after lockdown. [54] 3. A quantitative, self-administered questionnaire was developed, validated, and delivered randomly to adults living across the United Arab Emirates (UAE) . The questionnaire included questions about categories of telemedicine used, purpose of use, challenges encountered during the use of telemedicine, and reasons for not using telemedicine technology. [55] 4. The information was gathered through a face-to-face questionnaire distributed to 428 licensed community and hospital pharmacists. The participants were chosen through convenient sampling technique and data are analyzed through SPSS Version 26 to assess the impact of COVID-19 on the hospital and community pharmacists' roles in dispensing and review, patient education, and services of telepharmacy. [56]	1. Pharmacist recommendations related to COVID-19 at pharmacies with telepharmacy (n = 63,714) versus those without remote services (n = 15,539) were significantly more likely to be (1) contact the nearest testing center (adjusted odds ratio [AOR] = 7.93), (2) maintain home quarantine (AOR = 5.64), and (3) take paracetamol for fever (AOR = 3.53), all were significant results ($p < 0.05$). Pharmacies with telepharmacy were more likely to include wrong patient errors (AOR = 5.38, $p < 0.05$). [53] 2. The number of completed surveys was 391. The majority of the participants were under 35 years old (79.5%), female (65.0%), with a bachelor's degree (82.6%), and working in a pharmacy group (70.6%). Pharmacies provided the services by phone (95.6%) and/or messaging applications (80.0%) such as WhatsApp and Messenger. Lack of time, training and financial support were the main barriers associated with telepharmacy services among individual pharmacies. [54] 3. The total number of participants in the final dataset was 1584, with 496 (31.3%) using telemedicine during the coronavirus disease 2019 (COVID-19) pandemic. The most prevalent reasons for not utilizing telemedicine during COVID-19 were not knowing it existed (38.3%, 417 of 1088) or not knowing how to utilize it (33.5%, 365 of 1088). Those who used social media often were less likely to be identified with telemedicine users than nonusers. [55] 4. Out of 428 pharmacists, 77.1% practiced teleconsultation, 54.2% filled prescriptions remotely, and 46% changed at least a COVID-19 patient's prescription or dosage regimen. Patient education and medication review was elevated as reported by the 88.8% and 76.6% of the participants involved. 57.7% and 41.8% of the participants stated that after COVID-19, both the frequency of their medicinal interventions and the acceptance of those interventions by physicians increased. 73.4% and 49.1% also stated that there was an elevation in the OTC and antibiotic dispensing during the pandemic. With this, the findings indicate a significant change in the pharmaceutical care after COVID-19. [56]

Vietnam	1. Dat et al. (2022)	1. The descriptive cross-sectional study utilized a questionnaire to be distributed to 414 pharmacists from July 2021 to assess the present status of the utilization and factors related to the pharmacists' willingness of telepharmacy usage in Vietnam. [57]	1. 86.7% of the participants applied telepharmacy in their practice through which phone calls and Zalo, an online application, were found the most used platforms. 62.3% had good knowledge, 74.2% had a good attitude, and 58.7% had good behaviour towards telepharmacy application. 87% were recorded to be willing to use telepharmacy in the practice. [57]

Telemedicine was being developed and tailored to the health systems of 18 nations. The initial list of possible issues includes a steep learning curve, a potential over-reliance on digital technology, privacy and security issues, and an unclear return on investment. At a time when the healthcare industry is facing several challenges and going through substantial transformation, telemedicine is in a position to address these issues and significantly enhance health care. Academics have been able to evaluate the many technologies used, clinical outcomes, financial benefits, public perceptions, and adoption hurdles. Although many countries did not yet fully embrace telemedicine such as in Thailand, patients find face to face interaction more comfortable than using telemedicine. There is a limit in the communication of patient to pharmacy, that it unable the patient to show vital and physical signs clearly. However, in educational and informational communication, telemedicine where able

Conclusion

The dissemination of knowledge about medications, illnesses, symptoms, and health is known as telepharmacy. which enables anybody from any area to obtain knowledge from a specialist via technology or telecommunication. Contrary to online information, which does not expressly identify instructions or information that ties to the patient's condition, this enables the individual to obtain the information required for the person's health. Telepharmacy enables users to express themselves freely and in any language that a professional can comprehend and converse in, making it more dependable and effective. The use of technology to deliver the most practical, secure, quick, and effective pharmaceutical treatment is one of the many things that need to be mentioned about telemedicine/telepharmacy or order entry reviews. This method may be seen as one of the evidence of the medical sector drastically altering. However, there is a significant adjustment that must be made that could have an impact on the healthcare physician, pharmacist, and patients because the majority of people are not yet skilled in handling technology. Despite the fact that there are many adjustments, many people were able to pick up on using technology quickly as a result of the pandemic. Numerous people have switched to telepharmacy due to its convenience, and they find it approachable due to the good communication of physician and patient, although not all telepharmacy communication receive good feedback from patients or the patient does not communicate well due to lack of empathetic manners from the professional. As a result, this system is not a one-way process that simply involves the medical staff; in order for the patient to be committed to and have a good attitude about their treatment, this system requires their participation as well. In order to provide better health care information and allowing the patient to commit a health improvement

References

1. kitticheth limwilairatana " a study of thai's attitude toward telepharmacy" (2021) Chulalongkorn University, bangkok thailand. Available: http://ethesisarchive.library.tu.ac.th/thesis/2020/TU_2020_6202040447_13828_13775.pdf
2. Wei Liang Ng and Wei Thing Sze. Perception and Attitude of Malaysian Community Pharmacists Towards the Implementation of Telepharmacy (2022). Faculty of Pharmacy, SEGi University Kota Damansara, Jalan Teknologi 47810 Petaling Jaya, Selangor, Malaysia available: http://ethesisarchive.library.tu.ac.th/thesis/2020/TU_2020_6202040447_13828_13775.pdf
3. Yusaku Matsumoto, Hayato Kizaki, Yuki Ikeda, Shohei Nakamura, Shinya Kina, Takanori Nagai, Takafumi Nasu, Koji Miyamoto, Satoko Hori. Telepharmacy in mountainous depopulated areas of Japan: An exploratory interview study of patients' perspectives. Division of Drug Informatics, Keio University Faculty of Pharmacy, Tokyo, Japan. 2021. Available from: https://www.ddtjournal.com/downloadpdf/2189
4. Hoe, Siu Loon. Digital Health in Southeast Asia: Startups and Digital Technology Applications (2021). school of Computing and Information Systems, Singapore Management University available: https://ink.library.smu.edu.sg/sis_research/7261/
5. Intan Sabrina M, Defi IR. Telemedicine guidelines in South East Asia-A scoping review [Internet]. Frontiers. Frontiers; 1AD. Available from: https://www.frontiersin.org/articles/10.3389/fneur.2020.581649/full
6. Fakih M. Telemedicine in Indonesia During the Covid-19 Pandemic: Patients Privacy Rights Protection Overview. Fiat Justisia Jurnal Ilmu Hukum [Internet]. 2022 Mar.18 [cited 2022 Mar.31];16(1):83. Available from: https://jurnal.fh.unila.ac.id/index.php/fiat/article/view/2583/1820
7. Iftinan GN, Wathoni N, Lestari K. Telepharmacy: A potential alternative approach for diabetic patients during the COVID-19 pandemic [Internet]. Journal of multidisciplinary healthcare. Dove; 2021. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8384152/
8. Mohiuddin AK. Scope of Tele-Pharmacists in Pandemic Situations of Bangladesh. 2020;
9. Huibo li, Siqian zheng, Da li, Dechun jiang, Fang liu, Wei guo, Zhengying zhao, Yanfei zhou, Jingting liu, and Rongsheng zhao. 2021. The National Clinical Research Center for Mental Disorders & Beijing Key Laboratory of Mental Disorders, Department of Pharmacy, Beijing An'ding Hospital, Capital Medical University, Beijing, China

10. Deshuang Ta, Tangwu Zhong, Juli Wang. The Influence of Telemedicine and Compassionate Care on the Quality of Life and Mental Health of Patients with Epilepsy in Northeastern China During the COVID-19 Crisis. northeastern China. 2021. Available from: https://pubmed.ncbi.nlm.nih.gov/34887665/
11. Chenglin Sun, Lin Sun, Shugang Xi, Hong Zhang, Huan Wang, Yakun Feng, Yufeng Deng, Haimin Wang, Xianchao Xiao, Gang Wang, Yuan Gao, Guixia Wang. Mobile Phone-Based Telemedicine Practice in Older Chinese Patients with Type 2 Diabetes Mellitus: Randomized Controlled Trial. 2019. MIR Mhealth and Uhealth (http://mhealth.jmir.org)
12. Lei Zhang, Xingxing He, Yun Shen, Haoyong Yu, Jiemin Pan, Wei Zhu, Jian Zhou, Yuqian Bao. Effectiveness of Smartphone App-Based Interactive Management on Glycemic Control in Chinese Patients With Poorly Controlled Diabetes: Randomized Controlled Trial. 2019. Journal of Medical Internet Research (http://www.jmir.org)
13. Cui F, Ma Q, He X, Zhai Y, Zhao J, Chen B, et al. Implementation and application of telemedicine in China: Cross-sectional study. JMIR MHealth UHealth [Internet]. 2020;8(10):e18426. Available from: http://dx.doi.org/10.2196/18426
14. Cui F, He X, Zhai Y, Lyu M, Shi J, Sun D, et al. Application of telemedicine services based on a regional telemedicine platform in China from 2014 to 2020: Longitudinal trend analysis. J Med Internet Res [Internet]. 2021;23(7):e28009. Available from: http://dx.doi.org/10.2196/28009
15. Fenglan Liu, Yuyu Jiang, Guangqing Xu, Zhaosheng Ding. Effectiveness of Telemedicine Intervention for Chronic Obstructive Pulmonary Disease in China: A Systematic Review and Meta-Analysis. 2020. Available from: https://www.liebertpub.com/doi/10.1089/tmj.2019.0215?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed
16. Ning Deng # 1 2, Juan Chen # 3, Yiyuan Liu 1, Shuoshuo Wei 3, Leiyi Sheng 1, Rong Lu 3, Zheyu Wang 1, Jiarong Zhu 3, Jiye An 1, Bei Wang 3, Hui Lin 1, Xiuyan Wang 3, Yumin Zhou 4, Huilong Duan 1, Pixin Ran 4. Using Mobile Health Technology to Deliver a Community-Based Closed-Loop Management System for Chronic Obstructive Pulmonary Disease Patients in Remote Areas of China: Development and Prospective Observational Study. 2020. JMIR Mhealth Uhealth. Available from: https://pubmed.ncbi.nlm.nih.gov/33237036/
17. Yuyu Jiang, Pingping Sun, Zhongyi Chen, Jianlan Guo, Shanshan Wang, Fenglan Liu , Jinping Li. Patients' and healthcare providers' perceptions and experiences of telehealth use and online health information use in chronic disease management for older patients with chronic obstructive pulmonary disease: a qualitative study. BMC GERIATR. 2022. Available from: https://pubmed.ncbi.nlm.nih.gov/34979967/
18. Mei Po Yip, Ann Mackenzie, and Juliana Chan. patient satisfaction with telediabbetes education in hong kong. 2002. Department of Nursing, Chinese University of Hong Kong. Available from: https://journals.sagepub.com/doi/abs/10.1258/1357633021937460?download=true&journalCode=jtta
19. Indria D, Alajlani M, Fraser HSF. Clinicians perceptions of a telemedicine system: a mixed method study of Makassar City, Indonesia. BMC Med Inform Decis Mak [Internet]. 2020;20(1):233. Available from: http://dx.doi.org/10.1186/s12911-020-01234-7
20. Moulaei K, Shanbehzadeh M, Bahaadinbeigy K, Kazemi-Arpanahi H. Survey of the patients' perspectives and preferences in adopting telepharmacy versus in-person visits to the pharmacy: a feasibility study during the COVID-19 pandemic. BMC Med Inform Decis Mak [Internet]. 2022;22(1):99. Available from: http://dx.doi.org/10.1186/s12911-022-01834-5
21. Ameri A, Salmanizadeh F, Keshvardoost S, Bahaadinbeigy K. Investigating pharmacists' views on telepharmacy: Prioritizing key relationships, barriers, and benefits. J Pharm Technol [Internet]. 2020;36(5):171–8. Available from: http://dx.doi.org/10.1177/8755122520931442
22. Yusaku Matsumoto, Hayato Kizaki, Yuki Ikeda, Shohei Nakamura, Shinya Kina, Takanori Nagai, Takafumi Nasu, Koji Miyamoto, Satoko Hori. Telepharmacy in mountainous depopulated areas of Japan: An exploratory interview study of patients' perspectives. Division of Drug Informatics, Keio University Faculty of Pharmacy, Tokyo, Japan. 2021. Available from: https://www.ddtjournal.com/downloadpdf/2189
23. Kayo Waki, MD, MPH, PhD, Hideo Fujita, MD, PhD, Yuji Uchimura, DDS, Koji Omae, MBA, Eiji Aramaki, PhD, Shigeko Kato, PhD, Hanae Lee, RN, Haruka Kobayashi, BS, Takashi Kadowaki, MD, PhD, and Kazuhiko Ohe, MD, PhD. DialBetics: A Novel Smartphone-based Self-management Support System for Type 2 Diabetes Patients. 2014. Diabetes Technology Society. Available from: https://journals.sagepub.com/doi/epub/10.1177/1932296814526495
24. Kenjiro Kikuchi, Shin-Ichiro Hamano, Ayumi Horiguchi, Hazuki Nonoyama, Yuko Hirata, Ryuki Matsuura, Reiko Koichihara, Akira Oka, Daishi Hirano. Telemedicine in epilepsy management during the coronavirus disease 2019 pandemic. clinic in Saitama Children's Medical Center, Saitama, Japan. Jan 2022. Available from: https://pubmed.ncbi.nlm.nih.gov/34460985/
25. Dat TV, Tu VL, Quan NK, Minh NH, Trung TD, Le TN, et al. Telepharmacy: A Systematic Review of Field Application, Benefits, Limitations, and Applicability During the COVID-19 Pandemic. 2022;
26. Miyawaki A, Tabuchi T, Ong MK, Tsugawa Y. Age and social disparities in the use of telemedicine during the COVID-19 pandemic in Japan: Cross-sectional study. J Med Internet Res [Internet]. 2021;23(7):e27982. Available from: http://dx.doi.org/10.2196/27982
27. Matsumoto Y, Kizaki H, Ikeda Y, Nakamura S, Kina S, Nagai T, et al. Telepharmacy in mountainous depopulated areas of Japan: an exploratory interview study of patients' perspectives. Drug Discov Ther [Internet]. 2022;15(6):337–40. Available from: http://dx.doi.org/10.5582/ddt.2021.01102
28. J C Balquin, Gania, Doc Erwin Martinez Faller. The Effectiveness of Collaborative Telemedicine among Diabetic Patients in Koronadal City, South Cotabato. 2022. Pharmacy Department, St. Alexius College, General Santos Drive, Koronadal City, South Cotabato, Philippine. Available from: https://www.researchgate.net/publication/359848250_The_Effectiveness_of_Collaborative_Telemedicine_among_Diabetic_Patients_in_Koronadal_City_South_Cotabato

29. 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;75(7):e14209. Available from: http://dx.doi.org/10.1111/ijcp.14209
30. Elnaem MH, Akkawi ME, Al-Shami AK, Elkalmi R. Telepharmacy knowledge, perceptions, and readiness among future Malaysian pharmacists amid the COVID-19 pandemic [Internet]. Indian Journal of Pharmaceutical Education and Research. 1970. Available from: https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/pt/covidwho-1667560
31. Wei Liang Ng and Wei Thing Sze. Perception and Attitude of Malaysian Community Pharmacists Towards the Implementation of Telepharmacy (2022). Faculty of Pharmacy, SEGi University Kota Damansara, Jalan Teknologi 47810 Petaling Jaya, Selangor, Malaysia available: http://ethesisarchive.library.tu.ac.th/thesis/2020/TU_2020_6202040447_13828_13775.pdf
32. Manzoor M, Maziz MNH, Subrimanyan V, Shirin L, Doustjalali SR, Sabet NS, et al. Attitudes towards and the confidence in acceptance of telemedicine among the people in Sabah, Malaysia. Int J Health Sci (IJHS) [Internet]. 2022;2376–86. Available from: http://dx.doi.org/10.53730/ijhs.v6ns3.6040
33. Hemav Rajbhandari, Sweta Joshi, Shankar Malakar, Prakash Paudel, Priya Jain, Kapil Uppadaya, Mamta Singh, Victor Patterson. Epilepsy field workers, a smartphone application and telephone telemedicine: Safe and effective epilepsy care in rural Nepal. Myagdi is a district in the Western Region of Nepal. 2019. Available from: https://www.seizure-journal.com/article/S1059-1311(18)30670-8/fulltext
34. Dr, Vikash Paudel. The Increasing Scope of Teledermatology in Nepal. Department of Dermatology and Venerology, National Medical College, Birgunj-15, Parsa, Nepal. 2020. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8028526/
35. Syed Sarosh Mahdi, Raheel Allana, Gopi Battineni, Tamsal Khalid, Daniyal Agha, Mariam Khawaja, Francesco Amenta. The promise of telemedicine in pakistan: systematic review. 2022. This study was supported in part by the institutional founding of the University of Camerino.
36. Mahrukh Siddiqui, Mohammad Yousuf ul Islam, Bushra Abid Iqbal Mufti, Natasha Khan, Muhammad Saad Farooq, Mariam Gul Muhammad, Muhammad Osama, Danish Kheran, Abdul Nafey Kazi Abdul Momin Kazi. Assessing acceptability of hypertensive/diabetic patients towards mobile health based behavioral interventions in Pakistan: A pilot study. 2015. Available: https://pubmed.ncbi.nlm.nih.gov/26321485/
37. 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;10:e13296. Available from: http://dx.doi.org/10.7717/peerj.13296
38. Plantado AN, de Guzman HJ, Mariano JE, Salvan MR, Benosa CA, Robles YR. Development of an online telepharmacy service in the Philippines and analysis of its usage during the COVID-19 pandemic. Journal of Pharmacy Practice. 2021;:089719002110331.
39. Alicia Victoria G. Noceda, Lianne Margot M. Acierto, Morvenn Chaimek C. Bertiz, David Emmanuel H. Dionisio, Chelsea Beatrice L. Laurito, Girrard Alphonse T. Sanchez, Arianna Maever L. Amit. Patient satisfaction with telemedicine in the Philippines during the COVID-19 pandemic. School of Medicine and Public Health, Ateneo de Manila University, Philippines. 2022. AVAILABLE FROM: https://www.medrxiv.org/content/10.1101/2022.05.21.22274939v1.article-info
40. Aca-ac GZ, Andawit HK, Blando NK, Calamba QU, Fonte AT, Jualo ZO, et al. The effectiveness of telepharmacy intervention on hypertensive patients. Journal of Health Promotion and Service Management. 2022;1(1):28–45.
41. 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 [Internet]. Journal of Medicine, University of Santo Tomas. 2022. Available from: https://www.jmust.org/elib/journal/doi/10.35460/2546-1621.2021-0144/full
42. Eman Alhmoud 1, Dania Al Khiyami 1, Raja Barazi 1, Mohammed Saad 1, Ali Al-Omari 1, Ahmed Awaisu 2, Rasha El Enany 1, Moza Al Hail 1. Perspectives of clinical pharmacists on the provision of pharmaceutical care through telepharmacy services during COVID-19 pandemic in Qatar: A focus group. Pharmacy Department, Hamad Medical Corporation, Doha, Qatar. 2022. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0275627
43. Asseri AA, Manna MM, Yasin IM, Moustafa MM, Roubie FM, El-Anssasy SM, et al. Implementation and evaluation of telepharmacy during COVID-19 pandemic in an academic medical city in the Kingdom of Saudi Arabia: paving the way for telepharmacy. World J Adv Res Rev [Internet]. 2020;7(2):218–26. Available from: http://dx.doi.org/10.30574/wjarr.2020.7.2.0250
44. 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;12:652482. Available from: http://dx.doi.org/10.3389/fphar.2021.652482
45. Hossain I, Ang YN, Chng HT, Wong PS. Patients' attitudes towards Mobile Health in Singapore: A cross-sectional study [Internet]. mHealth. AME publishing company; 2019. Available from: https://mhealth.amegroups.com/article/view/29283/html
46. James Alvin Low , Hui Jin Toh , Laurence Lean Chin Tan , Joanne Wee Koon Chia , Angeline Tian Seah Soek. The Nuts and Bolts of Utilizing Telemedicine in Nursing Homes - The GeriCare@North Experience. 2020. The Society for Post-Acute and Long-Term Care Medicine.
47. Yang Chang GC, Loke M, Chong F, Saffari SE, Yoon S, Chua Y, et al. HSR21-046: A novel oncology telepharmacy service with improved medication access for a more seamless patient experience: A randomized controlled trial. J Natl Compr Canc Netw [Internet]. 2021;19(3.5):HSR21-046. Available from: http://dx.doi.org/10.6004/jnccn.2020.7743
48. Chan-young kwon and boram lee. Characteristics of individuals receiving telemedicine mental health services using mindfulness: Cases in South Korea during the COVID-19 pandemic. 2020. Department of Oriental Neuropsychiatry, Dong-eui University College of Korean Medicine, Busan 47227, Republic of Korea

49. Hyung-Gi Kim, Moo-Eob Ahn, Young-A Choi, Eun-Hi Choi, Dong-Won Kim, Se-Gye Shin, Kyung-Suk Park, Jae-Hyun Han. Fifteen-year Experience with Telemedicine Services in Gangwon Province in Korea. 2015. Gangwon Province of Korea. Available from: https://pubmed.ncbi.nlm.nih.gov/26618035/
50. Jeong-Ah Oh, Hee-Seung Kim, Kun-Ho Yoon, Euy-Soon Choi. A telephone-delivered intervention to improve glycemic control in type 2 diabetic patients. 2003. College of nursing, the catholic university, seoul, korea available from: https://eymj.org/pdf/10.3349/ymj.2003.44.1.1
51. Ji Yun Jeong 1, Jae-Han Jeon 1, Kwi-Hyun Bae 1, Yeon-Kyung Choi 1, Keun-Gyu Park 1, Jung-Guk Kim 1, Kyu Chang Won 2, Bong Soo Cha 3, Chul Woo Ahn 3, Dong Won Kim 4, Chang Hee Lee 4, In-Kyu Lee. Smart Care Based on Telemonitoring and Telemedicine for Type 2 Diabetes Care: Multi-Center Randomized Controlled Trial. 2018. Available from: https://www.liebertpub.com/doi/10.1089/tmj.2017.0203#
52. Mi Jung Rho, Hun-Sung Kim, Chenglin Sun, Guixia Wang, Kun-Ho Yoon, In Young Choi. Comparison of the Acceptance of Telemonitoring for Glucose Management Between South Korea and China. 2017. Available from: https://www.liebertpub.com/doi/10.1089/tmj.2016.0217?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed
53. 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: http://dx.doi.org/10.1016/j.japh.2022.01.015
54. Mohamed Ibrahim O, Ibrahim RM, Abdel-Qader DH, Al Meslamani AZ, Al Mazrouei N. Evaluation of telepharmacy services in light of covid-19. Telemedicine and e-Health. 2021;27(6):649–56.
55. Jirjees F, Odeh M, Aloum L, Kharaba Z, Alzoubi KH, Al-OBAIDI HJ. Pharmacy practice [Internet]. Pharmacy Practice. Available from: https://www.pharmacypractice.org/index.php/pp/article/view/2634
56. Meslamani AZA, Aldulaymi R, Sharu HE, Alwarawrah Z, Ibrahim OM, Mazrouei NA. The patterns and determinants of telemedicine use during the COVID-19 crisis: A nationwide study [Internet]. Journal of the American Pharmacists Association. Elsevier; 2022. Available from: https://www.sciencedirect.com/science/article/pii/S1544319122001583
57. Kharaba Z, Moutraji SA, Khawaldeh RAA, Alfoteih Y, Meslamani AZA. What has changed in the pharmaceutical care after COVID-19: Pharmacists' perspective. Pharm Pract (Granada) [Internet]. 2022;20(2):2656. Available from: http://dx.doi.org/10.18549/PharmPract.2022.2.2656
58. 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;38(2):106–14. Available from: http://dx.doi.org/10.1177/87551225221076327