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DOI: [10.31965/infokes.Vol21Iss3.1059](https://doi.org/10.31965/infokes.Vol21Iss3.1059)Journal homepage: <http://jurnal.poltekkeskupang.ac.id/index.php/infokes>**RESEARCH****Open Access****The Implementation of Telepharmacy in Bangka Belitung Islands Province****Rachmawati Felani Djuria^{1a*}, Retnosari Andrajati^{1b}, Nadia Farhanah Syafhan^{1c}, Bambang Wispriyono^{2d}**¹ Faculty of Pharmacy, Universitas Indonesia, Depok, West Java, Indonesia² Faculty of Public Health, Universitas Indonesia, Depok, West Java, Indonesia^a Email address: felandj87@gmail.com^b Email address: andrajati@farmasi.ui.ac.id^c Email address: nadia.farhanah@farmasi.ui.ac.id^d Email address: wispriyono@gmail.com

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Abstract

Telepharmacy is a telemedicine health service in the pharmaceutical sector that uses telecommunications to assist patients located far away during the Covid-19 pandemic. Furthermore, professional organizations are responsible for continuously providing information to pharmacists, ensuring they stay updated with the latest developments in the field. Mobile applications have emerged as the primary medium through which information can be accessed. Therefore, this research aimed to determine the implementation of telepharmacy in the Bangka Belitung Islands Province using observational research with a qualitative approach. The participants comprised a total of 11 individuals and the technique employed was purposive sampling. Subsequently, the collected data were subjected to analysis using the Miles and Huberman model. The results showed that the utilization of telepharmacy commenced within Bangka Belitung Islands Province and the community pharmacy service implemented the concept in the form of Drug Information Services, drug consultation or patient counseling, and prescription services through e-prescribing. Additionally, field observations highlighted the presence of services such as home delivery of medicines, patient education, and online non-cash payments. The implementation of telepharmacy within hospitals remains absent, despite the widespread adoption of digital services facilitated by the SIMRAS application. Pharmacists also ensured the administrative compliance of their colleagues through the utilization of the SIAP application. The preliminary stages of the implementation commenced in the Bangka Belitung Islands Province.

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1. INTRODUCTION

The Covid-19 pandemic was accompanied by conspiracy theories, rumors, and infodemics, exacerbated by the availability of social media access, and the development of mental health problems due to lockdown (Hua & Shaw, 2020; Yanes et al, 2021). Graviria-Mendoza, et al., (2021) state a substantial portion of drug-related information originates from pharmacists, while the majority is sourced from social media, internet networks, and WhatsApp as well as personal or family drug use experiences (Pariyana, Mariana & Liana, 2021).

During the Covid-19 pandemic, there was a significant percentage of self-medication including drugs without sufficient scientific evidence (Quispe-Canari et al, 2021). This phenomenon was driven by a perception that the illness was merely minor and did not necessitate consultation with a healthcare professional (Susilo & Muslim, 2022). Commonly employed drugs for self-medication encompass acetaminophen (Graviria-Mendoza, et al., 2021), ibuprofen, azithromycin, penicillin, antiretrovirals, and hydroxychloroquine (Yanez et al, 2021; Quispe-Canari, 2021; Yazdany & Kim, 2022; Gras et al, 2021; Mashuri et al, 2022). Regrettably, many individuals opt to engage in self-medication practices with potent drugs without seeking guidance from pharmacists at community pharmacies (Susilo & Muslim, 2022). A significant proportion of these medications are procured from community pharmacies and drugstores (Mashuri et al, 2022).

The widespread use of off-label and irrational drugs for the Covid-19 causes morbidity and mortality, especially the incidence of infection (Paumgarten & Oliveira, 2020) and resistance due to the increased use of inappropriate antibiotics by the public (Mashuri et al, 2022; Kurniawan, Wardiyah & Tadashi, 2020).

Research in Indonesia on pharmaceutical staff showed that approximately 1/3 (37.7% of 4716) of respondents had given antibiotics to patients suspected of having the Covid-19 (Mashuri et al, 2022).

The patient obtains these medicines from the pharmacy because they do not receive information on drug use. In reality, pharmacy visitors require drug information, and there exists a noteworthy relationship between attitudes and the need for drug information (Abdullah, Andrajati & Supardi, 2010).

During a pandemic, it is crucial for professional organizations to consistently provide information, and pharmacists should utilize mobile devices as well as applications as the primary means of accessing information (Hoti et al, 2020). The community expresses the hope that pharmacists can offer services to extend their profession to a larger audience, enhance the presence of pharmacists, and provide comprehensive pharmaceutical services (Subadio, Wiyono & Mpila, 2022). Furthermore, public readiness and acceptance of telepharmacy services are at a high level (Rahma, 2021) with patient satisfaction (Hartani, 2021).

Telepharmacy is a telemedicine health service within the pharmaceutical sector that utilizes telecommunications to cater to patients in remote (Kementerian Kesehatan Republik Indonesia, 2021; Win, 2017) and rural areas (Poudel & Nissen, 2016; Le, Toscani & Colaizzi, 2020) during the Covid-19 pandemic (Iftinan, Wathoni & Lestari, 2021; Lubis, 2021; Putri & Wicaksono, 2021). Furthermore, it has been implemented since 2012 as an effective form of telepharmacy services (Baldoni, Amenta & Ricci, 2019; Sarkar et al, 2018) and its adoption has been increasing worldwide (Asseri et al, 2020). The results of other research show that most services such as drug counseling, prescription review, Drug Information Service, drug therapy monitoring, and pharmaceutical homecare are carried out offline/manually (Mansyur et al, 2019; Kementerian Kesehatan Republik Indonesia, 2020; Djuria & Sinulingga, 2021).

There is a need for initial information despite the Covid-19 pandemic serving as an opportunity for the implementation of telepharmacy, particularly in the archipelago of the Bangka Belitung Islands Province, which necessitates remote healthcare services. These

surveys will help assess the current state of telepharmacy implementation in the Bangka Belitung Islands, allowing for the conduction of evaluation, improvement, and service development.

2. RESEARCH METHOD

The method employed was observational research with a qualitative phenomenological approach. Data collection was conducted in the Bangka Belitung Islands Province from February to August 2022. The research included a total of 11 respondents, selected through purposive sampling. The respondents consisted of the heads of regional and branch organizations of the Indonesian Pharmacist Association in the Bangka Belitung Islands Province. Additionally, the heads of the regional health center pharmacy association and the Bangka Belitung Islands Province Hospital Pharmacy Association were also included as respondents.

In this qualitative research, primary data collection was conducted using triangulation techniques. This involved employing in-depth interviews, observing activities at health centers, pharmacies, and hospitals randomly, as well as using documentation. The collected data were then analyzed through the Miles and Huberman model, which consists of data reduction, display, and conclusion drawing/verification. Data reduction involved the simplification, classification, and elimination of unnecessary parts without contributing to the results. Furthermore, data display entailed presenting the data in a systematic and easily understandable manner. It involved organizing and compiling the data to facilitate meaningful interpretation and identification of patterns or themes. Conclusion drawing/verification is the final step in the data analysis process drawn based on the analyzed results. It remains subject to change when additional supporting evidence is discovered during subsequent data collection stages.

3. RESULTS AND DISCUSSION

The data processing shows that telepharmacy has indeed been implemented in the Bangka Belitung Islands Province. The findings from in-depth interviews indicate that the services, such as Drug Information Services, drug consultation or patient counseling, and prescription services (e-prescribing), have been adopted in community pharmacy services at health centers and pharmacy drug stores. Additionally, field observations demonstrate the existence of home delivery of medicines, patient education, and online non-cash payments.

Telepharmacy services, including Drug Information Services, drug consultation or patient counseling, and patient education, are conducted through telephone communication and different social media platforms, such as WhatsApp, Instagram, and video call applications. Prescription services employ e-prescribing methods, and home delivery of medicines is facilitated. In addition, online non-cash payments are made possible through diverse electronic prescription systems utilized in pharmacies.

These findings align with previous research indicating that virtual consultations, home delivery of medicines, and patient education are commonly employed telepharmacy services in numerous countries (Unni et al, 2021; Deloitte Indonesia, Bahar Law Firm & Chapter Indonesia, 2021). In addition, online non-cash payments, virtual self-medication (Fathony et al, 2021), and Drug Information Service activities are carried out online through email and WhatsApp (Arrang et al, 2021) as well as video calls during patient education and counseling (Koster, Philbert & Bouvy, 2021).

Research about pharmaceutical services shows that a total of 69 pharmacies (71.88%) have used technology-based pharmaceutical services. Telecounseling is conducted by providing self-medication services and drug information to customers online (59.4%). The online prescription and self-medication services use chat applications (WhatsApp, Telegram, Line), email, other online applications (Halodoc, Klikdokter), and video call applications

(Skype, Zoom, Google Meet). Chat applications are most often used both in online prescription services (50%) and self-medication (87%) (Fathony et al, 2021).

Pharmacists employ telepharmacy as a means to deliver clinical pharmacy services encompassing communication, information dissemination, education, drug therapy monitoring, drug information services, and drug dispensation. Telepharmacy media used are varied including telephone, WhatsApp, Instagram, SMS, website, TikTok, and Youtube (Sasanti, Maharani & Sholihat, 2021).

In Public health centers in Indonesia, the Electronic Prescription System served to provide pharmacological information about every available drug. In addition, the e-Health system for Tuberculosis Disease Management in the form of a software module was developed with one of the main functions of a short message delivery system through a cellular telephone network as a reminder of the patient's six-month treatment schedule (Santoso et al, 2015).

Telepharmacy in hospitals has not yet been implemented due to the digitization of services through the SIMRAS application. The findings differ from research conducted in other areas of Indonesia, which indicate the implementation of telepharmacy in hospitals. Telepharmacy has not been implemented in the districts of the Bangka and South Bangka. However, pharmacists have diligently completed the administrative legalities by using the SIAP application.

Several factors hinder the implementation of telepharmacy in the Bangka Belitung Islands Province. These include the availability and preparedness of pharmacists and other pharmaceutical personnel. Furthermore, some pharmacists, particularly senior ones, remain unaware of the convenience offered by telepharmacy services. Challenges such as limited internet network coverage, inadequate service hours, insufficient facilities and infrastructure, and a lack of familiarity among the community contribute to these obstacles. Additionally, regulatory frameworks and management mindsets also play a role in impeding the implementation of telepharmacy. The factors that become obstacles in the implementation are limited human resources and time (Arrang et al, 2021 ; Sasanti, Maharani & Sholihat, 2021), facilities and infrastructure (Santoso et al, 2015 ; Krisnadi & Laili, n.d), legal regulation (Krisnadi & Laili, n.d), technology signal, access to internet (Sasanti, Maharani & Sholihat, 2021; Hariyanti, 2022), patient's economy (Sasanti, Maharani & Sholihat, 2021) and collaboration between system developers and the government (Santoso et al, 2015).

The respondents expressed their desire for pharmacists to demonstrate willingness and capability in using telepharmacy services for patients. Consequently, there is a need to further develop telepharmacy services to enhance convenience for both patients and pharmacists. It is essential to conduct effective socialization campaigns to promote the proper utilization of telepharmacy among stakeholders.

4. CONCLUSION

In conclusion, telepharmacy was implemented in Bangka Belitung Islands Province but required development and improvement to enhance its effectiveness and efficiency. Therefore, it is necessary to carry out further research on the development of telepharmacy service models in the Bangka Belitung Islands Province.

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REFERENCES

- Abdullah, N. A., Andrajati, R., & Supardi, S. (2010). Pengetahuan, sikap dan kebutuhan pengunjung apotek terhadap informasi obat di kota Depok. *Buletin Penelitian Sistem Kesehatan*, 13(4), 21314. <http://doi.org/10.22435/bpsk.v13i4.Okt.2768>
- Arrang, S. T., Sagala, R. J., Notario, D., Sianipar, E. A., & Cokro, F. (2021). Drug information service during covid-19 pandemic. *MITRA: Jurnal Pemberdayaan Masyarakat*, 5(1), 30-37. <https://doi.org/10.25170/mitra.v5i1.1467>
- Asseri, A. A., Manna, M. M., Yasin, I. M., Moustafa, M. M., Roubie, F. M., El-Anssasy, S. M., ... & Alsaed, M. A. (2020). 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 Journal of Advanced Research and Reviews*, 7(2), 218-226. <https://doi.org/10.30574/wjarr.2020.7.2.0250>.
- Baldoni, S., Amenta, F., & Ricci, G. (2019). Telepharmacy services: present status and future perspectives: a review. *Medicina*, 55(7), 327. <http://doi.org/10.3390/medicina55070327>.
- Deloitte Indonesia, Bahar Law Firm & Chapter Indonesia. (2021). 21st Century Health Care Challenges: a Connected Health Approach. Deloitte Indonesia, Bahar Law Firm & Chapter Indonesia. Retrieved from <https://www2.deloitte.com/id/en/pages/life-sciences-and-healthcare/articles/ehealth-publication-Indonesia.html>
- Djuria, R. F., & Sinulingga, S.R. (2021). Effectiveness of Communication, Information and Education in Compliance the Use of Antibiotics in Pangkalpinang City. *3rd International Conference on Health Research and Science Expanding Innovation in Health Higher Education and Health Service in Handling the Covid-19 Pandemic*, 62-70.
- Fathoni, M. M. A., Fitriani, R., Lestari, F. D., Angembani, V. M. A., Tusholecha, A., Fatmasari, W., ... & Zairina, E. (2021). Pelayanan kefarmasian di beberapa apotek di indonesia pada era pandemi Covid-19. *Jurnal Farmasi Komunitas*, 8(2), 45.-50
- Hua, J., & Shaw, R. (2020). Corona virus (Covid-19)“infodemic” and emerging issues through a data lens: The case of china. *International journal of environmental research and public health*, 17(7), 2309. <https://doi.org/10.3390/ijerph17072309>
- Gaviria-Mendoza, A., Mejía-Mazo, D. A., Duarte-Blandón, C., Castrillón-Spitia, J. D., Machado-Duque, M. E., Valladales-Restrepo, L. F., & Machado-Alba, J. E. (2022). Self-medication and the ‘infodemic’ during mandatory preventive isolation due to the COVID-19 pandemic. *Therapeutic Advances in Drug Safety*, 13, 20420986221072376. <https://doi.org/10.1177/20420986221072376>
- Gras M, Gras-Champel V, Moragny J, Delaunay P, Laugier D, Masmoudi K, Liabeuf S. (2021). Impact of the Covid-19 outbreak on the reporting of adverse drug reactions associated with self-medication. *Annales Pharmaceutiques Francaises*. 79(5), 522-529. <http://doi.org/10.1016/j.pharma.2021.02.003>
- Hariyanti. (2022). Information Technology Challenges of Family Planning and Reproductive Health During the Covid-19 Pandemic in Lebak District, Indonesia. *International Journal of Multidisciplinary Research and Analysis*. 5 (2), 263-268.
- Hartani, R.D. (2021). Tingkat Kepuasan Pasien Terhadap Layanan Telefarmasi di Rumah Sakit Gatoel Mojokerto. *Diploma Thesis*. Stikes RS Anwar Medika. Retrieved from <http://repository.stikesrsanwarmedika.ac.id/id/eprint/417/>
- Hoti K, Jakupi A, Hetemi D, Raka D, Hughes J, Desselle S. (2020). Provision of community pharmacy services during COVID-19 pandemic: a cross sectional study of community pharmacists' experiences with preventative measures and sources of information. *Int J Clin Pharm*. 42(4), 1197-1206. <http://doi.org/10.1007/s11096-020-01078-1>.
- Iftinan, G.N, Wathoni, N & Lestari.K. (2021). Telepharmacy: A Potential Alternative Approach for Diabetic Patient During the Covid-19 Pandemic. *Journal of Mutidisciplinary Healthcare*, 14, 2261-2273. <http://doi.org/10.2147/JMDH.S325645>.

- Kementerian Kesehatan Republik Indonesia. (2020). Modernisasi Apotek Dalam Momentum Pandemi Covid-19. *Berita Litbangkes*. Jakarta: Kementerian Kesehatan Republik Indonesia.
- Kementerian Kesehatan Republik Indonesia. (2021). *Kepmenkes No HK.01.07/MENKES/4829/2021 tentang Pedoman Pelayanan Kesehatan Melalui Telemedicine Pada Masa Pandemi Corona Virus Disease 2019 (Covid-19)*. Jakarta: Kementerian Kesehatan Republik Indonesia.
- Koster ES, Philbert D, & Bouvy ML. (2021). Impact of the COVID-19 epidemic on the provision of pharmaceutical care in community pharmacies. *Res Social Adm Pharm*.17(1), 2002-2004. <http://doi.org/10.1016/j.sapharm.2020.07.001>.
- Kurniawan, A. H., Wardiyah, W., & Tadashi, Y. (2019). The correlation between knowledge with community behavior in antibiotic use in kelurahan petungkang utara with home pharmacy care. *SANITAS: Jurnal Teknologi dan Seni Kesehatan*, 10(2), 139-150. <https://doi.org/10.36525/sanitas.2019.14>
- Le, T., Toscani, M., & Colaizzi, J. (2020). Telepharmacy: a new paradigm for our profession. *Journal of pharmacy practice*, 33(2), 176-182. <https://doi.org/10.1177/0897190018791060>
- Lubis, Z. I. (2021). Analisis kualitatif penggunaan telemedicine sebagai solusi pelayanan kesehatan di Indonesia pada masa pandemik Covid-19. *Physiotherapy Health Science*, 2(2), 76-82. <https://doi.org/10.22219/physiohs.v2i2.15148>.
- Mansyur, A.I, Badrujaman, A, Imawati, R, Fadhilah, D.N. (2019). Konseling Online sebagai Upaya Menangani Masalah Perundungan di Kalangan Anak Muda. *Jurnal Pendidikan Ilmu Sosial*. 29(2), 140-154. <https://doi.org/10.23917/jpis.v29i2.8501>.
- Mashuri YA, Wulandari LPL, Khan M, Ferdiana A, Probandari A, Wibawa T, Batura N, Liverani M, Day R, Jan S, Schierhout G, Wahyono D, Yulianto, Kaldor J, Guy R, Law M, Yeung S, Wiseman V. (2022). The response to COVID-19 among drug retail outlets in Indonesia: A cross-sectional survey of knowledge, attitudes, and practices. *The Lancet Regional Health-Western Pacific*.22, 100420. <http://doi.org/10.1016/j.lanwpc.2022.100420>.
- Pariyana, Mariana, & Liana Y. (2021). Perilaku Swamedikasi Masyarakat Pada Masa Pandemi Covid-19 di Palembang. *Prosiding Seminar Nasional Stikes Syedza Saintika*.1 (1), 403-415. Retrieved from <https://jurnal.syedzasaintika.ac.id/index.php/PSNSYS/article/view/947/682>.
- Paumgartten, F. J. R., & Oliveira, A. C. A. X. D. (2020). Off label, compassionate and irrational use of medicines in Covid-19 pandemic, health consequences and ethical issues. *Ciencia & saude coletiva*, 25, 3413-3419. <http://doi.org/10.1590/1413-81232020259.16792020>.
- Poudel A,& Nissen LM. (2016). Tele-pharmacy: a pharmacist's perspective on the clinical benefits and challenges. *Integr Pharm Res Pract*. 5, 75–82. <http://doi.org/10.2147/IPRP.S101685>.
- Putri, W. U., & Wicaksono, I. A. (2021). Review Artikel : Pelayanan Telefarmasi di Masa Pandemi Covid-19. *Farmaka*. 19 (3),93-102. <https://doi.org/10.24198/farmaka.v19i3.34890>.
- Quispe-Canari JF, Fidel-Rosales E, Manrique D, Mascaro-Zan J, Huaman-Castillon KM, Chamorro-Espinoza SE, Garayar-Peceros H, Ponce-Lopez VL, Sifuentes-Rosales J, Alvarez-Risco A, Yanez JA, Mejia CR. (2021). Self-medication practices during the COVID-19 pandemic among the adult population in Peru: A cross-sectional survey. *Saudi Pharm J*. 29(1),1-11. <http://doi.org/10.1016/j.jsps.2020.12.001>.
- Rahma, R.A. (2021). Kesiapan dan Penerimaan Masyarakat Terhadap Pelayanan Telefarmasi di Provinsi Jawa Timur. *Skripsi*. Universitas Airlangga.

- Sarkar, R., Metzger, B. J., Sayre, H. M., Slater, C. M., Katamneni, S., & Coustasse, A. (2018). Telepharmacy and access to pharmaceutical services in rural areas. 1-14. <https://perspectives.ahima.org/telepharmacyandaccess/>.
- Subadio, N. Y. C., Wiyono, W., & Mpila, D. A. (2022). Pengetahuan, persepsi dan harapan masyarakat terhadap profesi apoteker selama pandemi covid-19 di beberapa apotek kecamatan sario. *PHARMACON*, *11*(1), 1292-1301. <https://doi.org/10.35799/pha.11.2022.39140>.
- Santoso, B.S, Rahmah, M, Setiasari, T, Sularsih,P. (2015). Perkembangan dan Masa Depan Telemedika di Indonesia. *Jurnal Tekni Informasi*. 10(3).<https://www.researchgate.net/publication/281497363>.
- Sasanti, A, Maharani, L & Sholihat, N.K. (2021). Analisa Kualitatif Mengenai Peran dan Perilaku Apoteker Terkait Penggunaan Telefar,asi Selama Pandemi Covid-19. *Skripsi Thesis*. Universitas Jenderal Soedriman. <http://repository.unsoed.ac.id/10174/>.
- Susilo, A. I., & Muslim, Z. (2022). Community Behavior Study Regarding Drug Purchases at Bengkulu City Pharmacies in 2021. *SANITAS: Jurnal Teknologi dan Seni Kesehatan*, *13*(1), 33-43. <https://doi.org/10.36525/sanitas.2022.4>
- Unni, E. J., Patel, K., Beazer, I. R., & Hung, M. (2021). Telepharmacy during COVID-19: a scoping review. *Pharmacy*, *9*(4), 183. <https://doi.org/10.3390/pharmacy9040183>.
- Win, A. Z. (2017). Telepharmacy: Time to pick up the line. *Research in social & administrative pharmacy: RSAP*, *13*(4), 882-883. <http://doi.org/10.1016/j.sapharm.2015.06.002>.
- Yáñez, J. A., Chung, S. A., Román, B. R., Hernández-Yépez, P. J., Garcia-Solorzano, F. O., Del-Aguila-Arcentales, S., ... & Alvarez-Risco, A. (2021). Prescription, over-the-counter (OTC), herbal, and other treatments and preventive uses for COVID-19. In *Environmental and health management of novel coronavirus disease (COVID-19)* (pp. 379-416). Academic Press.
- Yazdany, J., & Kim, A. H. (2020). Use of hydroxychloroquine and chloroquine during the COVID-19 pandemic: what every clinician should know. *Annals of internal medicine*, *172*(11), 754-755. <http://doi.org/10.7326/M20-1334>