



# THE USE OF Telemedicine Applications

AS THE 'NEW NORMAL' IN HEALTHCARE: THE CASE OF INDONESIA



#### Autho<u>rs</u>

Yuliana Khong & Felice Valeria **Editor** Treviliana Eka Putri **Designer and Layouter** Muhammad Fanani Arifzqi



The widespread COVID-19 has significantly transformed the way people around the world carry out their daily activities. Virtual services are utilized more than ever in many sectors through digital technologies to substitute physical meetings and support physical distancing measures, indicating that many activities could be conducted without direct physical interactions. Telemedicine is one of the innovations that has become more prominent in implementing the 'new normal' in the medical sector, including in Indonesia. The surge in coronavirus confirmed cases have recently increased the urgency of limiting direct contacts between doctors and patients to prevent further transmissions, and this automatically gives telemedicine companies more room to induce their growth as there are increasing demands for online medical consultations. Currently, there are 12 telehealth companies joined in the Indonesia Telemedicine Association, as well as online medical consultation services provided by state-owned enterprises, which would make it easier for Indonesian people to seek quick medical services without necessarily going to the hospital.



1



# The Adoption of Telemedicine in Indonesia during the COVID-19 Pandemic

Telemedicine can be defined as using a wide array of telecommunications technologies (e.g., phone, video, messaging, computers) by medical professionals to diagnose and treat patients remotely. The proliferation of smart devices – following the era of digitalization – has enabled telemedicine to be carried out further. It becomes possible to deliver remote healthcare to patients to substitute in-person healthcare visits. Learning from the health crisis during the SARS outbreak, telemedicine service has been regarded as useful for the counseling related to one's symptoms, such as fever, cough, and gastrointestinal symptoms counseled for prevention and treatment for disinfection, isolation, ventilation, drug treatment, and vaccination. Moreover, telemedicine is also used for psychological counseling, including anxiety, worry, and fear of infection-related treatment. Many people also seek consultations about hospital recommendations virtually.



Telemedicine service in Indonesia is mostly accessed through the app, utilized to ask questions and consult symptoms before the pandemic situation. Thus, although Indonesia's health ministry's first introduced telemedicine service (Temenin) in 2012, the normalization of virtual doctor consultation in Indonesia was familiar after the outbreak, as telemedicine's utilization is reported higher daily during the pandemic. The adaptation of virtual consultation is also in line with the government initiative to partner with the health-tech firms during the pandemic time. According to COVID-19 spokesman Ahmad Yurianto, by April 2020, there were already 12 digital health companies taking part on the telemedicine as the members of the Indonesian Telemedicine Association (Attention). Those are Medicinal, GrabHealth Alodokter, Halodoc, Alodokter, SehatQ, KlikDokter, Good Doctor Technology Indonesia, ProSehat, Medical Link, Klinikgo, Perawat.id, Aveecena, and Docquity. Additionally, more than 3,000,000 people had used telemedicine in Indonesia.

**Cek Risiko** 

Terinfeksi

COVID-19

Saya mengalami...

Rendah Menangah

YA 💽 TIDAK YA 💽 TIDAK

Khawatir akan COVID-19? Yuk cek risiko kamu di sini!

dan klik tombo

Figure 1. Halodoc in Gojek application (left) and GrabHealth in Grab application (right) due to the pandemic situation



Telemedicine platforms do not only give a free consultation and prevent the patient with mild symptoms from visiting the hospital. The authority of doctors in providing telemedicine services includes history taking, physical examinations through audiovisuals, health recommendations based on the physical examination results, diagnosis enforcement, management and treatment of patients, writing prescriptions for drugs or medical devices, and the issuance of referral letters for examination.

Some of the telemedicine platforms had an incremental access level during the pandemic. Alodokter claimed as the online health super apps in Indonesia said that they had clocked 32 million website visitors in March and over 500.000 free coronavirus consultations since Indonesia's first confirmed case in March 2020. The application has also been downloaded more than 5.6 million times. The number of chats on the Alodokter platform also reached more than 600 thousand per month and an average of 20 thousand per day. Meanwhile, Grabhealth stated that their daily consultations had nearly doubled to 10,000, and Halodoc experienced ten times increase in monthly users than 12 million users before the outbreaks. Search for COVID-19 on the Halodoc platform also increased by 600%. Further, Alodokter also reported that in contrast to the question people asked during the earlier stage of the outbreak in March, people are now asking about non-coronavirus related health issues, such as what medicine to take if they feel unwell at home and so on.

In response to the COVID-19 outbreak and the new normal condition, telemedicine has been regulated in HK.02.01 / MENKES / 303/2020 for health care and facilities. The regulation states that telemedicine's training and supervision are carried out by the Ministry

of Health, together with the regional health office. In preparation for the New Normal, telemedicine platforms such as Halodoc, Prixa, and Prosehat also added the PeduliLindungi feature by activating Bluetooth and smartphones' location. With the feature, users are not only virtually connected to the doctor for health consultation, but also help the government in tracking and stopping the spread of COVID-19. Users also get a real-time notification if someone nearby is infected with the virus. Besides, the application is also integrated with the system managed by the National Task Force and the National Cyber and Crypto Agency (BSSN).

## Telemedicine as Indonesia's Next Unicorn?

The increasing number of positive coronavirus cases and chronic respiratory diseases worldwide has increased the adoption of telemedicine services. The telemedicine market was valued at USD 45 billion in 2019 and is expected to witness 19.3% CAGR from 2020 to 2026. According to Market Data Forecast, the telemedicine market in the Asia Pacific is projected to grow from US\$8.51 billion

in 2019 to \$22.45 billion by 2024. The research entitled "Asia-Pacific Front Line of Healthcare Report 2020 by Bain & Company says that the healthcare landscape in the Asia Pacific will expand at a rate almost double that of the rest of the world by 40 percent over the next decade. Additionally, the trend of adopting telemedicine in Asia countries is increasing positively. Even before the COVID-19 outbreaks, Asian countries are readier to embrace the digital healthcare future than their global peers are. A study by Guy Carpenter-affiliates Oliver Wyman and Mercer in 2019 found that respondents from India, China, Indonesia, and Singapore are more excited about digital health.



#### Figure 2: COVID-19 impact on Telemedicine adoption in the Asia Pacific Source: Health Advances Analysis

Healthadvances, a consulting firm for health care technology mapping out the adoption of telemedicine, before and after the COVID-19 outbreaks. Based on the provider, user adoption, number of available companies, telemedicine platforms, regulatory guidance, and reimbursement, Indonesia and Japan are grouped into the "Follower" category. Countries in this category are on the ongoing growth in telemedicine adoption. In telemedicine adoption, Indonesia and Japan are leading compared to South Korea and Hongkong that have been slow to adopt telemedicine before and after the pandemic breakout. While Singapore, Australia, and China lead as the Early Adopters for far ahead in the adoption curve, minimizing the gap of health access. Although some adoption of telemedicine may be limited for patient subsets and government support or regulations, the telemedicine companies are emerging in the case of Indonesia. During the early stage outbreaks of COVID-19, startups in the education, fintech, logistics, and health sectors were considered capable of promoting technology in artificial intelligence, machine learning, security, and biotechnology in meeting the needs of users. During the uncertain time, it is believed that startups in these fields, especially in the health sector, are considered digital startups that can survive during a crisis. This is driven by consumer preferences changes that tend to change consumption patterns and habits after a new normal situation.

# The Socioeconomic Impact of Telemedicine

Telemedicine indeed has to stay as a part of health services, especially when it's still in an unpredictable situation like COVID-19. Moreover, according to the group of Harvard disease experts, the social distancing brought by the pandemic may need to be placed until 2022. Thus, telemedicine was the initial service guard during the health crisis to prevent the spread of COVID-19 to doctors, nurses, or other health workers. In general, telemedicine can develop rapidly due to several supporting factors. Besides the rising COVID-19 infections across the globe and the increasing prevalence of chronic diseases, telemedicine becomes more accessible due to the growing number of smartphone users and technological advancements related to mobile phones and the internet. For

some populated countries like China, telemedicine also came to avoid long waiting times in hospitals for disease treatment and cost-saving in healthcare delivery.

According to the CEO of Teladoc Health, Jason Gorevic, the demand for virtual medical service has shifted forever. The patients are on

the verge of a new era for virtual care in the healthcare system. Telehealth in the future is not only a privilege and second option but will work together with the traditional doctor appointment, although not replacing it. Demand for the telemedicine service also skyrocketed and quickly adopted worldwide. In Bain's 2019 Asia-Pacific Front Line of Healthcare survey, nearly 50% of patients said that they expect to use digital health tools in the next five years. 91% of consumers said they would use digital health services if the cost were covered by an employer or insurance provider.

# Telemedicine as the answer to more inclusive health service in Indonesia?

Although some care will never be replaced with technology, there are some reasons why telemedicine will still be useful after the COVID-19 pandemic. As Indonesia's rural areas need access to health services, it could tackle the health disparity problem across the archipelago through the private doctor consultations chat or video calls. A survey from 2011 showed that healthcare facilities are often not reachable for most Indonesian. 94.1% of Indonesian households are located more than 5 kilometers from the nearest health facility. Despite the geographical, maldistribution of specialist doctors and quality services obstacles, Indonesia has better broadband penetration in Southeast Asia. Before the pandemic situation, the Indonesian government had developed telemedicine limited to teleradiology service since 2012. Until 2019, this telemedicine was in the stage of further development and testing.

Telemedicine also could reduce travel costs. For patients and health care providers like nurses and doctors, the problem with travel and expense mostly arises in developing countries like Indonesia. Moreover, telemedicine is also beneficial in allowing distance learning and education for doctors, nurses, and medical students in rural areas. During the pandemic situation, telemedicine can encourage more inclusive health services. It can ease the burden on hospitals that are focused on handling the recovery of COVID-19

8

 patients. The Indonesia government also enthusiastically makes telemedicine accessible to more people as the Ministry of Health is striving to finance telemedicine services to be used in the Health
Social Security Implementing Agency (JKN) or BPJS.



In Indonesia's case, we argue that telemedicine could tackle health disparity and create a more inclusive health service ecosystem. Thus, it is clear that telemedicine should stay in with a couple of assessments. On the one hand, Indonesia could utilize telemedicine to reduce patient's medical costs and geographical disparity problems. Still, on the other hand, the benefits, as mentioned earlier, are also a potential barrier. Therefore, a balanced look at the booth opportunity and banisters is needed. There are still some potential obstacles that might hinder the development of telemedicine programs in Indonesia, such as the problem with (1)low internet connectivity, (2) Poor ICT literacy, especially in rural areas, including the literacy of both patient and doctors as not many doctors and nurses are comfortable working with modern technology yet, (3) Industry oriented, startup telemedicine limited on running the platform only and (4) lacking human "touch" in telemedicine diagnosis, as the habitual experience of "seeing" the doctor is replaced with screen time consultation, this may lead to the patient becoming skeptical of telemedicine service. Another possible downfall of telemedicine adoption in Indonesia is the loopholes concern with privacy and security issues that potentially lead to fraud, privacy, and security risks.

#### Privacy and Security Risks of Telemedicine

Notwithstanding the benefits mentioned above that could be generated by telemedicine applications, the implementation itself also comes with numerous risks, especially in terms of privacy and security. Considering the heightening demands for more telemedicine applications amidst the COVID-19 pandemic that should

be met quickly, developers are more likely to overlook significant controlling mechanisms that may protect personal information security and privacy. Especially, in taking to account the high vulnerability of the sector of digital health to cyber-attacks (e.g., phishing and ransomware). It is often reported that patients' data usually become the main target of the attacks to be monetized subsequently. For instance, there was a prominent relevant case in Indonesia, where the WannaCry ransomware attacked two local hospitals in 2017, in which the patients' medical records were eventually stolen. Other than that, protected health information (PHI) serves as the nation's critical infrastructure, which frequently fuels such threats in the healthcare industry.

Digital healthcare services, which include telehealth applications that have had their usage increased during the pandemic, might be more prone to potential risks of being attacked due to the broad attack surface available, such as online platforms, healthcare providers, third-party tools, and other digital services. Furthermore, the lack of adequate security awareness and doctors' training as the frontlines regarding telehealth applications that they use might further exacerbate such threats to occur. The insufficient awareness and knowledge of the patients to protect their own personal data through the installation of firewalls or other necessary precautionary measures might also put the cybersecurity of digital health services at stake. Especially given the internet-connected nature of online services, the threats that would occur might be exclusively imposed on telehealth platforms (e.g. through ransomware). Moreover, the COVID-19 pandemic has unquestionably aggravated the situation; understanding criminals leverage it as an opportunity to steal patients' invaluable PHI.

#### **Conclusion and Ways Forward**

Telemedicine was initially utilized as the "first aid" to prevent face to face medical consultation during the pandemic situation. The convenience and safety offered at low cost, making telemedicine in great demand. Unfortunately, the needs for online medical consultations have not been coupled with readiness from various stakeholders; most importantly, lacking in collaboration of formal organizational structure and the prevalence of digital infrastructure, internet connectivity, and digital literacy problems in developing countries. The urgency of conducting online consultations during a pandemic makes more startups crowding the market, which leads to industry-oriented health services. Moreover, services provided amidst infrastructure unpreparedness also lead to the use of the telemedicine platforms limited to solving simple health matters. The idea of telemedicine that was proclaimed as a hospital without walls by President Jokowi should further the service to function as a platform that allows patients and doctors to go beyond just the virtual consultations or the caution information sources per se.

On the other hand, before telemedicine becomes the medical service in Indonesia, there is an urgent need for digital security and personal data protection to be further enforced in the first place. The government could conduct regular

training programs for the doctors and patients as the endpoints of telehealth platforms to refer to the upcoming Personal Data Protection Laws guidelines, especially considering that patients could not be directly supervised. Moreover, cybersecurity specialists and data protection officers should be hired to detect and anticipate potential threats and ensure the implementation of endto-end data encryption, where unencrypted information will only be made available to doctors patients as the endpoints of telehealth platforms.

The Use of Telemedicine Applications as the 'New Normal' in Healthcare: The Case of Indonesia

#### References

- <sup>1</sup>Chiron. (n.d.) What is telemedis?. (online). Accessed at https://chironhealth.com/telemedis/what-istelemedis/ on June 22nd 2020.
- 'Nugraheni, Riski. et al. (2019). Low Utilization of telemedis in the First-Year Trial: A Case in the Province of West Papua, Indonesia. 4th International Symposium on Health Research.
- <sup>a</sup>Mashabi, Sania. (2020). Selama Wabah Virus Corona, Pengguna telemedis Capai 300.000. Kompas. (online).Accessed at https://nasional.kompas.com/read/2020/04/27/19 033501/selama-wabah-virus-corona-pengguna-
- <sup>4</sup>Atensi.or.id. (2020). Menanggulangi COVID-19, Atensi Jalin Kerjasama dengan Kemenkes. (online). Accessed at: https://atensi.or.id/menanggulangicovid-19-atensi-jalin-kerja-sama-dengankemenkes/ on June 23rd2020.

#### <sup>5</sup>ibid

- <sup>6</sup>Persi. (2020). Kemenkes: Hindari Penularan Covid-19, Dokter Layani Pasien dengan telemedis. (online). Accessed at: https://www.persi.or.id/78berita/berita-persi/1421-kemenkes-hindaripenularan-covid-19-dokter-layani-pasien-dengantelemedison June 24th 2020
- Burhan, Fahmi Ahmad. (2020). Kunjungan ke Aplikasi Alodokter& Halodoc Naik 600% Efek Virus Corona. Katadata.co.id. Accessed at: 2020.https://katadata.co.id/berita/2020/03/12/kun jungan-ke-aplikasi-alodokter-halodoc-naik-600efek-virus-corona on June 25th

- \*Samboh Ester. (2020). Will Indonesia's telemedis startups be the next unicorns? (online). TheJakartaPost. Acceesed at: https://www.thejakartapost.com/news/2020/04/2 1/will-indonesias-telemedis-start-ups-be-the-nextunicorns.html on June 26th 2020
- <sup>2</sup>Nabila, Marsha. (2020). Aplikasi PeduliLindungi Tambah Layanan telemedis dari Halodoc. Dailysocial. (online). Accessed at: https://dailysocial.id/post/aplikasi-pedulilindungitambah-layanan-telemedis-dari-halodoc on July 5th 2020
- <sup>9</sup>Ugalmugale, Sumant and Rupali Swain. (2019). telemedis Market Size By Service (Tele-consulting, Tele-monitoring, Tele-education/training), By Type (Telehospital, Telehome), By Specialty (Cardiology, Gynecology, Neurology, Orthopedics, Dermatology, Mental Health), By Delivery Mode (Web/Mobile {Telephonic, Visualized}, Call Centers), Industry Analysis Report, Regional Outlook, Growth Potential, Price Trends, Competitive Market Share & Forecast, 2020 – 2026. (online). Accessed at: https://www.gminsights.com/industryanalysis/telemedis-market on July 5th 2020
- <sup>11</sup>Bain & Company. (2020). Asia-Pacic FrontLine of Healthcare Report 2020:Heeding the call to reinvent healthcare delivery. (online). Accessed at: https://www.bain.com/contentassets/a1d1395b80 9d424a8db679657f95b19d/bain\_report\_asiapacific\_front\_line\_of\_healthcare.pdf. On July 5th 2020
- <sup>12</sup>Gocapitalideas. (2020). COVID-19 Makes Digital Care the Norm in China. (online). Accessed at: https://www.gccapitalideas.com/2020/05/20/covid -19-makes-digital-care-the-norm-in-china/ on June 26th2020.

<sup>3</sup>ibid

- <sup>14</sup> Jatmiko, Agung. (2020). Survei KIC: 50% Startup Digital Mampu Bertahan di Tengah Krisis (online). Accessed at:
  - https://katadata.co.id/berita/2020/07/09/surveikic-50-startup-digital-mampu-bertahan-di-tengahkrisis on July 9th2020
- <sup>15</sup>Wood, Johny. (2020). There Harvard scientists think we'll have to socially distance until 2022. (online). Accessed at:
  - https://www.weforum.org/agenda/2020/04/coron avirus-social-distancing-how-long/ on July 9th 2020
- <sup>16</sup>Ugalmugale, Sumant and Rupali Swain. (2020). telemedis Market Size by Service (Tele-consulting, Tele-monitoring, Tele-education /training). online. Accessed at:
  - https://www.gminsights.com/industryanalysis/telemedis-market on July 2nd 2020
- <sup>17</sup>Brody, Jane E. (2020). A Pandemic Benefit: The Expansion of telemedis. Online. Nytimes. Accessed at:
  - https://www.nytimes.com/2020/05/11/well/live/co ronavirus-telemedis-telehealth.html on July 3rd 2020
- <sup>18</sup>Kapur, Vikram and Alex Boulton. (2020). Covid-19 Accelerates the Adoption of telemedis in Asia-Pacific Countries. Accessed at:
  - https://www.bain.com/insights/covid-19accelerates-the-adoption-of-telemedis-in-asiapacific-countries/ on July 3rd2020.
- <sup>19</sup>telemedis in Indonesia "Country Experiences" (online). Accessed at:
  - http://origin.searo.who.int/entity/health\_situatior \_trends/events/12\_Indonesia\_telemedis.pdf on July 7th 2020

- <sup>20</sup>Yankes Kemenkes. RSCM Siap mendukung penuh program telemedis Indonesia (Temenin) untuk Indonesia lebih sehat. (2019). Online. Accessed at: http://yankes.kemkes.go.id/read-rscm-siapmendukung-penuh-program-telemedis-indonesiatemenin-untuk-indonesia-lebih-sehat-6685.html on July 7th 2020
- <sup>21</sup>Goodini A, Torabi M, Goodarzi M, et al. (2015). The simulation model of teleradiology in telemedis project. Health Care Management.
- <sup>22</sup>Neville, C. W. (2018). Telehealth: A Balanced Look at Incorporating This Technology Into Practice. SAGE Open Nursing.
- <sup>23</sup>Burhan, Fahmi Ahmad. (2020). Kemenkes Upayakan layanan Kesehatan Online Bisa Ditanggung BPJS. Katadata.co.id. (online). Accessed at: https://katadata.co.id/berita/2020/05/19/kemenke s-upayakan-layanan-kesehatan-online-bisaditanggung-bpjs on July 5th 2020
- <sup>24</sup>Perhimpunan Rumah Sakit Seluruh Indonesia (PERSI). (2020). White Paper: Kesiapan Rumah Sakit Menghadapi Era Digitalisasi Menuju Smart Hospital 4.0. (online) Accessed at: https://www.persi.or.id/118-adv/1221-whitepaper-kesiapan-rumah-sakit-menghadapi-eradigitalisasi-menuju-smart-hospital-4-0 on July 18th.
- <sup>25</sup>Luz P. (2019). telemedis and the Doctor/Patient Relationship. Arquivos brasileiros de cardiologia.
- <sup>26</sup>Badan Siber dan Sandi Nasional. (2020). Buku Putih Keamanan Siber Sektor Kesehatan. (online). Accessed at: https://bssn.go.id/buku-putihkeamanan-siber-sektor-kesehatan/ on July 19th.
- <sup>27</sup>Bone, J. (2020). The Telehealth Attack Surface. Dark Reading. (online). Accessed at: https://www.darkreading.com/endpoint/thetelehealth-attack-surface/a/d-id/1338019 on July 19th.



#### **Center for Digital Society**

Faculty of Social and Political Sciences Universitas Gadjah Mada Room BC 201-202, BC Building 2nd Floor, Jalan Socio Yustisia 1 <u>Bulaksumur, Yogyakarta, 55281, Indonesia</u>

Phone : (0274) 563362, Ext. 116 Email : cfds.fisipol@ugm.ac.id Website : cfds.fisipol.ugm.ac.id

f facebook.com/cfdsugm

m **n** Center for Digital Society (CfDS)

@cfds\_ugm

🕑 @cfds\_ugm

