

Telemedicine Roles Profile on Mental Health Services: Five Factors

Tiara Anisa Pramesti Anggriani^{a,*}, Pirlina Umiastuti^b, Royke Tony Kalalo^c

* Email: tiara.anisa.pramesti-2020@fk.unair.ac.id

^aMedical Program, Faculty of Medicine, Airlangga University, Surabaya, Indonesia

^bDepartment of Public Health Sciences-Preventive Medicine, Airlangga University, Surabaya, Indonesia

^c Department of Psychiatry, Dr. Soetomo General Hospital, Airlangga University, Indonesia

Abstract

Introduction: Telemedicine is a delivery of healthcare services from a distance by all healthcare professionals using information and communication technologies. Since the COVID-19 pandemic, the use of telemedicine has been significantly increasing. Telemedicine itself has been practiced for many years and has many different subfields. One of them is telepsychiatry and it is the most accessed in telemedicine including in Indonesia. However, there are not many studies about the sociodemographic distribution, usefulness, ease of use, effectiveness, reliability, and satisfaction of telemedicine in the mental health services. **Methods:** This study used a descriptive cross-sectional study design with 102 respondents and a total sampling technique to identify the telemedicine role profile in mental health services using primary data from distributed questionnaire. The questionnaire that was used in this study is the Telehealth Usability Questionnaire (TUQ) questionnaire. **Results:** The study findings reveal that most of the respondents who use telemedicine are young adults and most of them are female. It was also discovered that most of the respondents agreed in the usefulness, ease of use, effectiveness, reliability, and satisfaction of telemedicine in mental health services. **Conclusion:** It concluded that the usefulness, ease of use, effectiveness, reliability, and satisfaction of telemedicine can be helpful in mental health services among young adults.

Keywords : Profile, Telemedicine, Mental Health Services, Mental Health

1. Introductions

Telemedicine has improved significantly and now used widely in daily life. Telemedicine is a delivery of healthcare services from a distance by all healthcare professionals using information and communication technologies [1]. The use of telemedicine has expanded significantly since the COVID-19 pandemic. There is a 154% increase in telemedicine visitors throughout the January and March 2020 [2]. The telemedicine use has also increased in rural areas [3]. Telemedicine is beneficial for variety reasons, not only for assisting COVID-19 patients. Telemedicine can assist in the management of hypertension by providing comprehensive instructions [4]. Telemedicine can be extremely beneficial for maintaining mental health during the pandemic since the pandemic had a significant impact on people's psychology, such as anxiety, depression and others [5]. Even the pandemic itself had an impact on increasing suicides [6]. In Indonesia, there are a lot of telemedicine applications that people tend to use to reach out for mental health care. Most of

the people choose telemedicine because of its accessibility, flexibility, and affordable cost.

Nevertheless, people were found to be unsatisfied with telemedicine services especially in mental health care. Moreover, if the issues with technology are reduced, people's satisfaction with face-to-face intervention and telemedicine will be equal [7]. According to a survey by Benudis et al. in 2022, the results for satisfaction with telemedicine services for mental health are only moderately satisfied. The results regarding the satisfaction and quality of in-person and telemedicine in mental health care are still inconclusive [8]. Meanwhile, according to Langarizadeh et al. in 2017, telemedicine is more beneficial and less expensive thanks to the use of current technologies and adaptable designs, especially in remote communities [9].

Despite the fact that Indonesia is a large country, there are still many places where research is needed. Research is still needed to determine whether telemedicine in mental health care is effective or not [10]. This aim of this study to determine the roles profile of telemedicine on mental health services.

2. Methods

This research has been conducted with respondents from distributed questionnaire. The data collection process took place from March 2024 to April 2024, with a sample size of 102 respondents who meets the inclusion criteria using the total sample technique. The inclusion criteria included respondents who used telemedicine to get to the mental health care such as meeting a psychiatrist or psychologist, and who were willing to be a respondent in this research. The exclusion criteria included respondents who used the telemedicine for any purposes except mental health care such as buy medication or another specialist.

This study observed sociodemographic of telemedicine users such as age, gender, used application, and factors such as usefulness, ease of use, effectiveness, reliability, and satisfaction of telemedicine as independent variables using the Telehealth Usability Questionnaire (TUQ) questionnaire.

The ethical approval for this research was obtained from the Health Research Ethics Committee (Komite Etik Penelitian Kesehatan) Faculty of Medicine Universitas Airlangga with reference number 69/EC/KEPK/FKUA/2024 and from The Investment Board One-Stop Service (Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu) with reference number 500.16.7.4/1076/S/RPM/436.7.15/2024.

3. Results

This research was carried out using data taken from distributed questionnaire during March 2024 – April 2024. A total of 102 respondents were obtained and met the inclusion criteria.

Table 1. Age Group and Gender Group of Respondents

		Amount	Percentage
Age	18—20	13	12,75%
	21—30	55	53,92%
	31—40	23	22,55%
	41—50	9	8,82%
	>50	2	1,96%
Gender	Female	75	73,53%
	Male	27	26,47%

Age

Table 1 shows that most of the telemedicine user who go to mental healthcare are young adults in 21—30 years old with 55 respondents and 31—40 years old with 23 respondents. Followed by 41—50 years old with 9 respondents and more than 50 years old with 2 respondents. Meanwhile, the younger group by the age of 18—20 years old only 13 respondents.

Gender

Based on the Table 1, for the gender distribution, it was found out that the telemedicine users are dominated with female respondents with 75 respondents (73,53%). Meanwhile, the male respondents are only 27 respondents (26,47%).

Used Application

Table 2. Used Application Distribution by Respondents

Application	Amount	Percentage
X	92	90,20%
Y	7	6,86%
Z	3	2,94%

Table 2. shows that the most used telemedicine application by telemedicine users is 'X' application with 92% (90,20%), then followed by 'Y' application with 7 respondents (6,86%), and other application such as 'Z' application with 3 respondents (2,94%).

Table 3. Research Respondents Opinion on 5 Factors of Telemedicine

	Usefulness	Ease of Use	Effectiveness	Reliability	Satisfaction
Agree	83,33%	79,41%	66,7%	82,35%	84,31%
Neutral	14,7%	17,6%	19,6%	13,7%	11,8%
Disagree	2%	2,9%	13,7%	3,9%	3,9%

Usefulness of Telemedicine

From Table 3, for the usefulness of telemedicine on mental health services, it was found that 85 respondents (83,33%) are agree on the usefulness of telemedicine on mental health services. 14,7% of the respondents are neutral and 2% of the respondents disagree with the usefulness of telemedicine on mental health services. More than 50% of respondents are agree that telemedicine is useful in mental health services.

Ease of Use of Telemedicine

In Table 3 The ease of use of telemedicine on mental health services based on obtained data, 79,41% of the respondents are agree on the ease of use of telemedicine on mental health services. Followed by 17,6% respondents are neutral and 2,9% respondents that are disagree with the ease of use of telemedicine.

Effectiveness of Telemedicine

For the effectiveness of telemedicine in Table 3, only 66.7% of the respondents are agreed that

telemedicine on mental health services is effective. 19,6% of the respondents reported neutral and 13,7% of the respondents are disagree.

Reliability of Telemedicine

The reliability of telemedicine on mental health services based on the Table 3, it was found about 82,35% of the respondents are agree on the reliability. Followed by the neutral 13,7% respondents and 3,9% respondents that are disagree.

Satisfaction of Telemedicine

Based on the Table 3, 84,31% respondents are agree on the satisfaction of telemedicine on mental health services. Meanwhile, 11,8% of the respondents are neutral and 3,9% of the respondents are disagree.

4. Discussions

Age

Based on the Table 1 for the age group distribution, it was found that most of the telemedicine users who use telemedicine to go to the mental health care are young adults in the age between 21 and 30 years old. These results are in line with a research study conducted by Miyawaki et al. in 2021, it was found that adults in Japan in the ages of 18 and 29 used telemedicine more frequently especially during the COVID-19 pandemic [11]. In contrast with a study conducted in 2022 by Lucas and Villarroel, it was found that adults aged 65 and over are more frequent in telemedicine use than the 18—29 years old in the United States [12].

Compared with in-person visits, according to Terlizzi and Schiller in 2022, adults who received mental health treatment in the United States mostly in the age of 18—44 years old [13]. Also, in a study by Septyarini et al. in 2021, it was found that outpatients with depression in Pekalongan mostly are in the age of 21—40 years old [14]. It is still aligned with the obtained data and with a study by Miyawaki et al. in 2021 with the age distribution being around 21—40 years old. It was found that the majority of people who received mental health treatment are in young adult age.

Gender

For the gender distribution, based on the Table 1, it was discovered that respondents who use telemedicine to go to the mental health care are mostly females. From Mutiara Salsabila and Sari report in 2022, there are more females telemedicine users than males [15]. It is aligned with a 2021 study by Drake et al. that male patients are less likely than females patients to use telemedicine. Various factors such as social drives, preferences of patient and provider, technological literacy, and the patient's condition complexity and medical visit type, such as the evaluation, diagnostic, consultation, or intervention become the reasons [16]. Compared to in-person visits for the gender distribution, according to a study by Nining Gilang Sari et al. in 2024, they studied about the relationship between gender and generalized anxiety disorder. It was found that there are more female patients than the male patients [17]. In schizophrenia cases, it was found that there are more male patients than female patients [18]. It is known that males are more likely to get schizophrenia than females [19]. Meanwhile, females are more prone to get depression and anxiety disorder twice than males [20]. It is more likely depends on the cases for the gender distribution.

Application Distribution

According to Table 3, 'X' application is the most used telemedicine application with 92 respondents (90,20%). There is a huge gap in the number of users in the telemedicine application between 'X' application, 'Y' application, and 'Z' application. With a survey by Populix in 2022, 'X' is the most widely used telemedicine application for mental health services. The reason why people choose telemedicine because it is readily available, reasonably priced, and ensures their privacy [21].

Usefulness of Telemedicine

Based on the obtained data, it was found that respondents are more likely to agree on telemedicine usefulness. Most of the respondents who are agree on the usefulness of telemedicine are the young adults. Telemedicine can be useful in meeting healthcare needs and facilitating access to healthcare services while reducing travel time. This study is aligned with a study by Chakrabarti in 2015, which discovered that telemedicine is helpful in eliminating barriers such as time constraints, transportation issues, distance, expense, safety, and stigma [22]. According to Sora et al. in 2021, revealed that the value of telemedicine in providing healthcare service. It was found that the clients are more likely to use telemedicine in the future if it is more beneficial [23].

Ease of Use of Telemedicine

For the ease-of-use telemedicine on mental health services, based on obtained data, most of the respondents are agree on the ease of use of telemedicine on mental health services especially the young adults. This ease of use of telemedicine includes how easy or simple to use the system and how pleasant is the system for the clients. This is in contrast with a research by Pratama et al. in 2021. It was found that telemedicine application is not easy to use and is hard to learn from the patient's perspective [24]. It was also found that telemedicine is hard and not practical for people who are not familiar with the internet and not having the technology or not having the space to talk privately [25]. Additionally, for elderly who have difficulty with learning technology or using the platform, it is hard to use the system [26]. Although, from the clinician's perspective, telemedicine, especially in telepsychiatry, finds the system is quite easy to use.

Effectiveness of Telemedicine

Based on data on the effectiveness of telemedicine, it was found that the respondents are more likely to agree on the telemedicine effectiveness on mental health services. The effectiveness is including the ease of communications between clients and therapist through telemedicine, the client's ability to comprehend information from therapist, and the superiority of communication with experts over in-person visits. According to Snoswell et al. in 2021, it was discovered that telemedicine, particularly in the area of telepsychiatry and telepsychology, to be as effective as the standard care [27]. Additionally, a study by Link et al. in 2023 discovered that the efficacy of telemedicine in mental health services is equivalent to in-person consultations. The respondents indicated that they could discuss their issues with their therapist via telemedicine in the same way as they would during in-person sessions [28].

Reliability of Telemedicine

For the reliability of telemedicine in mental health services, based on obtained data, most of the

respondents are agree on the telemedicine reliability. This study is consistent with a study by Sharma and Devan in 2021, it was found that telemedicine especially in telepsychiatry, was trustworthy for diagnosing common psychiatric disorders and could be as accurate as in-person consultations [29]. Additionally, according to Yung, Yeung, and Law's research in 2022, it was discovered that when telepsychiatry was used in place of in-person interactions, there was a good level of reliability in the assessment of symptoms, including anxiety, psychotic, and depressive symptoms [30].

Satisfaction of Telemedicine

Based on obtained data about the satisfaction of telemedicine, it was found that most of the respondents are agree on the telemedicine satisfaction. Most of the respondents who are agree are the young adults. This study is in line with a study by Almakry and Alhaidar in 2021 about the patient satisfaction on telemedicine especially in telepsychiatry. The patients were satisfied with the structure, process, and the outcome of the telemedicine. Moreover, about 24,1% patients agreed and 24,8% strongly agreed they would use telemedicine in the future [31].

5. Conclusions

The results of this study it was found that the usefulness of telemedicine on mental health services has the highest agree. Meanwhile, the effectiveness of telemedicine on mental health services has the lowest agree. It is also found that the usefulness, effectiveness, ease of use, effectiveness, reliability, and satisfaction of telemedicine can be helpful in mental health services especially for young adults.

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References

- [1] J. L. Nitzkin , N. Zhu and R. L. Marier, "Reliability of Telemedicine Examination," *Telemedicine Journal*, vol. 3, no. 2, pp. 141-157, 1997.
- [2] L. M. Koonin, "Trends in the Use of Telehealth During the Emergence of the COVID-19 Pandemic - United States, January-March 2020," CDC, 2020. [Online]. Available: <https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm694313-H.pdf>. [Accessed 18 June 2024].
- [3] C. Chu and a. et, "Rural Telemedicine Use Before and During the COVID-19 Pandemic: A Repeated Crossectional Study," *Journal of Medical Internet Research*, vol. 23, no. 4, 2021.
- [4] P. T. Saputra, "National Health Insurance Based Telemedicine Application for Hypertention Management in Primary Level of Health Facilities," *Journal of Community Medicine and Public Health Research*, vol. 2, no. 1, p. 32, 2021.
- [5] Z. S. H. M. Arafat M.Y., "Telemedicine Improves Mental Health in COVID-19 Pandemic," *Journal of Global Health*, vol. 11, 2021.
- [6] N. N. G. K. D. & I. A. K. Wardani, "Suicide in the COVID-19 Pandemic," *Jurnal Psikiatri Surabaya*, vol. 12, no. 2, pp. 92-99, 2023.
- [7] R. Mazziotti and G. Rutigliano, "Telemental Health for Reaching Out to Patients in a Time of Pandemic: Provider Survey and

- Systematic Review with Meta-analysis of Patient Satisfaction," *JMIR Mental Health*, 2020.
- [8] R. Y. K. D. M. A. Z. J. Benudis A, "Patient and Provider Experiences of Telemental Health During the COVID-19 Pandemic in a New York City Academic Medical Center," *Psychiatry Research*, p. 114496, 2022.
 - [9] M. Langarizadeh, M. Tabatabaei, K. Tayakol, M. Naghipour and F. Moghbeli, "Telemental Health Care, an Effective Alternative to Conventional Mental Care: a Systematic Review," *Acta Informatica Medica*, vol. 25, no. 4, pp. 240-246, 2017.
 - [10] O. K. Sari, N. Ramdhani and S. Subandi, "Kesehatan Mental di Era Digital: Peluang Pengembangan Layanan Profesional Psikolog," *Media Penelitian dan Pengembangan Kesehatan*, vol. 30, no. 4, 2020.
 - [11] A. Miyawaki, T. Tabuchi, M. K. Ong and Y. Tsubawa, "Age and Social Disparities in the Use of Telemedicine During the COVID-19 Pandemic in Japan: Cross-sectional Study," *Journal of Medical Internet Research*, vol. 23, no. 7, 2021.
 - [12] J. Lucas and M. Villarreal, "Telemedicine Use Among Adults: United states, 2021," CDC, United States, 2022.
 - [13] E. Terlizzi and J. Schiller, "Mental Health Treatment Among Adults Aged 18-44: United States, 2019-2021," 2022. [Online]. Available: <https://www.cdc.gov/nchs/products/databriefs/db444.htm>.. [Accessed 18 June 2024].
 - [14] D. Septyarini, A. Muthoharoh, Y. W. Permadi and W. A. Ningrum, "Evaluasi Ketepatan Dosis Obat Pasien Depresi Rawat Jalan di RSUD Kraton Kabupaten Pekalongan," *Prosiding University Research Colloquium*, pp. 670-677, 2021.
 - [15] I. Mutiara Salsabila and K. Sari, "Analysis of Factors Related to Intention-To-Use Telemedicine Services (Teleconsultation) in Jabodetabek Residents During the COVID-19 Pandemic in 2021," *Journal of Indonesian Health Policy and Administration Sept 2022*, vol. 7, no. 3, pp. 262-272, 2022.
 - [16] C. Drake, T. Lian, B. Cameron, K. Medynskaya, H. B. Bosworth and K. Shah, "Understanding Telemedicine's 'New Normal': Variations in Telemedicine Use by Speciality Line and Patient Demographics," *Telemedicine and e-Health*, vol. 28, no. 1, pp. 51-59, 2022.
 - [17] G. S. Nining, Elmeida Effendy and Mustafa Mahmud Amin, "Hubungan Jenis Kelamin, Status Pernikahan, dan Status Pekerjaan dengan Gangguan Ansietas Menyeluruh di Klinik Psikiatri RS dr Pirngadi Medan," *Majalah Kedokteran Bandung*, vol. 46, no. 4, pp. 216-220, 2020.
 - [18] R. Saptaria, E. Suhardiana and K. R. Bachtar, "Pola Peresepan Obat Antipsikotik pada Pasien Skizofrenia di Poli Psikiatri Rawat Jalan RSUD Kota Banjar Periode Tahun 2022," *Pharmaceutical Science Journal*, vol. 3, no. 2, pp. 120-131, 2023.
 - [19] X. Li, W. Zhou and Z. Yi, "A Glimpse of Gender Differences in Schizophrenia," *General Psychiatry*, vol. 35, no. 4, 2022.
 - [20] Y. N. Bahrami F., "Females are more anxious than male: a metacognitive perspective," *Iranian Journal of Psychiatry and Behavioral Sciences*, vol. 5, no. 2, pp. 83-90, 2011.
 - [21] C. M. Annur, "Layanan Telemedicine Paling Favorit Untuk Konsultasi Kesehatan Mental," 2022.
 - [22] S. Chakrabati, "Usefulness of telepsychiatry: what clinicians need to know about digital mental healthcare," *World Journal of Psychiatry*, vol. 5, no. 3, p. 286, 2015.
 - [23] B. Sora, R. Nieto, A. Montesano del Campo and M. Armayones, "Acceptance and Use of Telepsychology from Clients's Perspective: Questionnaire Study to Document Perceived Advantages and Barriers," *JMIR Mental Health*, vol. 8, no. 10, p. e22199, 2021.
 - [24] A. Pratama, "Pengukuran Usability System Aplikasi Halodoc Sebagai Layanan M-Health Menggunakan Use Questionnaire," *Prosiding Seminar Nasional Informatika Bela Negara*, vol. 2, pp. 101-105, 2021.
 - [25] T. J. Brunt and O. Gale-Grant, "Telepsychiatry: what clinicians need to know about digital mental healthcare," *BJPsych Advances*, vol. 29, no. 4, pp. 1-9, 2023.
 - [26] A. Mao and e. al, "Barriers to Telemedicine Video Visits for Older Adults in Independent Living Facilities: Mixed Methods Cross-sectional Needs Assessment," *JMIR Aging*, vol. 5, no. 2, 2022.
 - [27] C. L. Snoswell, "The Clinical Effectiveness of Telehealth: A Systematic Review of Meta-analyses from 2010 to 2019," *Journal of Telemedicine and Telecare*, 2021.
 - [28] K. Link, S. Christians, W. Hoffmann, H. J. Grabe and Van, "Telemedicine Treatment of Patients with Mental Disorder During and After the First COVID-19 Pandemic Lockdown in Germany- an Observational Study on Feasibility and Patient Satisfaction," *BMC Psychiatry*, vol. 23, no. 1, 2023.
 - [29] G. Sharma and K. Devan, "The Effectiveness of Telepsychiatry: A Thematic Review," *BJPsych Bulletin*, pp. 1-8, 2021.
 - [30] H. Y. Yung, W. T. Yeung and C. W. Law, "The Reliability of Symptom Assessment by Telepsychiatry Compared with Face to Face Psychiatric Interviews," *Psychiatry Research*, p. 114728, 2022.
 - [31] A. a. A. F. Almaky, "Patients's Satusfaction With Telepsychiatry Services at a University Hospital in Riyadh During the Cobid-19 Pandemic," *Cureus*, 2021.

