

High School Students' Intentions Regarding Telemedicine for Mental Health Consultations

Las intenciones de estudiantes de educación media superior en relación con la telemedicina para consultas de salud mental

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Abstract

There has been an increase of mental health problems in adolescents; studies reveal that nearly one in five high school adolescents experience significant psychological pain, including sadness and anxiety. The study aims to examine how many high school students are influenced to use telemedicine for mental health consultations by perceived control beliefs, attitude readiness, and subjective norms. A maximum of 400 students were targeted based on the required sample size. Multistage random sampling was employed. Three public high schools, SMA Negeri 1, SMA Negeri 6, and SMA Negeri 15—were chosen by simple random selection, considering the percentage of students in each city, for a sample size of 218 students in Samarinda. A total of 146 students from two public high schools, SMA Negeri 2 and SMA Negeri 5, make up the sample size in Balikpapan. 36 pupils from the chosen school SMA Negeri 1, make up the sample size in Bontang. According to the results, 19.8% of respondents said they planned to use telemedicine for mental health, while 80.2% said they had no plans to use telemedicine for a variety of reasons, including preferring to speak with a therapist directly, which accounted for 47.0% of the responses. Recommendations from this research include interventions with respondents who are still hesitant, providing them with accurate information about the benefits of using telemedicine, the confidentiality of personal data, and the ease of access to services.

Keywords: Intention, Telemedicine, mental health, Students

Resumen

Se ha producido un aumento en los problemas de salud mental entre adolescentes; los estudios revelan que casi uno de cada cinco adolescentes de secundaria experimenta un dolor psicológico significativo, que incluye tristeza y ansiedad. Este estudio pretende examinar cuántos estudiantes de secundaria se sienten influenciados para hacer uso de la telemedicina para consultas sobre su salud mental en función de sus creencias sobre la competencia personal percibidas, su disposición actitudinal y normas subjetivas. Se estableció un objetivo máximo de 400 estudiantes en función del tamaño de la muestra requerido. Se empleó un muestreo aleatorio por etapas. Se eligieron tres institutos públicos, SMA Negeri 1, SMA Negeri 6 y SMA Negeri 15, mediante selección aleatoria simple, teniendo en cuenta el porcentaje de estudiantes de cada ciudad, para un tamaño de muestra de 218 estudiantes en la localidad de Samarinda; un total de 146 alumnos de dos institutos públicos, SMA Negeri 2 y SMA Negeri 5, componen de la muestra en Balikpapan; 36 alumnos de la escuela elegida, SMA Negeri 1, componen la muestra en Bontang. Según los resultados, el 19.8% de los encuestados afirmó tener previsto utilizar la telemedicina para atender su salud mental, mientras que el 80.2% dijo que no lo tenía previsto por diversas razones, entre ellas que prefería hablar con un terapeuta directamente, lo que representó el 47.0% de las respuestas. Las recomendaciones resultantes de esta investigación incluyen intervenciones dirigidas a los encuestados que aún dudan, proporcionándoles información precisa sobre las ventajas del uso de la telemedicina, la confidencialidad de los datos personales y la facilidad de acceso a los servicios.

Palabra clave: intención, telemedicina, salud mental, estudiantes



Introduction

The Covid-19 epidemic that occurred in 2019 had a negative impact on many industries, but it was particularly severe in the mental health industry⁽¹⁾ According to research by Rohmah *et al.*⁽²⁾, severe anxiety levels were 5.9% and severe depression levels were 11.9%.

Digital platforms are being used more frequently to consult with doctors. Online consultation platforms are becoming more popular and are gaining subscribers. Millennials between the ages of 20 and 30 make up the majority of users on these networks.⁽³⁾ Adolescent mental health issues have increased recently; research shows that almost one in five high school students suffer from severe psychological discomfort, such as anxiety and depression.⁽⁴⁾ As a flexible and stigma-free option for mental health consultations, telemedicine -a digital health delivery model- has gained popularity at the same time, especially among younger, tech-savvy populations.⁽⁵⁾ Telemedicine may provide a discrete and practical substitute for conventional in-person therapy for high school students, who encounter challenges like limited mobility, privacy issues, and social stigma.⁽⁶⁾ Even though this technology could close care gaps, little is known about the desire to use it. According to research, adolescents' acceptance of telehealth services is greatly influenced by their perceptions of the platforms' utility, usability, and trustworthiness.^{(7),(8)}

Rahi *et al.*⁽⁹⁾ and Hussein *et al.*⁽¹⁰⁾ have found a substantial association between attitude characteristics and intention to use telemedicine and health services. The purpose of the study is to investigate the influence of perceived control beliefs, attitude readiness, and subjective norm on high school students' intention to use telemedicine for mental health consultations.

Method

Because the data collection for this study was done all at once, the design was cross-sectional. In

September 2023, a survey was administered to public high school students in three cities within the East Kalimantan Province to gather data. There are 21,387 high school students in Samarinda City, Balikpapan City, and Bontang City overall, who make up the study's population. There are three public high schools in Bontang City, nine public high schools in Balikpapan City, and eight public high schools in Samarinda City. Using Slovin's algorithm and a 5% error tolerance threshold, the number of samples yielded a maximum of 400 students.

The sampling technique used is multistage random sampling. Samarinda City has a sample size of 218 students, with three public high schools—SMA Negeri 1, SMA Negeri 6, and SMA Negeri 15—selected by simple random sampling, considering the proportion of students in each city. The sample size in Balikpapan City is 146 students with two public high schools selected, namely SMA Negeri 2 and SMA Negeri 5. In Bontang City, the sample size is 36 students with the selected school, namely SMA Negeri 1. This research has received ethics clearance from the Faculty of Medicine, Mulawarman University with a certificate number. 209/KEPK-FK/XI/2023.

Results

Characteristics of Respondents.

Approximately 426 students received the survey; 400 of them finished it. A total of 26 respondents did not fill out the questionnaire given. Features of the respondents are enumerated in table 1.

Intention to use telemedicine for mental health.

Based on table 2. 19.8% of respondents intend to use telemedicine for mental health, and the rest, 80.2%, do not intend to use telemedicine for various reasons, including that they prefer to consult directly with a therapist, a preference which 47.0% of this group reported.

Table 1. Characteristics of Respondents

Activities	Frequency	Percentage (%)
Origin of school		
SMA 1 Samarinda	102	25.5
SMA 6 Samarinda	86	21.5
SMA 15 Samarinda	30	7.5
SMA 2 Balikpapan	60	15.0
SMA 5 Balikpapan	86	21.5
SMA 1 Bontang	36	9.0
	400	100
Gender		
Male	150	37.5
Female	250	62.5
	400	100
Age		
14	5	1.3
15	80	20.0
16	109	27.3
17	180	45.0
18	25	6.3
19	1	0.3
	400	100
Class		
Grade 1	86	21.5
Grade 2	98	24.5
Grade 3	216	54.0

Source: data from the research in all cases.

The sample population (n=400) had a mean 16.36 (± 0.920 SD) with minimum of 14 years and maximum 19 years. Sixty-five percent of the population was female, and the remaining 37.5% was male. SMA 1 (22.5%) Samarinda was the school with the most respondents, while SMA 15 (7.5%) Samarinda had the fewest. This study was dominated by grade 3 (54.0%).

Table 2. Intention to use telemedicine for mental health consultation

No	Statement	n	%
1	Intention to use telemedicine services		
	a. Yes	79	19.8
	b. No	321	80.2
2	Reasons for not intending to use		
	. Prefer in-person consultations	151	47.0
	. I don't feel the need yet	54	16.8
	. Feel hesitant to use	116	36.1

Attitudes Towards Telemedicine for Mental Health

The following is the distribution of attitudes in the use of telemedicine in mental health. In table 3, the majority of respondents either agreed or strongly agreed to all questions given. The first statement had the highest rate of agreement, at 66%, and it read "I feel that the use of telemedicine for mental health is a good

alternative to an in-person visit to a mental health professional." Statement number 4, with a 56.3% rate of agreement, stated, "I feel that telemedicine can reduce the stigma associated with mental health because it is more easily accessible anonymously." Analyzing these responses, we can see that students believe that using telemedicine, and not meeting in person, is an easy way to access medical help conveniently and discretely.

Table 3. Attitudes towards telemedicine for mental health

No	Statement	Answers (percent)				
		SD	D	N	A	SA
1	I feel that the use of telemedicine for mental health is a good alternative to an in-person visit to a mental health professional.	0.5	3.0	16.3	66.0	14.3
2	I feel confident that telemedicine can provide quality mental health support.	0.2	1.8	28.8	55.0	14.0
3	I feel comfortable talking about my mental health issues through a telemedicine platform.	1.5	10.3	39.3	40.3	8.8
4	I feel that telemedicine can reduce the stigma associated with mental health because it is more easily accessible anonymously	0.3	3.3	20.5	56.3	19.8
5	I feel that the use of telemedicine for mental health can improve my quality of life.	0.5	4.8	38.8	49.0	7.0

*Detail: SD: Strongly Disagree, A: Agree, D: Disagree, SA: Strongly Agree, N: Neutral

Subjective Norms on the Use of Telemedicine for Mental Health

Table 4. Subjective Norms of Respondents to the Use of Telemedicine for Mental Health

No	Statement	Answers (percent)				
		SD	D	N	A	SA
1	My friends or family members are very supportive of using telemedicine for mental health issues.	1.5	12.0	50.5	33.0	3.0
2	I feel pressure from my friends or family members to use telemedicine services for mental health.	6.5	27.0	40.0	24.8	1.8
3	My friends or family members are aware of the importance of telemedicine in supporting mental health.	2.8	18.5	45.5	28.0	5.3
4	People who I respect or care about their opinions will want me to use telemedicine for mental health.	3.3	15.5	44.8	32.0	4.5
5	Do you feel there is strong support from your friends or family members if you decide to use telemedicine for mental health?	3.0	14.0	42.8	35.0	5.3

We see many different subjective norms reported, with the most answers in the neutral category. However, the choice of affirmative answers has a higher value compared to the choice of disagreement. More than 24% of all answers given were of agreement.

Perceived Behavioral Control on the Use of Telemedicine for Mental Health

Table 5. Respondents' Perceived Behavioral Control of Telemedicine Use for Mental Health

No	Statement	Answers				
		SD	D	N	A	SA
1	I feel able to make mental health consultation appointments via telemedicine easily.	2.0	6.5	41.5	44.8	5.3
2	I feel I have enough knowledge about how telemedicine works in support of my mental health.	2.3	14.3	41.8	38.8	3.0
3	I feel confident talking to a mental health professional via telemedicine.	1.8	10.8	37.5	41.5	8.5
4	I feel that the use of telemedicine for mental health can improve my quality of life.	0.8	4.5	40.5	45.0	9.3
5	I feel I have the technical ability to address technical issues that may arise during telemedicine sessions for mental health.	3.5	8.8	50.0	34.3	3.5

Table 5. As many as 45% of respondents agreed that the use of telemedicine for mental health can improve their quality of life. 50% responded neutrally to the statement "I feel I have the technical ability to address technical issues that may arise during telemedicine sessions for mental health."

Table 6. Bivariate analysis of the relationship between attitudes, subjective norms, and perceived behavioral control with the intention of using telemedicine

Variables	Sample distribution		Bivariate analysis		P
	n	%	OR	%	
Attitudes					0.245
Strength	218	54.5	0.058	5.8	
Middle	179	44.9			
Low	3	0.8			
Subjective norm					0.862
Strength	81	20.3	0.009	0.9	
Middle	301	75.3			
Low	18	4.5			
Perceived behavioral control					0.374
Strength	121	30.3	0.045	4.5	
Middle	269	67.3			
Low	10	2.5			

Discussion

The aim of the research is to examine the impact of attitude, subjective norms, and perceived

control beliefs on high school students' intention to use telemedicine for mental health consultations. The use of telemedicine during the COVID-19 pandemic had enormous benefits. Previous

surveys have found that patients are generally satisfied with the use of telemedicine.⁽¹¹⁾ Even though the pandemic is now over, telemedicine in medical consultations, especially mental health, can still be used.⁽¹²⁾ Patients and healthcare providers can now communicate with each other via a variety of telemedical solutions. These consist of remote screen calls, smartphone apps, and web-based interventions.⁽¹³⁾

The use of telemedicine is not only for medical patients, but can also be used for those who need consultation as a preventive effort in mental health maintenance, especially for adolescents.⁽¹⁴⁾ Teenagers are often more curious than adults, and more open to trying new things.⁽¹⁵⁾ This openness could easily apply to the use of telemedicine to address mental health.⁽¹⁶⁾

In this study, less than 20% of adolescents reported an intention to use telemedicine. The other 80% did not intend to use telemedicine for three reasons, the first being that they wanted direct consultation, which is in line with Kumar and Gisondi's research where patients prefer in-person consultations rather than through telemedicine apps;^{(17),(18)} the second reason being they did not feel the need to use telemedicine at all and especially not for mental health, and thirdly, because they were still hesitant about telemedicine applications, which is in line with O'Connor and García's research which demonstrates general hesitancy in the use of telemedicine for medical consultation.^{(19),(20)}

Likert scales are useful for collecting data on attitudes and perceptions from large samples of the public.⁽²¹⁾ In this study, we used the Likert scale and found high levels of neutral attitudes towards telemedicine on mental health in all respondents. This could be due to the unfamiliarity of the term telemedicine and mental health among the respondents.^{(22),(23)}

Regarding attitudes toward telemedicine for mental health consultations, respondents expressed their views on online consultations, the trustworthiness of the service, their comfort with using it, ease of access, and its potential to improve their quality of life.

Previous studies have shown that both social utility and perceived utility significantly influence customer perceptions. Additionally, cognitive attitudes impact the intention to use e-health services.^{(24),(25)} The ease of accessing health consultation services online, coupled with their affordability for teenagers, has made the internet a popular choice. Subjective norms, which reflect the influence of social surroundings, were found to mediate the relationship between telepsychology use and both direct and indirect forms of consultation.⁽²⁶⁾ According to this study, the opinions and behaviors of friends and family play a key role in shaping respondents' decisions to use telemedicine services.

Several studies have demonstrated that an individual's acceptance and preference for mental health care provided via telemedicine can be influenced by their perceived control belief level.^{(27),(28)} People who hold strong opinions about their perceived control are generally more receptive and have a favorable inclination toward telemedicine.⁽²⁹⁾

The lack of association between attitude, subjective norms, perceived control and the intention to use telemedicine in bivariate statistics can be explained by the fact that the individuals prefer to consult in person. The decision between in-person and virtual consultations should be weighed according to personal preferences, availability, and medical needs. Therefore, it can be said that in-person consultation is the best option due to its benefits, which include direct communication, a more thorough examination, comfort, and trust. However, online consultations could be a good option if access to in-person healthcare is restricted or if speed and convenience are crucial.

It's crucial to keep in mind that attitude, subjective norms and the perceived control belief of telemedicine in mental health may evolve over time in response to societal norms, personal experiences, and growing awareness. Some of the obstacles that respondents could encounter could be addressed by expanding access to technology and providing education and training on the advantages of telemedicine.

Conclusions

Adolescents still show limited intention to use telemedicine as a mental health consultation tool. Therefore, a socialization program emphasizing the value of digital health for mental well-being is necessary. Several factors influence adolescents' intention to use telemedicine, including their internal attitudes toward its value, the opinions and support of friends and family, and their confidence in using telemedicine technology for mental health consultations.

The study also revealed many neutral responses. Based on these findings, interventions could be implemented for respondents who remain hesitant. Providing accurate information about the benefits of telemedicine, the confidentiality of personal data, and the ease of access to services could help reduce hesitation and increase adoption of these technologies.

Reference

1. Andrianto W, Rizka Fajrina A. Tinjauan Perbandingan Penyelenggaraan Telemedicine Antara Indonesia Dan Amerika Serikat. *J Huk Kesehat Indones*. 2022;1(02):70–85.
2. Rohmah N, Iswanto A, Tri Agustini R. Pandemic in Samarinda: Anxiety and Depression Levels Among Junior High School Students. *Avicenna J Ilmia*. 2022;17(02):1–11.
3. Kholiq N. Generasi Emas 2045 sebagai Fondasi Mewujudkan Siklus Peradaban Bangsa Melalui Implementasi Kurikulum 2013 di Sekolah Dasar. 2016.
4. CDC. Youth Risk Behavior Survey Results | Youth Risk Behavior Surveillance System (YRBSS). 2023;1–4. Available from: <https://www.cdc.gov/yrbs/results/2023-yrbs-results.html>
5. Hollis C, Sampson S, Simons L, Davies EB, Churchill R, Betton V, *et al*. This is a repository copy of Identifying research priorities for digital technology in mental health care: results of the James Lind Alliance Priority Setting Partnership . White Rose Research Online URL for this paper: Version : Accepted Version Article. 2018;
6. Bashshur R, Doarn CR, Frenk JM, Kvedar JC, Woolliscroft JO. Telemedicine and the COVID-19 pandemic, lessons for the future. *Telemed e-Health*. 2020;26(5):571–3.
7. Davis FD. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q Manag Inf Syst*. 1989;13(3):319–39.
8. Anderson M, Jiang J. Monica Anderson and Jingjing Jiang. *Pew Res [Internet]*. 2018;(May):20. Available from: http://assets.pewresearch.org/wpcontent/uploads/sites/14/2018/05/31102617/PI_2018.05.31_TeensTech_FINAL.pdf
9. Rahi S, Khan MM, Alghizzawi M. Factors influencing the adoption of telemedicine health services during COVID-19 pandemic crisis: an integrative research model. *Enterp Inf Syst [Internet]*. 2021;15(6):769–93. Available from: <https://doi.org/10.1080/17517575.2020.1850872>
10. Hussein Z, Oon SW, Fikry A. Consumer Attitude: Does It Influencing the Intention to Use mHealth? *Procedia Comput Sci [Internet]*. 2016;105(December 2016):340–4. Available from: <http://dx.doi.org/10.1016/j.procs.2017.01.231>
11. Phenicie R, Acosta Wright R, Holzberg J. Patient Satisfaction with Telehealth during COVID-19: Experience in a Rural County on the United States-Mexico Border. *Telemed e-Health*. 2021;27(8):859–65.
12. Lisnarini N, Suminar JR, Setianti Y. Keunggulan dan Hambatan Komunikasi dalam Layanan Kesehatan Mental pada Aplikasi Telemedicine Halodoc. *PsikobuletinBuletin Ilm Psikol*. 2023;4(3):176.
13. Tonn P, Reuter SC, Kuchler I, Reinke B, Hinkelmann L, Stöckigt S, *et al*. Development of a questionnaire to measure the attitudes of laypeople, physicians, and psychotherapists toward telemedicine in mental health. *JMIR Ment Heal*. 2017;4(4):1–8.
14. Barney A, Buckelew S, Mesheriakova V, Raymond-flesch M. The COVID-19 Pandemic and Rapid Implementation of Adolescent and Young Adult Telemedicine: Challenges and Opportunities for Innovation. *J Adolesc Heal*. 2020;67(January):164–71.
15. Reio TG, Sanders-Reio J. Curiosity and well-being in emerging adulthood. Vol. 32, *New Horizons in Adult Education and Human Resource Development*. 2020. p. 17–27.
16. Gloff NE, Lenoue SR, Novins DK, Myers K. Telemental health for children and adolescents. *Int Rev Psychiatry*. 2015;27(6):513–24.
17. Kumar S, Kumar A, Sinha S, Qureshi OA, Aggarwal N, Khan K, *et al*. Patient Preferences Regarding Telemedicine to In-person Consultation: A Questionnaire-Based Survey. *Indian J Orthop [Internet]*. 2022;56(12):2202–9. Available from: <https://doi.org/10.1007/s43465-022-00750-0>
18. Gisondi P, Bellinato F, Piaserico S, Di Leo S, Cazzaniga S, Naldi L. Preference for Telemedicine

- Versus In-Person Visit Among Patients with Psoriasis Receiving Biological Drugs. *Dermatol Ther (Heidelb)*. 2021;11(4):1333–43.
19. O'connor A, Tai A, Carson-Chahhoud K. Isn't there an app for that? The role of smartphone and tablet applications for asthma education and self-management in adolescents. *Children*. 2021;8(9).
20. García IC, Conde MH, Capó JP, Gutiérrez-alés J, Rius-tarruella J, Llordachs F. Telemedicine and contraceptive counseling: from pilot interventions to a mainstay. *Eur Gynecol Obstet*. 2022;4(1):18–22.
21. Lionello M, Aletta F, Mitchell A, Kang J. Introducing a Method for Intervals Correction on Multiple Likert Scales: A Case Study on an Urban Soundscape Data Collection Instrument. *Front Psychol*. 2021;11(January).
22. Berry CA, Kwok L, Massar R, Chang JE, Lindenfeld Z, Shelley DR, *et al.* Patients' Perspectives on the Shift to Telemedicine in Primary and Behavioral Health Care during the COVID-19 Pandemic. *J Gen Intern Med*. 2022;37(16):4248–56.
23. Bashshur RL, Howell JD, Krupinski EA, Harms KM, Bashshur N, Doarn CR. The Empirical Foundations of Telemedicine Interventions in Primary Care. *Telemed e-Health*. 2016;22(5):342–75.
24. Maw MT. FACTORS INFLUENCING CONSUMER ATTITUDE AND INTENTION TO USE OF E-HEALTH SERVICE IN MYANMAR. Yangon University of Economics; 2022.
25. Gatetua CW. Determinants Influencing the Adoption of Telemedicine by Health Care Practitioners: A Case Study of Kenyatta National Hospital. University of Nairobi; 2022.
26. McKee GB, Pierce BS, Donovan EK, Perrin PB. Examining models of psychologists' telepsychology use during the COVID-19 pandemic: A national cross-sectional study. *J Clin Psychol*. 2021;77(10):2405–23.
27. Harst L, Lantzsch H, Scheibe M. Theories predicting end-user acceptance of telemedicine use: Systematic review. *J Med Internet Res*. 2019;21(5):1–32.
28. Connolly SL, Miller CJ, Lindsay JA, Bauer MS, Mental C. U . S . Department of Veterans Affairs. 2022;27(2).
29. Heirman W, Walrave M, Vermeulen A, Ponnet K, Vandebosch H, Hardies K. Applying the theory of planned behavior to adolescents' acceptance of online friendship requests sent by strangers. *Telemat Informatics [Internet]*. 2016;33(4):1119–29. Available from: <http://dx.doi.org/10.1016/j.tele.2016.01.002>



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