

ORIGINAL ARTICLE

Service Providers' Perceptions of the Utilisation of Digital Mental Health Interventions for Adolescent Mental Health Care in Malaysia

Lei Voon Ng¹, Asrenee Ab Razak¹, Hue San Kuay¹, Azriani Ab Rahman², Maruzairi Husain¹, Raishan Shafini Bakar²

¹ Department of Psychiatry, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

² Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

ABSTRACT

Introduction: Adolescent mental health issues have become a heavy global burden in the public health system. Digital mental health interventions (DMHIs) emerged as a more practical care delivery option during the COVID-19 pandemic. The present study explored the perceptions of service providers on the utilisation of DMHIs for adolescent mental health care in Malaysia. **Materials and methods:** 48 service providers including mental health professionals (i.e., counsellors and clinical psychologists) and volunteers involved in public, private and non-governmental organisations from Peninsular Malaysia were recruited by purposive sampling. Three face-to-face focus group discussions (FGDs) ($n = 28$) and three online FGDs ($n = 20$) were conducted with six to eight participants in each group. **Results:** Four themes were generated through reflexive thematic analysis (TA) by using Atlas.ti Windows 23.1.1: 1) Psychoeducation via bite-sized learning for gatekeepers; 2) Availability of counselling hotlines; 3) Follow-up through communication apps; and 4) Resources for help-seeking adolescents. **Conclusion:** The service providers strategized various mental health care delivery options to incorporate technology advancements for curbing adolescent mental health issues in the digital age. Gatekeeper training could be enhanced by bite-sized learning via brief psychoeducation and interactive presentations. Multi-pronged approaches via counselling hotlines, communication apps, and safety planning were recommended to improve access to DMHIs.

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Corresponding Author:

Asrenee Ab Razak, PhD

Email: asrenee@usm.my

Tel : +60139300039

INTRODUCTION

Adolescent mental health issues emerged as a substantial global burden in the public health system. On a global scale, the 2019 Global Burden of Disease (GBD) study indicated that one in seven adolescents aged 10 to 19 years, with a prevalence of 14 per cent, suffered from mental health disorders (1). Unfortunately, adolescent mental health issues lacked identification and appropriate therapeutic intervention (2). In Malaysia, the National Health and Morbidity Survey (NHMS) 2022 reported that one in eight adolescents had suicidal thoughts and one in ten adolescents attempted suicide (3). Mental health issues among children and adolescents encompassed anxiety, depression, sleep disorders, post-traumatic stress disorder (PTSD),

suicidal behaviours, psychological distress, and various psychosocial difficulties (4). The emergence of the COVID-19 pandemic initiated broader dialogues concerning mental health and sparked innovations that hold promise for adolescents' psychosocial well-being (5).

Digital mental health interventions (DMHIs) emerged as a more practical care delivery option during the COVID-19 pandemic. Transitions to online mental health care delivery arose as adolescents' and caregivers' necessities during the COVID-19 pandemic to enhance the accessibility of health, education, and social service systems (5). DMHIs exhibited the potential to enhance effectiveness, expand outreach, ensure uniformity, and reduce expenses when delivering mental health care for adolescents through web- or cloud-based programs, mobile applications (apps), virtual reality (VR), and online assessments (6). From simple text messages to cutting-edge artificial intelligence computer programs, the increased use of digital technologies, mobile

devices, and social media inspired web and mobile-based interventions for adolescents, thus redesigning the delivery of mental health care (7). The school-based digital mental health service (Smooth Sailing) also demonstrated the beneficial effects of DMHIs for Australian secondary school counsellors to recognize at-risk students, deliver psychoeducation, as well as to connect parents and adolescents to school counselling services (8).

Mental health professionals perceived that digital behavioural and mental health apps could improve communication with families and destigmatise mental health issues through flexible intervention timing, electronic health record utilisation, crisis alerts, and technical liaison (9). When therapists established presence (being open, flexible, curious, and non-judgmental) despite being physically apart, it conveyed a neurophysiological message that fostered a safe and positive therapeutic bond between therapist and client (10). Both young people and counsellors emphasised the importance of the safety of the web chat counselling environment (11).

Considering adolescents' familiarity with digital technologies, teachers and mental health professionals were optimistic about DMHIs (12, 13). However, there were concerns about the lack of face-to-face contact in DMHIs that could affect therapeutic engagements (14, 15), in addition to the lack of counsellors' competency in utilising video conferencing technology (14). These technical issues and concerns, however, could be overcome by designing preferred type of DMHIs that was perceived as useful, user-friendly, facilitated social connectedness, and relieved depression symptoms (13).

Moreover, DMHIs should also be expanded to parents and caregivers who are the gatekeepers to adolescent mental health. Digitalising gatekeeper training was substantial to enhance outcomes and widen outreach by engaging parents to leverage their role as trusted support for vulnerable adolescents (17). The flexibility of web-based suicide prevention e-learning modules was found to be useful in advancing gatekeepers' knowledge and confidence to prevent adolescent suicide, making it a great option for gatekeepers with limited time and resources (18). School staff in England expressed the need for training programs about handling adolescents' self-harm and preferred bite-size information for quick reading (19).

In Malaysia, accessibility to DMHIs significantly increased during the COVID-19 crisis for delivering psychosocial support through helplines (e.g., Befrienders, Buddy Bear, and *Talian Kasih* 15999), telehealth services for parents of children with disabilities, and training for school counsellors (20, 21). Amidst the pandemic, a remote Psychological First Aid (rPFA) module using the WhatsApp application and phone call platform was

developed based on the principles of look, listen, and link by the University Malaya Medical Centre (UMMC) for frontline healthcare workers who then provided training to other psychiatrists, psychologists and counsellors (22). Additionally, the Online Advanced C.A.R.E. Suicide Prevention Gatekeeper Training Program demonstrated a significant improvement, primarily in self-efficacy of suicide prevention among healthcare personnel (23).

Furthermore, the National Strategic Plan for Mental Health 2020-2025 aimed to strengthen the availability and accessibility of comprehensive and quality mental health services across primary, secondary, and tertiary school settings by developing e-mental health screening apps catering to early detection and intervention (24). UNICEF Malaysia's online engagement program, *KitaConnect* engaged over 270,000 young people to strengthen mental health awareness via online sessions, youth-led chats, virtual booths on gather.town, games and peer groups on Discord, videos, resources, as well as tips on mental health (20-21, 25). During a hybrid mental health carnival in Malaysia themed "Mind Your Mental Health" targeting social networking sites (SNS) adolescent users, in which free online therapy was conducted for high-risk groups and social media metrics were used to gauge community engagement, demonstrated a significant increase in mental health literacy among the participants (26).

Malaysian secondary school students agreed that media exposure from diverse sources (i.e., newspapers, television programs, radio, mobile apps, websites, and social media platforms) could raise mental health awareness and knowledge of professional help (27). Positive media messages were found to improve adolescents' attitudes towards mental health issues, thus reducing discrimination against individuals with mental health issues (27). Website interventions, games or computer-assisted interventions, web apps or mobile apps, robots, VR experiences, and mobile text messages with peer-to-peer communication and appealing features were among the modes of delivery used in DMHIs to engage adolescents (28). DMHIs could serve as a useful tool and treatment for adolescent mental health issues by facilitating different phases of psychotherapy and psychosocial support (28).

Counsellors in Malaysia showed acceptance that online counselling could be a valuable complement to traditional mental health counselling services in reaching isolated, underserved communities with mental illness, thereby improving overall access to counselling services (29). Social media and phone-based counselling support services were perceived as essential for reducing anxiety due to the COVID-19 pandemic among Malaysians, who utilised television, daily press conferences, and platforms like Facebook, Instagram, and Twitter to stay updated (30). A high prevalence of social media addiction among adolescents in Johor and Sarawak,

Malaysia, was associated with increased social media usage over five hours daily, necessitating interventions to prevent irreversible depression among adolescents (31).

From the theoretical lens of Navarro and Tudge's neo-ecological theory (32), the influences of the digital revolution, social media platforms, and virtual contexts in adolescents' lives were particularly important for understanding adolescent development in the digital age. Adolescents' ability to participate in virtual microsystems required parents, educators, practitioners, policymakers, and researchers to expand partnerships with digital platform developers to better support and examine the adolescents' cultures and subcultures in the technological world (32). This was crucial as electronic mental health services such as text-based online counselling (TBOC) emerged as a primary youth-oriented intervention (33).

Although DMHIs garnered much attention in mental health care studies, there was a large gap in qualitative research on the service providers' insights regarding adolescents' and their gatekeepers' adoption of DMHIs, especially in Malaysia. Considering the pivotal roles of mental health care service providers in delivering DMHIs and the growing need in the online environment, the present study aimed to explore the service providers' perceptions of the utilisation of DMHIs for adolescent mental health care in Malaysia.

MATERIALS AND METHODS

Study Design

The qualitative approach was used to comprehend how individuals or groups attribute meaning to social or human issues, either face-to-face or online (34, 35). Specifically, this study employed a qualitative approach to explore the perceptions of service providers on the implementation of DMHIs in Malaysia by adolescents and their gatekeepers. Focus group discussions (FGDs) were used to collect various opinions and enhance understanding of individuals' feelings or thoughts regarding a specific issue (36). In FGDs, rich data often arises from participant interactions, as one participant's responses can elicit another participant's memories or insights compared to individual interviews (37). FGD participants shared common experiences and reactions with presumed peers that shaped the group's content of discussions, while individual interviews did not achieve agreement with other participants (38). Consistent with the aim of this study, qualitative data was collected to explore various opinions from adolescent mental health service providers across groups, with an ideal size of five to eight and a maximum of ten participants each (36). FGDs were suitable for this study due to the flexibility in collecting new knowledge on underexplored topics with

less influence by the researchers and moderators (35). A total of six FGDs including service providers from the East Coast, Northern, Central and Southern Regions of Peninsular Malaysia were conducted.

Setting

Participants were given the option to choose their preferred method of FGD, which was either face-to-face or online. The face-to-face FGDs were conducted in a hotel conference room as agreed by the participants. For online participants, they were given choice of dates and time to meet via Microsoft Teams platform. Three face-to-face FGDs (n = 28) and three online FGDs (n = 20) were conducted with six to eight participants in each group. All FGDs lasted from 45 to 68 minutes (average = 57.83 minutes).

Participants and Sampling

A total of 48 service providers aged between 28 to 55 years consisting of mental health professionals (i.e., counsellors and clinical psychologists) and volunteers involved in public, private and non-governmental organisations from Peninsular Malaysia, were recruited by purposive sampling. Among the service providers, there were 31 participants from national secondary schools, eight from universities and colleges, four from private centres, three from international schools, one from the district health office, and one from a non-governmental organisation. Service providers serving adolescent clients either as mental health professionals or volunteers, were selected purposively through key informants (i.e., government officers, school principals, and practitioners' networks). Participants were selected based on the inclusion criteria: 1) Malaysians ranging from 18 to 60 years old; 2) mental health service providers who served adolescent clients aged 10 to 19 years; as well as 3) could understand or speak in Malay or English language. Exclusion criteria were service providers who did not provide mental health services to adolescents and those who could not understand or speak in Malay or English language.

Data Collection

All FGDs were conducted by using semi-structured interviews from October to November 2022. An interview guide was developed in English, translated into Malay, and simulated during moderators' training. The interview guide was developed based on prior research and the interdisciplinary research team's expertise in psychiatry, community medicine, and psychology. Open-ended questions in the interview guide included the current trend of adolescent mental health issues; service providers' roles in supporting at-risk adolescents; experiences in running psychological first aid training for gatekeepers; and strategies to enhance best practices in promoting adolescents' mental well-being in the digital age. The finalised interview guide was utilised (Table I).

Table 1: Interview Guide

Topic	Interview Questions
Background	<ol style="list-style-type: none"> 1. Can you please introduce yourself? 2. What is your position at [organisation]? What are your major responsibilities in your current position? How long have you been with [organisation]? 3. Can you tell me about your work and how it relates to adolescents or mental health?
Conceptualisation of Mental Health	<ol style="list-style-type: none"> 1. Can you please explain your understanding of mental health? 2. What is the current trend of mental health issues among adolescents in Malaysia?
Utilisation of Digital Mental Health Interventions (DMHIs)	<ol style="list-style-type: none"> 1. What is the utilisation of DMHIs among adolescents and their gatekeepers in Malaysia? 2. What are the roles of mental health service providers when implementing DMHIs to deal with adolescent mental health issues? Prompt for <ul style="list-style-type: none"> o In your current position within your organisation, how do you utilise the DMHIs to help adolescents in mental health crises? 3. What is your organisation's experience with mental health issues? Prompt for <ul style="list-style-type: none"> o What are your organisation's programmes/activities on mental health issues? o What was the programme about? How was it conducted? Who was it targeted? o How did the programme support the adolescents and their gatekeepers? 4. Does you/your organisation provide psychological first aid training for the adolescents' gatekeepers? Prompt for <ul style="list-style-type: none"> o If yes, how were the gatekeepers' responses? o If not, will you/your organisation provide gatekeeper training in the future?
Best Practices and Implementation	<ol style="list-style-type: none"> 1. What is the best way to involve adolescents, parents, and teachers in DMHIs? Prompt for <ul style="list-style-type: none"> o Who is the best person/organisation to deliver the information? o How should it be delivered? o What are the best ways to unite parents, teachers, and service providers for working around a common goal? 2. Are there any other service providers that are (or should be) involved in promoting adolescents' mental well-being in the digital age? Prompt for <ul style="list-style-type: none"> o To your knowledge, what successful strategies are applied by other service providers or organisations to implement DMHIs?
Closing	<ol style="list-style-type: none"> 1. What is the most important message that you want to deliver? 2. Is there anything else that you would like to add?

Before data collection, key informants were contacted via phone and informed about the study. They were the government officers, school principals or practitioners who were experienced and prioritised the mental health profession. Official letters regarding the FGDs were sent to the Ministry of Education to request permission to contact the key informants from the public sector. Key informants from private and non-governmental organisations were contacted individually through emails or phone for invitations to join the online FGDs. Digital flyers consisting of invitations and information

regarding this study were sent to the key informants for dissemination. Service providers who met the inclusion criteria were identified by the key informants and those who were willing to participate were contacted via email or WhatsApp communication. Formal invitation letters were sent to service providers who consented to participate and agreed to be recorded on a voluntary basis.

Before obtaining the informed consent forms, all participants were briefed on potential benefits and risks (i.e., emotional discomfort due to suicide-related questions). If participants felt discomfort during the session, the researchers encompassing mental health professionals would be able to recognize and respond early with appropriate measures. Given that participants were experienced mental health care workers, minimal risks were expected in this study. All participants were allowed to withdraw at any point in time. The formal invitation letters with confirmed FGD details were sent to all FGD participants. Additionally, meeting links to join Microsoft Teams were included in the invitation letters sent to online participants.

Each FGD was facilitated by a moderator who was also the note-taker. During the moderators' training before the FGDs, a simulation was led by the second author who had extensive experience in conducting FGDs to ensure that all moderators could engage the participants in interactive discussions and to reduce moderator bias. The moderators of face-to-face FGDs encompassed the first, second, and fifth authors. The first author moderated the online FGDs. Before the beginning of every FGD, consent forms were distributed to be signed by the participants. The moderator explained the aim of the study, obtained consensus for audio-recording, and briefed on ground rules. The moderators explained to the participants that recording the FGDs was to capture all the participants' comments (30). The audiotapes would be helpful for the transcriptionist to pair with the field notes for identifying the speaker when developing the transcripts (30). Face-to-face FGDs were audio-recorded by the moderator with a built-in audio-recording app on the phone. Online FGDs were recorded by using Microsoft Teams. All recordings were reviewed by the second author immediately after the FGDs. Participants' nonverbal gestures and interactions were recorded in the moderator's field notes throughout the FGDs. Face-to-face FGD participants were given certificates and free meals during the complimentary workshop. A certificate and a token of appreciation worth MYR 20 were given to each online participant to thank their participation.

Ethics

Ethical approval was approved by the Human Research Ethics Committee of Universiti Sains Malaysia (protocol code: USM/JEPeM/21020179, date of approval: 13/06/2021). The present study was reported by adhering to the Journal Article Reporting Standards for

Qualitative Research (JARS-Qual) (39). Only the research team members could access the data, which was kept confidential. Transcripts contained no personally identifiable information, guaranteeing participants' anonymity. Special codes and numbers were used to safeguard participants' identity.

Data Analysis

Qualitative data was collected from audiotapes, verbatim transcripts of the audiotapes, and moderators' field notes. Reflexive thematic analysis (TA) was used to analyse data through an iterative analysis method comprising six phases (40): 1) dataset familiarization, 2) data coding, 3) initial theme generation, 4) theme development and review, 5) theme refining, defining, and naming, and 6) writing up. The transcripts and field notes were then translated into the English language. The concept of data saturation was not particularly useful in reflexive TA (41), hence the research team decided that data collected from six FGDs was adequate to represent service providers' perceptions for this study. ATLAS.ti 23.1.1 (42) was utilised to assist in the coding and data analysis. Data collected from face-to-face FGDs was used to establish initial codes. Online FGDs added new codes to initial codes which were then refined systematically for three rounds to ensure rigor. The initial themes were reviewed, and meaningful subthemes were constructed. The finalized themes were reviewed by the first, second, and third authors for the write-up of findings. Adequate time was allocated to all phases for generating a well-organized story about the data (35).

Reflexivity

Reflexivity represented the practice of critical reflection on the researcher's role, insights, and influences on the research, which was the key to a good qualitative analysis (40). The coder (first author) kept a reflexive journal to document personal assumptions towards the research topic, which was crucial for delimiting knowledge constructed throughout the research process (40). For instance, the coder acknowledged and applied DMHIs in her counselling practice.

Trustworthiness

In this study, member-checking or participant validation was used to include the participants' feedback to confirm the accuracy and authenticity of their perspectives (40). Besides, triangulation was performed by using multiple data sources and various participant groups to capture a multi-faceted understanding of the phenomena under study (40). Multiple data sources (i.e., audiotapes, verbatim transcripts, and field notes) were included to generate richer findings that reflected the service providers' viewpoints.

RESULTS

48 service providers aged between 28 to 55 years encompassing eight male and 40 female participants

took part in the FGDs. The research participants' demographic profile was shown in Table II. Four themes were generated through reflexive TA of the perceptions of service providers on the utilisation of DMHIs for adolescent mental health care in Malaysia: 1) Psychoeducation via bite-sized learning for gatekeepers; 2) Availability of counselling hotlines; 3) Follow-up through communication apps; and 4) Resources for help-seeking adolescents. The thematic map was shown in Figure 1.

Table II: Research Participants' Demographic Profile

Demographic Characteristics	Frequency (n = 48)	Percentage (%)
Gender		
Male	8	17
Female	40	83
Age range (years)		
21 – 30	6	13
31 – 40	22	46
41 – 50	17	35
51 – 60	3	6
Organisation / Institution		
National Secondary School	31	65
University / College	8	17
Private Centre	4	8
International School	3	6
District Health Office	1	2
Non-governmental Organisation	1	2
Occupation		
Registered Counsellor	41	85
Practitioner	4	8
Volunteer	2	4
Clinical Psychologist	1	2

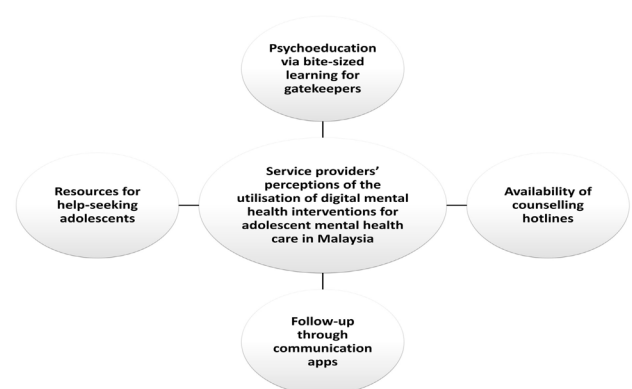


Figure 1: Thematic map of four themes.

Theme 1: Psychoeducation via bite-sized learning for gatekeepers

The service providers conducted a series of workshops targeting parents to enhance their mental health literacy to better support adolescents, particularly focusing on those with limited prior knowledge. However, these

workshops faced significant challenges due to high dropout rates, leading to one of the service provider's realisations of comprehensive workshop formats that consumed long hours might not be effective for this target group.

We have been doing a few workshops where the parents have to attend about ten times, but the turnover rate was so high that no one attended eventually. From there we learned that if parents cannot commit to a very lengthy or very comprehensive workshop, then there is no point for us mental health professionals to plan and prepare it. Especially when we are running a mental health first aid workshop which is about mental health literacy, and our target audience would be those with very little amount of knowledge about mental health. If it's a very lengthy one, they might have very little motivation to join us. There is some literature available online that states that a brief sharing, maybe two hours can already be beneficial. (NSP1)

A participant highlighted the importance of brief psychoeducation as an initial strategy to engage parents in enhancing their awareness of adolescent mental health issues. This encompassed providing essential information and contact details of relevant support services, such as non-governmental organisations (NGOs).

One important thing is to create awareness with brief psychoeducation and mental health first aid will come in later. Provide them with information, the contact numbers of whom they can contact, or even NGOs. (NSP3)

Some service providers emphasized the shift towards using advanced technology, such as WhatsApp and Zoom apps to foster connections between the parents, service providers, and the public. Interestingly, one of the participants perceived that the parents exhibited better participation and engagement in virtual settings compared to face-to-face interactions.

Because now the technology is very advanced. When we conduct meetings, training, and awareness talks involving the parents, the counsellors, and the public through WhatsApp or Zoom, the parents' participation is better than face-to-face. (SSP5)

Brief, concise, and practical information demanded by parents was described as "Maggi mee" or instant tips by a participant. Parents preferred bite-sized advice and innovative approaches over theoretical content. One of the service providers adapted by delivering content through videos or drama to capture parents' attention.

Now the parents want Maggi mee (instant tips). They want to be fast, so they just want tips more than theory. They

just want the practical ways. They're more interested in that. We tried to teach some of the tips through a video or drama. I received the parents' feedback that it is very attractive. We need to try a thousand ways just to attract the parents to cooperate or listen to us. (SSP5)

Theme 2: Availability of counselling hotlines

The proliferation of various hotlines garnered public attention, particularly with the introduction of the National Mental Health Crisis Line or HEAL Line, designated as "15555." The budding hotline generated substantial feedback among the callers, indicating its capacity to provide DMHIs. One of the participants shared that adolescents utilised the HEAL Line because they could freely disclose their psychological concerns, seek psychosocial support, and access a safe avenue for sharing their crises.

All these hotlines. Recently there was a mental health line, 15555. It's just launched, and there's been a lot of feedback that it helps. Sometimes they just want to share their issues and their crises so that they can get catharsis and emotional relief. (CSP2)

Online counselling platforms were valuable resources for individuals who were apprehensive about divulging their identities, especially regarding suicidal ideation and depression. A surge in hotline calls during the Movement Control Order (MCO) period, primarily from adolescents, was observed by a service provider who was a contact handler. Remarkably, the young callers sought assistance for depression-related issues, and some contemplated suicide due to the distressing circumstances arising from familial conflicts. The Ministry's hotline emerged as a vital support mechanism during these challenging times.

Online counselling is helpful for those who don't wish to reveal their identity. Counselling hotlines allow them to express their feelings about suicidal thoughts or depression issues. During the MCO period, there were a lot of hotline calls from teenagers, and the youngest age I ever received was 12 years old who shared about depression. A 19-year-old wanted to commit suicide because he couldn't stay under the same roof when his family fought, and depression hit. This hotline from the Ministry helped. (CSP1)

Theme 3: Follow-up through communication apps

In the context of the COVID-19 MCO, the adolescents exhibited psychological distress, manifested feelings of inadequacy, and experienced existential crisis. Notably, during the MCO period, there was a substantial volume of communication between a service provider and her student client through telephone calls and WhatsApp messages. This communication trend appeared to have contributed positively to the adolescent's emotional state, as described by one of the participants via

consistent follow-up actions and in-person interactions.

He's stressed. He feels that he's useless, it's never mind even if he doesn't exist. During the MCO, we talked a lot on the phone, via calls and WhatsApp, but so far it seems to be getting better because he always follows up and we see each other. (ESP3)

Furthermore, the role of WhatsApp in maintaining therapeutic relationships between the counsellors and their clients was pivotal, with the student clients frequently resorting to this app to express distressing emotions. One of the service providers provided encouragement and fostered resilience in the students' coping mechanism to face the challenges associated with the MCO.

When we went through the MCO, I used WhatsApp a lot to contact him when he felt something (bad). He would WhatsApp me for everything. I gave encouragement for him to continue being strong to face this issue. (ESP22)

Theme 4: Resources for help-seeking adolescents

One of the participants shared her strategy to ensure that help-seeking adolescents received information on available resources. In the event of the counsellor's absence from the school premises, posters encompassing essential contact information of other service providers and relevant organisations would be disseminated. Specifically, the authorised contacts could provide DMHIs or mental health first aid if the students were unable to locate the school counsellor during emergencies or psychological crises.

If I'm not around the school, I will make a poster with all the contact information, Befrienders, JKM (Jabatan Kebajikan Masyarakat / Social Welfare Department), KKM (Kementerian Kesihatan Malaysia / Ministry of Health Malaysia), and other organisations. I said, "If you can't see me, please contact this number. If anything happened at home, during an emergency, please contact these numbers." (SSP4)

DISCUSSION

This study aimed to explore the service providers' perceptions of the usage of DMHIs for adolescent mental health care in Malaysia. There were four themes constructed from the findings: 1) Psychoeducation via bite-sized learning for gatekeepers; 2) Availability of counselling hotlines; 3) Follow-up through communication apps; and 4) Resources for help-seeking adolescents. The findings further confirmed the theoretical view of the neo-ecological theory, in which virtual microsystems exerted considerable impacts on adolescent development and mental health in the digital age (32), including the utilisation of DMHIs.

The first theme was mainly about the service providers'

experiences in conducting gatekeeper training for parents and the public to increase their mental health literacy. The service providers shared about their struggles (i.e., high dropout rates) to engage parents in long-hour mental health literacy workshops due to parents' time constraints. This was in line with a previous study on online suicide prevention training for parents which reported barriers to parental involvement were time limitations and suggested that online delivery or web-based gatekeeper training was potentially effective and met parents' requirements (17, 43). However, gatekeepers in the United States who attended longer trainings reported higher identification of at-risk youths as compared to those who joined shorter trainings despite sharing similar referral patterns after an identification (44). To encourage greater parental involvement, service providers provided brief psychoeducation and important contact details of support services to ease the parents' entry into more in-depth knowledge. This finding supported past literature which discovered that brief gatekeeper training seemed to be as effective as longer training in terms of enhancing suicide literacy (17). Technological advancement in virtual environments facilitated communication between the parents, service providers, and the community through WhatsApp and Zoom apps. Interestingly, some participants shared that adolescents' parents showed greater commitment towards online meetings, training, and awareness talks, as compared to face-to-face programs. It was also found that bite-sized tips, practical strategies, and interactive presentations like a video or drama were preferred by parents to quickly pick up the essential information. Consistent with a past study in England (19), the flexibility of online training with engaging presentation design and bite-sized (approximately 20 minutes) modules helped reduce barriers to gatekeeper training completion.

The second theme was regarding the availability of counselling hotlines that could potentially increase adolescents' accessibility to DMHIs. The findings indicated that positive feedback was received after the launching of the National Mental Health Crisis Line (HEAL Line) as adolescents utilised it as an emotional outlet. This finding further confirmed the benefits of online therapy during the social isolation phase of the COVID-19 pandemic, with an emphasis on the therapeutic presence and effective therapeutic alliance in telepsychotherapy even from a physical distance (10). The anonymity of counselling hotlines was an advantage to help the adolescents feel safe when sharing about their depressed feelings and suicidal thoughts. Anonymity and privacy were the facilitators that enhanced the young online help-seeker's willingness to disclose personal concerns (45). A service provider in this study indirectly revealed that family conflict was the contributor of a depressed adolescent help-seeker's utilisation of counselling hotline. Similar results were reported in an analysis of the conversations between adolescents and Childline counsellors in the United

Kingdom, indicating that family conflict, especially with their parents, reinforced the adolescents' loneliness (46).

The third theme described the adolescents' utilisation of communication apps to contact their service providers during follow-ups through phone calls and WhatsApp messages. When physical movement was restricted during the MCO period, vulnerable adolescents reached out to obtain professional help from the service providers via a webchat environment. Safety of the webchat counselling environment not only facilitated adolescents' expression of difficult thoughts and feelings but also helped counsellors engage the young users by alleviating the fear of being overheard by family members (11). The WhatsApp app was mentioned by the participants multiple times as a useful digital communication tool preferred by adolescents to maintain a therapeutic bond with the counsellors. Similar to an Indonesian study, WhatsApp counselling benefited both students and the Guidance and Counselling teachers at a secondary school by reducing the students' anxiety (47).

The fourth theme indicated that posters containing emergency contact numbers disseminated digitally could be alternative resources for help-seeking adolescents during psychological crises if the service providers were not contactable. Contacting mental health professionals or agencies was one of the crucial elements in safety planning intervention to mitigate the risk of suicide by helping adolescents gain support and distraction from suicidal crisis (48). When the school counsellors who were the main gatekeepers in school settings were absent, adolescents were equipped with accessible support services to keep themselves safe. Safety planning for young people needed to include emergency contact numbers available in a suicidal crisis (49), as well as adapting to the web-based format which gained high satisfaction among youth and caregivers (50).

Strengths, Limitations, and Recommendations

The findings of this study demonstrated implications which added new insights into the potential of DMHIs in advancing adolescent mental health care delivery and accessibility to professional services in Malaysia. In this study, the service providers' current needs, challenges, and strategies for implementing DMHIs were addressed. This study was one of the few qualitative studies that explored how adolescents and their gatekeepers utilise DMHIs in Malaysia, which could fill in the literature gap that suggested some practical solutions for practitioners and set the future direction for researchers. Issues related to parental involvement in gatekeeper training, usage of counselling hotlines, safety of communication apps, and availability of alternative resources during a psychological crisis pinpointed the critical need for collaborative partnerships among service providers,

parents, teachers, policymakers, and digital platform developers to propel the advancement of DMHIs for improving adolescent mental health.

Limitations in purposive sampling indicated that the findings of this study could not be generalised to all service providers across the world. The findings were limited to those with experience in executing DMHIs when delivering their services. Besides, this study only involved service providers from Peninsular Malaysia without including voices from East Malaysia. Further studies were recommended to cover a wider geographical area for richer findings that reflected the progress of DMHIs in the nation. Furthermore, it could be interesting to discover more about the factors influencing parental involvement in gatekeeper training and feasible solutions to effectively strengthen their mental health literacy to deal with at-risk adolescents. Finally, more qualitative studies were recommended to include various key stakeholders such as policymakers and digital platform developers for boosting the development and benefits of DMHIs in adolescent mental health care.

CONCLUSION

In conclusion, the service providers strategized various digital mental health care delivery options to incorporate technology advancements for curbing adolescent mental health issues in the digital age. This study underscored the integration of technology in service providers' interventions to engage parents as a promising strategy to improve parental engagement in suicide prevention gatekeeper training. Considering parents' preference for actionable information and limited time resources, gatekeeper training could be enhanced by bite-sized learning via brief psychoeducation and interactive presentations. Multi-pronged approaches via counselling hotlines, communication apps, and safety planning were recommended to improve adolescents' and their gatekeepers' access to DMHIs. As the landscape of DMHIs kept evolving, adolescents' safety during a psychological crisis could be ensured by understanding the challenges and opportunities associated with DMHIs to better tailor interventions aligning with the unique needs of adolescents and their gatekeepers.

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