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Impact of COVID-19 on the use of online mental health services among adults in Riyadh: a cross-sectional study

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Abstract. – OBJECTIVE: Online therapies are licensed online programs designed to aid the use of psychotherapy via the Internet or mobile phone applications by providing effective treatments through digital communication. The number of individuals seeking online therapy has increased during the COVID-19 pandemic. Thus, this study aimed to assess the impact of COVID-19 on the use of online mental health services among Saudi adults in Riyadh.

SUBJECTS AND METHODS: The research design was a cross-sectional descriptive study. The data collection tool was an online survey distributed through social media and email. The survey consisted of two parts: a sociodemographic questionnaire and the e-Therapy Attitudes and Process (eTAP). A total of four hundred participants have completed the survey.

RESULTS: Most of the respondents had used online therapy for the first time during the COVID-19 pandemic, and most of the users had a relatively positive experience with online interventions for mental health services.

CONCLUSIONS: The findings showed that COVID-19 had an impact on the use of online therapy, as it caused an increase in the number of users of these services, and most of the users have found online therapy to be helpful.

Key Words:
COVID-19 pandemic, Online intervention, Mental health services, Mental health.

Introduction

The COVID-19 pandemic triggered a significant change in the provision of psychotherapy from actual to more virtual settings using online therapy[1]. According to Torous et al[2], in the past, people did not believe that virtual environments could be as effective as actual settings. Nowadays, knowledge and usage of technology in therapy have dramatically increased. The importance of utilizing digital technology to make evidence-based mental health therapy more accessible is significant for research, policymaking, commissioning, and service management agendas at both the national and international levels[2]. Simmonds-Buckley et al[3] reported that, when compared to conventional face-to-face therapy with health professionals, psychological services provided by electronic devices (online therapies) as digital instruments (e.g., laptops, tablets, mobile phones, and wearable devices) provide more convenience and allow constant accessibility to treatment. Online therapies are online programs designed to aid the use of psychotherapy *via* the internet or mobile phone applications, with the aim of providing effective treatments like cognitive behavioral therapy through digital communication modes. It was suggested that online therapy enhances the use of internet communication modes in treating mental illnesses[4].

However, a narrative review[5] explained the possible ethical issues in online therapy, some of which are privacy and confidentiality issues due to unreliable technology, which may lead to clients' information getting leaked; communication issues related to the lack of non-verbal cues, which may lead to misunderstandings and misdiagnoses, the possibility of practicing without a license or without proper training is another ethical issue; furthermore, online therapy may

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not be suitable for patients with severe psychiatric disorders or patients who pose danger to themselves or others.

On the other hand, the use of online therapy can have many advantages that have been proven. A previous study[6] highlighted the benefits of anonymity in online therapy through text-based communication, the use of written communication, and the absence of personal contact, which enables clients to disinhibit and disclose personal information. Online therapy seems to decrease the traditional social stigma toward seeking mental health services and further counteract social factors that may prevent people from seeking mental health services, such as gender and physical appearance[7]. Other potential benefits of online therapy from the perspective of mental health professionals include the possibility of offering treatment that is more cost-effective, and therefore reducing therapist time, reducing waiting lists, compensating for the lack of trained professionals, and relieving the burden often experienced by therapists in meeting demands[8].

The impact of the COVID-19 pandemic on public mental health was studied in a systematic review. The review provided guidelines for interventions in mental health during the pandemic, which were used in a number of studies[9]. The recommendations called for providing remote mental health services, such as hotlines and online consultations, especially for vulnerable people who are at risk of experiencing psychiatric symptoms.

An existing statistical review conducted by Sucala et al[4] explored the clinical connection in online treatment for mental health, revealing that, with regard to therapeutic alliance, online therapy is equal to face-to-face treatment. Thus, this study expected a wide use of online therapy as a mode of treatment that could be used after the COVID-19 pandemic. This study followed Saudi 2030 vision goals to facilitate and improve effortless access to mental health services. Based on the results of the study, recommendations will be handed out to the several responsible authorities to emphasize and expand the important role of online therapy in treating mental illnesses after the COVID-19 pandemic. Generally, there are limited publications[10] that have studied the impact of COVID-19 on the use of online therapy for mental health. It is vital to highlight that existing research findings may not be appropriate for all populations or cultures. COVID-19's impact on the usage of online treatment may differ depending on a variety of circumstances, such as cultural norms, access to technology, and personal preferences. As a result, more research is required to investigate the unique effects of COVID-19 on online therapy utilization in various groups and cultural contexts. Research studies that consider different demographic characteristics, cultural backgrounds, and geographical locations can provide a more comprehensive understanding of how the pandemic has affected the usage of online therapy among various groups. Therefore, this particular study anticipated that online therapy would be more widely used as a mode of treatment during and after the COVID-19 pandemic. The study aims to investigate how COVID-19 has impacted the use of online therapy for mental health among adults in Riyadh, Saudi Arabia.

Subjects and Methods

Design

The research design was a cross-sectional descriptive study. The survey began in April 2023 and ended in August 2023.

Participants

The participants in this research were female and male Saudi adults living in Riyadh who used online therapy for mental health during COVID-19, in the age group of 16 to 39 years old. All participants were volunteers, and there were 400 in total.

Exclusion Criteria

This study has excluded all non-Saudi participants, Saudi adults who were not between the ages of 16 and 39, Saudi adults who were not living in Riyadh city, and Saudi or non-Saudi participants who have not used online therapy.

Data Collection

The data collection tool for this research was an online questionnaire distributed through social media and email. The questionnaire consisted of two parts, as follows:

Part 1 consisted in the Sociodemographic Questionnaire, which included questions about gender, age, and residence, the duration of using mental health services, the cause of using them, and whether it's related to the COVID-19 pandemic.

Part 2 of the E-therapy Attitudes and Process (eTAP) survey was used to assess factors that

influence client participation in e-interventions for mental health[11]. There were sixteen questions in total that addressed factors associated with client involvement in e-interventions for mental health. The questionnaire evaluated attitudes towards e-interventions, perceptions of subjective norms, perceived behavioral control (PBC), and the intention to use e-interventions. It is a 5-point Likert scale, ranging from 1 (strongly agree) to 5 (strongly disagree). The scores that range from 1.00 to 1.80 indicate a signed agreement and a very positive interpretation. The score ranges from 1.81 to 2.60, which indicates agreement and a positive interpretation. The score ranges from 2.61 to 3.40, which indicates uncertainty and moderate interpretation. The score ranges from 3.41 to 4.20, which indicates disagreement and a negative interpretation. The score runs from 4.21 to 5.00, which indicates extreme agreement and a very negative interpretation. Before the Arabic version of the questionnaire was developed, the English version of eTAP had been translated into Arabic by two different competent professional translators. Then, a group of experts consisting of three professors assessed both the Arabic translations. The group included two professors from the field of mental health and one professor from clinical psychology. The panel compared any unclear areas between both of the translations and the original eTAP. The eTAP was produced in a single Arabic form using agreement. Finally, the English translation of the Arabic version of the eTAP was completed independently by two certified translators. There was confirmed consistency between that translation and the original English text. These ten participants were not included in the sample.

Data Collection Procedure

The study was conducted after receiving ethical approval from the Princess Nourah bint Abdulrahman University Institutional Review Board (IRB) committee under registration number 22-0068 on February 13, 2022. Participants received a consent form outlining the study's purpose and their role. They could refuse to participate. The study had no risks or immediate benefits for volunteers.

The procedure was selected using the snowball sampling technique, in which research participants were asked to assist researchers in identifying other potential subjects. According to the 2010 General Authority for Statistics in the Kingdom of Saudi Arabia, there are 1,625,579 adults between the ages of 16 and 39. The number of participants was calculated using the Openepi program, which comprised Saudi adults of both genders (n = 385) in Riyadh, Saudi Arabia. The confidence level is 95%, the margin of error is 5%, and the response distribution is 50%. To mitigate the non-response rate, 0.1% of the sample was included. After excluding participants who did not meet the inclusion criteria or exhibited inconsistencies in their responses, the researcher obtained 400 valid responses.

The survey was published online since it was a more convenient approach. It consisted of 25 total questions, with 9 demographic questions and 16 main questions in two formats: yes/no questions and multiple-choice questions. Obtaining their informed consent was required before starting the survey. Then, the participants were instructed to fill out the demographic and question portions of the questionnaire to the best of their abilities. After the survey was completed, participants were thanked for their assistance and cooperation. The questionnaire was written in Arabic and administered in that language. A total of 400 participants completed the survey in the allotted time.

Statistical Analysis

Statistical analysis was carried out using R-studio software (R version 4.1.1, Inc., Boston, MA, USA). Frequency and percentage were used to summarize and organize the demographic profile, the usage profile of the online intervention for mental health, the distribution of the therapy attitude scales, and the agreement and disagreement of the respondents to the therapy attitude scales. The mean was used to determine the therapy attitudes of the participants. Pearson correlation was used to determine the correlation between the demographic profile and the therapy attitudes toward online interventions for mental health. The margin of error was set to 0.05 with a 95% level of confidence. The p-value was used as a basis to reject the null hypothesis. The result is considered significant at $p > 0.05$.

Validity and Reliability Test Results

The reliability test of the instrument was done using Cronbach's alpha with a result of 0.07. The result means that there is acceptable internal consistency (reliability) in the tool. In terms of tool validity (eTAP), the eTAP accurately predicted e-intervention participation with an accuracy of 84% and not participating with 74% accuracy.

Table I. Distribution of the participants according to their gender and age groups

Demographic profile	Frequency	Percentage
Gender		
Male	66	17
Female	334	83
Age		
16-19	132	33
20-24	192	48
25-29	38	10
30-34	17	4
35-39	21	5

Results

Demographic Profile of the Participants Who Used Online Interventions for Mental Health

As shown in Table I, the majority of participants were females [(334) 83%]. There were 132 (33%) subjects between the ages 16-19; 192 (48%) between the ages 20-24; 38 (10%) among the ages 25-29; 17 (4%) within the ages 30-34; and 21 (5%) among the ages 35-39.

Utilization Patterns of Online Mental Health Interventions

Table II shows that 332 (83%) used online interventions for mental health as a first-time user during COVID-19. 259 (65%) used online interventions for 1-3 months, 63 (16%) for 4-6 months, 41 (10%) from 6 months to one year, and 37 (9%) for more than a year. Consultations were the primary reason for seeking online intervention, accounting for 228 cases (57%). This was followed by 126 cases (32%) for treatment sessions, 37 cases (9%) for follow-up treatments, and 9 cases (2%) for various other reasons. The participants made use of the online interventions through phone calls at 131 (33%), video calls at 29 (7%), and phone applications at 240 (60%) each.

Table II. Distribution of the utilization patterns of online mental health interventions.

Profile scales	Frequency	Percentage
First time users		
Yes	332	83
No	68	17
Duration of online mental health		
1 to 3 months	259	65
4-6 months	63	16
6 months to 1 year	41	10
More than a year	37	9
Reasons		
Consultation	228	57
Treatment Sessions	126	32
Follow up treatment	37	9
Other	9	2
Mode		
Phone calls	131	33
Phone Applications	240	60
Video calls	29	7

There was a significant difference in the number of first-time and non-first-time users of the online intervention for mental health, with a t score of -2.46 and a p-value of 0.014, which is less than the 0.05 margin of error.

Therapy Attitude Toward Mental Health Online Interventions (eTAP)

Figure 1 shows the attitude of the respondents towards online interventions for mental health. There were 100 (25%) who used online interventions with a very good therapy attitude, 153 (38%) showed a good attitude, and 100 (25%) shared a fair attitude towards online interventions. There were 40 (10%) with a poor attitude and 7 (2%) with a very poor therapy attitude towards online intervention for mental health.

Table III presents the specific attitudes toward online interventions for mental health therapy. Among these attitudes, only "I possess the necessary technical knowledge to use online interventions for mental health" received a very good rating, with a mean score of 1.80. Among the positive attitudes, the highest-rated attitude was "I find using online interventions for mental health to be beneficial" with a mean score of 1.91, followed by "I would feel comfortable using an

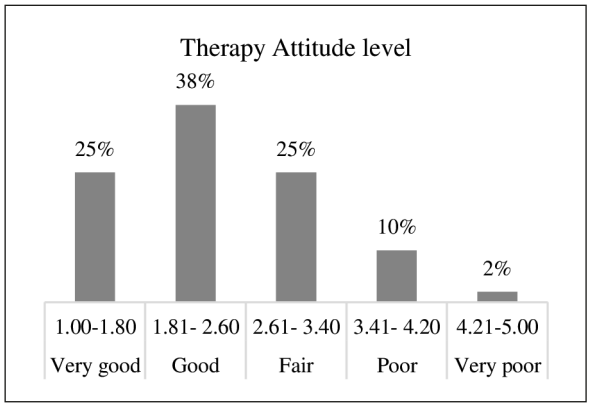

Figure 1. Distribution of the Therapy attitude (eTAP) of the respondents toward mental health online interventions.

Table III. Distribution of the therapy attitudes and the agreement-disagreement of the participants to the therapy attitudes toward online interventions for mental health.

Therapy attitude scales	Mean scores	Attitude	Agree	Neutral	Disagree
Those people who are important to me would support me using online interventions for mental health	2.62	Fair	205 (51%)	88 (22%)	107 (27%)
I intend to continue using my online intervention for mental health	2.63	Fair	206 (52%)	85 (21%)	109 (27%)
I find using online interventions for mental health to be good	2.02	Good	287 (72%)	55 (13.7%)	58 (14.3%)
I find using online interventions for mental health to be pleasant	2.41	Good	228 (57%)	71 (18%)	101 (25%)
I am confident that I can use my online intervention for mental health	1.91	Good	300 (75%)	56 (14%)	44 (11%)
I find using online interventions for mental health to be beneficial	2.06	Good	287 (72%)	53 (13%)	60 (15%)
I find online interventions for mental health to be credible	2.32	Good	248 (62%)	79 (20%)	73 (18%)
I am confident using the technology for my online intervention for mental health	1.99	Good	291 (73%)	59 (15%)	50 (12%)
Those people who are important to me think online interventions for mental health are credible	2.79	Fair	177 (44%)	104 (26%)	119 (30%)
I find online interventions for mental health to be helpful	2.04	Good	289 (72%)	56 (14.3%)	55 (13.7%)
I possess the required technical knowledge to use online interventions for mental health	1.80	Very good	311 (77.8%)	51 (12.7%)	38 (9.5%)
Those people who are important to me think online interventions for mental health are effective ways of treating mental health concerns	2.85	Fair	164 (41%)	108 (27%)	128 (32%)
I believe an online intervention for mental health, compared to face-to-face therapies is more effective	3.39	Fair	98 (24%)	102 (26%)	200 (50%)
I would feel comfortable using an online intervention for mental health program on my own	1.97	Good	304 (76%)	45 (11%)	51 (13%)
Those people who are important to me think that compared to face-to-face therapy, online interventions are as effective in treating mental health concerns	3.24	Fair	110 (27.5%)	113 (28%)	177 (44.5%)
I think my personal information provided when using an online intervention for mental health is secure	2.18	Good	265 (66%)	75 (19%)	60 (15%)
Grand mean	2.39	Good	--	--	--

online intervention for a mental health program on my own" with a mean score of 1.97. Other positive attitudes included "I find using online interventions for mental health to be good" with a mean score of 2.02, "I find online interventions for mental health to be helpful" with a mean score of 2.04, "I find using online interventions for mental health to be beneficial" with a mean score of 2.06. Additionally, "I think my personal information provided when using an online intervention for mental health is secure" received a mean score of 2.18. The attitude "I find online interventions for mental health to be credible" scored 2.32, and "I find using online interventions for mental health to be pleasant" had a mean score of 2.41.

In terms of fair attitudes, the attitude with the highest mean score was "Those people who are important to me would support me using online interventions for mental health" with a score of 2.62. This was followed by "I intend to continue using my online intervention for mental health" with a mean score of 2.63. Other fair attitudes included "Those people who are important to

me think online interventions for mental health are credible" with a mean score of 2.79, "Those people who are important to me think online interventions for mental health are effective ways of treating mental health concerns" with a mean score of 2.85, and "Those people who are important to me think that compared to face-to-face therapy, online interventions are as effective in treating mental health concerns" with a mean score of 3.24. The attitude "I believe an online intervention for mental health, compared to face-to-face therapies, is more effective" received a mean score of 3.39. The overall mean score for therapy attitudes was 2.39, indicating a good level of attitude.

Table III presents the agreement of the respondents regarding specific therapy attitudes toward online interventions for mental health. The findings indicate that the majority of participants held positive therapy attitudes towards online interventions for mental health. The attitude that received the highest level of agreement among participants was having the necessary technical knowledge to use online interventions for mental health, with 311 respondents (78%) expressing agreement. This was followed by 304 respondents (56%) who felt comfortable using online interventions for mental health on their own, 300 respondents (75%) who expressed confidence in their ability to use online interventions for mental health, and 291 respondents (73%) who felt confident in using the technology for online interventions for mental health. Among the participants, an equal proportion of 72% found using online interventions for mental health to be good, beneficial, and helpful. Additionally, 228 participants (57%) reported finding the experience of using online interventions for mental health to be pleasant. Furthermore, 248 participants (62%) expressed that they found online interventions for mental health to be credible.

In terms of personal information sharing, 265 participants (66%) believed that sharing personal information when using an online intervention for mental health is secure. Moreover, 205 participants (51%) believed that those individuals who are important to them would support the use of online interventions for mental health. Additionally, 206 participants (52%) expressed their intention to continue using online interventions for mental health as a means of treatment. The majority of participants held a disagreement regarding certain therapy attitudes. Specifically, 200 participants (50%) disagreed with the statement that online interventions for mental health are more effective compared to face-to-face therapies. Additionally, 177 participants (44.5%) disagreed with the notion that those individuals who are important to them believe online interventions are as effective as face-to-face therapy in treating mental health concerns. Several participants, ranging from 13 to 28%, remained neutral toward all therapy attitudes.

Correlation between Demographic Profile, Mode of Service, and Participants' Attitudes (eTAP) towards Online Interventions

Table IV presents the correlation analysis between demographic profile, mode of service, and participants' attitudes (eTAP) towards online interventions. The correlation between age and participants' attitudes yielded a weak negative correlation (r = -0.0053). However, the p-value of 0.93 is greater than the predetermined alpha (margin of error) of 0.05, indicating that the result is not statistically significant. Thus, there is no significant correlation between the age of participants and their attitudes towards online interventions.

In examining the relationship between gender and participants' attitudes, a correlation coefficient of r = 0.0987 was observed. However, the corresponding p-value of 0.08 is greater than the predetermined alpha level of 0.05. Therefore, based on these findings, it can be concluded

Table IV. Correlation between demographic profile, mode of service, and participants' attitudes (eTAP) towards online interventions.

Profile	Therapy attitude toward online interventions for mental health (eTAP)			
	r	p	Alpha	Significance
Age	-0.0053	0.93	0.05	Not significant
Gender	0.0987	0.08	0.05	Not significant
Mode of service	0.0044	0.94	0.05	Not significant

that participants' attitudes were not significantly influenced by their gender. Regarding the correlation between the mode of service (e.g., phone calls, video calls, phone applications) and participants' attitudes towards online interventions for mental health, the correlation coefficient was calculated to be $r = 0.0044$. Additionally, the corresponding p-value of 0.94 was higher than the predetermined alpha level of 0.05. Thus, the findings indicate that there is no significant correlation between the mode of service and participants' attitudes toward online interventions for mental health.

Discussion

The aim of this study was to assess the impact of COVID-19 on the use of online mental health services for mental health among Saudi adults in Riyadh. Concerning the main hypothesis, the findings show that COVID-19 has caused an increase in the number of users of online mental health services, as the majority of the respondents (83%) used these services for the first time during the pandemic, compared to 17% of the respondents who used the services before the pandemic. The findings provide support for the main hypothesis, which suggests that the use of online mental health services was influenced by the COVID-19 pandemic. As a result of the lockdown measures imposed during the pandemic, individuals turned to the internet to seek psychotherapy instead of in-person therapy. This shift in preference towards online mental health services can be attributed to the impact of COVID-19.

The findings add new evidence to existing research[12] about the widespread use of online therapy during the COVID-19 pandemic, as the number of psychologically distressed people seeking professional help through online mental health services has significantly increased during the COVID-19 pandemic. Pierce et al[13] found that the use of technology to conduct distant telepsychology sessions has very likely become more widespread as a result of authorities' mandatory social distancing to limit COVID-19 transmission.

Moreover, this study aimed to assess the effectiveness of online therapy during the pandemic by measuring client engagement and adherence, which are measured using the online therapy Attitude and Process Questionnaire (eTAP), and thus emphasize the importance of online mental health services. The results showed that 25% of those who used online interventions had a very good therapy attitude, 38% had a good attitude, and 25% had a fair attitude towards the online interventions. While 10% of the respondents have poor therapy attitudes, and 2% have very poor therapy attitudes toward online interventions for mental health. These findings show that the majority of the respondents ranged from having very good to fair attitudes towards online interventions, which suggests that most of the respondents had a fairly positive experience with online mental health services. The findings are consistent with previous research by Benderly[14], who carried out a research study on 400 patients of online therapists, and the study findings revealed that 90% of the people who participated thought online sessions were beneficial to their entire therapy. According to other data[15-17], a considerable percentage of adults use the Internet to acquire mental health knowledge and to participate in online therapy and counseling sessions.

Furthermore, the findings indicated that four hundred respondents had a generally positive attitude and experience toward online mental health services. Specifically, the results of the therapy attitude scale showed that the majority of respondents shared the highest level of technical knowledge about using online interventions. Moreover, the analysis showed that most respondents agreed that online therapy is beneficial, helpful, comfortable, and pleasant, interpreting the positive impact of online therapy on mental health services. This finding is similar to the results of a previous study[18] conclusion, which stated that positive attitudes toward online therapy are related to the level of comfort. This may also be related to the online disinhibition effect, indicating that individuals are more open to sharing their emotions and conflicts in a virtual space compared to face-to-face therapy. Results concerning confidentiality revealed that the majority of the respondents found online mental health services secure and credible. Furthermore, Ruwaard et al[19] examined the impact of online therapy on the levels of work-related stress in 239 participants. The study's results showed that 88% of participants considered the interaction in online therapy to be pleasant and personal (75%); 57% said it developed over the course of therapy, and 68% stated they were not missing face-to-face contact.

However, a previous study shared by Young[20] showed that face-to-face counseling can give the client a greater sense of security and confidenti-

ality compared to online mental health services. This may be arguable due to the fact that the period of COVID-19 has drastically increased the implications of online therapy compared to the past. Thus, the results of the current study indicate that online interventions are similar to face-to-face therapy in maintaining confidentiality. Likewise, when it comes to credibility, a previous study conducted by Bambling et al[21] stated that online counseling is most reliable due to its anonymous nature, which reduces or eliminates social stigma, which helps clients who are uncomfortable seeking mental health services for stigmatizing issues. The credibility of online therapy supports the implications of the current study findings regarding online therapy confidentiality.

The current study also sought to explore the relationship between demographic profile and therapy attitudes toward online mental health services. The results showed no significant relationship between them, which means that therapeutic alliances between therapists and clients are not limited to specific demographic profiles. The generally positive attitude that the respondents have toward online therapy, as measured by eTAP, is supported by the results of their positive experience with online mental health services. Similar to demographic profiles, there is no significant correlation between the mode of service (phone calls, video calls, phone applications, etc.) of online mental health services and therapy attitudes, which means that the advantages of different modes of service for online mental health interventions are not limited to specific therapy attitudes. Previous studies[3,22] that compared online therapy and face-to-face therapy showed that 64.4% recommended online therapy as a good alternative for mental health needs. This provides evidence that, regardless of the mode of service, there is a generally positive attitude and openness toward online therapy due to its therapeutic effectiveness.

Limitations

The questionnaire mainly focused on gathering feedback on online mental health services, which limited the benefits and barriers of online therapy *vs.* face-to-face therapy and the applicability of blended therapy programs in mental health. Finally, the sample's mean age ranged from 16 to 39 years old, which may restrict the generalization of the findings to other age groups due to the age differences.

Recommendations

Future research should focus on client values, perceptions, and expectations from online therapy in order to promote and improve the quality and use of blended care programs of online therapy and face-to-face therapy. Further, it is suggested to recruit participants from other cities in Saudi Arabia to increase the study's generalizability for future research. Additionally, it is crucial to prioritize efforts to raise awareness about the efficacy of online mental health services.

Conclusions

The findings of this study provide evidence that COVID-19 had a significant impact on the utilization of online therapy, resulting in a notable increase in the number of users during the pandemic. This surge in usage can be attributed to the lockdown measures imposed during the health crisis, which prompted individuals to seek online therapy as a viable alternative to in-person sessions. Importantly, the study also revealed that, from the perspective of service users, online mental health services were generally effective, with the majority reporting positive experiences with online therapy. These findings highlight the significance of online interventions in addressing and providing support to individuals experiencing distress, emphasizing their role in mental health treatment and counseling.

Conflict of Interest

The authors declare that they have no conflict of interests.

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Ethics Approval

The study was carried out after getting ethical approval from the Institutional Review Board (IRB) committee of the Princess Norah bint Abdulrahman University on February 13, 2022, under registration number 22-0068.

Informed Consent
All study participants provided their written, informed consent.

Authors' Contribution
It is important to note that all authors have contributed equally to this research paper.

Availability of Data and Materials
The corresponding author will disclose data for the current study upon reasonable request.

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