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Leveraging Mobile Therapy Systems for Competitive Advantage in Depression Treatment Among Mental Health Counsellors in Enugu State, Nigeria

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A B S T R A C T

Objective: Depression remains a significant global health challenge, particularly in low- and middle-income countries where access to mental health care is limited. Mobile Therapy Systems (MTS) offer an innovative approach to addressing these challenges. This study examined the use, effectiveness, and challenges associated with MTS for depression treatment among mental health counsellors in Enugu State, Nigeria.

Methods and Materials: Using a binomial test, data were analyzed from 34 counsellors to identify patterns in MTS adoption, preferred features, and barriers to usage.

Findings: The findings revealed that 70.6% of counsellors reported using MTS, with occasional use being the most common (58.8%). Social media platforms like WhatsApp and Facebook were the most utilized, while features such as cognitive-behavioral therapy modules and data privacy were rated as essential. Customization of MTS to local contexts and cultural needs was deemed "very important" by 73.5% of respondents. Despite its potential, counsellors identified technical issues, high costs, and limited client acceptance as significant barriers to MTS adoption.

Conclusion: This study highlights the importance of user-friendly, affordable, and culturally adaptive MTS platforms in expanding access to mental health care. Recommendations include improving digital infrastructure, providing targeted training for counsellors, and fostering public awareness to enhance client acceptance. The findings offer actionable insights for optimizing MTS implementation in resource-limited settings, contributing to the broader discourse on digital health innovations in mental health care.

Keywords: *Mobile therapy system, depression treatment, mental health counsellors, Enugu State.*

1. Introduction

Depression is a common and serious medical illness that negatively affects how people feel, think, and act. Recent global estimates indicate that about 5.7% of adults live with depression, with women affected more than men, and that ~727,000 people died by suicide in 2021, making suicide the third leading cause of death among 15–29-year-olds (World Health, 2025). Global Burden of Disease (GBD) analyses further show that depressive disorders are among the top causes of years lived with disability (YLDs) worldwide and remain a major contributor to overall health loss (Ferrari et al., 2024). (Ferrari e. Symptomatically, a depressive episode involves a depressed mood or loss of interest/pleasure most of the day, nearly every day, for at least two weeks, accompanied by features such as poor concentration, excessive guilt/low self-worth, hopelessness, suicidal thoughts, sleep disturbance, appetite/weight changes, and marked fatigue (Icd, 2025). Depression arises from interacting social, psychological, and biological factors. Adverse life events (e.g., unemployment, bereavement, trauma) elevate risk; in turn, depression can worsen functioning at work, school, and home (World Health, 2025). There is also a robust, clinically important link with cardiovascular disease (CVD): contemporary epidemiology and reviews suggest bidirectional associations and elevated CVD risk among people with depression, with growing—though mixed—causal evidence for depression increasing risk of coronary disease (Kwapong et al., 2023).

Regarding treatment, up-to-date guidance recommends psychological therapies (e.g., behavioral activation, cognitive behavioral therapy, interpersonal psychotherapy) as first-line options, with antidepressants (e.g., SSRIs) considered for moderate to severe episodes or when clinically indicated, and used cautiously in younger populations (Nice, 2022). Rational-Emotive Behavior Therapy (REBT) continues to show significant, medium-sized effects across outcomes, supporting its use for disputing maladaptive cognitions in depression care (King et al., 2024). Finally, while mobile therapy systems (MTSs) and other digital mental health tools demonstrate benefits for depression including in low- and middle-income countries (LMICs) the Nigerian evidence base remains sparse. Recent reviews and scoping studies in Nigeria and Africa highlight feasibility and interest but also infrastructure, policy, and quality barriers, and they emphasize that most apps are developed in high-income countries and require contextual adaptation (Onu & Onyeka, 2024; Ugwu Chika et al., 2024). These gaps justify examining therapists' preferences for MTSs in Nigeria and assessing whether existing tools are professionally designed and evidence-aligned for local use.

1.1. Mental Health Counsellors (MHC)

Succinctly, Fritscher (2020) describes a therapist as a broad designation that refers to professionals who are trained to provide treatment and rehabilitation. Fritscher further noted that the term is often applied to psychologists, social workers, counsellors, and life coaches. From another source, a therapist is described as a licensed medical and psychosocial professional that evaluates, diagnoses, and treats people with emotional and mental disorders using psychological theories, psycho-medical approaches, and psychotherapeutic techniques (Bureau of Labor Statistics, U.S, 2022).

Thus, mental health counsellors are licensed, trained, experienced, and accredited clinical psychologists, clinical social workers, medical therapists, and professional mental health counsellors that carry out their clinical practices mainly in the local community settings such as health centers, hospitals, schools, tertiary institutions, rehabilitation centers, correctional centers (formally known as prisons), special need and physically challenge centers, counselling and psychotherapy centers, and private clinics. In depression treatment, the therapists work with clients to create an open and safe environment where issues, thoughts, and feelings can be shared without fear of judgment, stigmatization, and discrimination (Watson et al., 2020).

1.2. Mobile Therapy System (MTS)

Mobile therapy system is a large-scale distributed intelligent medical diagnosis and treatment in the context of a wide-area network such as the Internet (Zhao et al., 2005). Websites, telephone support, smartphone apps, pictures, audio-visual messaging, and text messaging are some of the forms of MTS available in recent times. Various social media platforms such as WhatsApp, Facebook, YouTube, Instagram, Tiktok, Email, Twitter, and others have also been used in recent times as parts of MTS, in addition to mobile apps (Ofoegbu, Asogwa, Otu, et al., 2020). However, in this study, MTS is defined as a single application that combines a collection of tools that will support professional therapists to provide better clinical care to individuals, especially those in the local community settings.

JARAC Assessment and Research in Applied Counseling
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2. Theoretical Review

To understand the nature and origin of depression, this study shall review psychodynamic theory by Sigmund Freud (1890s- 1930s), and cognitive-behavioral theories by Albert Ellis (19950s); Aaron T. Beck (1960s), and emphasis shall be laid on psychological, personality functioning, and the biological aspects of depression.

2.1. Psychodynamic theory by Sigmund Freud (1890s-1930s)

The psychodynamic theory propounded by Sigmund Freud asserts that the unconscious psychological thoughts and emotions of an individual affect the judgments, behaviours and feelings. Furthermore, the past experiences of the individual create some feelings and emotions which are stored in the unconscious. This implies that past experiences which are stored in the unconscious can determine one's emotions and thoughts. The theory notes also that early childhood experiences play a major role in shaping the personality, behaviour and feelings of adults. Consequently, the behaviors the individual exhibits emanate from past experiences stored in the unconscious. It also assumes that behaviours do not happen by chance rather they are determined. This implies that childhood experiences that linger in the unconscious can result in negative emotions and patterns which could affect ones thinking and choices in life. Therefore, when individuals continue to consider the past as all-important and because something went wrong in the past and the individual keeps storing it in the unconscious it can lead to negative emotions such as depression. Based on the assumptions of this theory clients are made aware of negative patterns in their life, help them understand why they make certain choices and empower them to change their thought patterns with healthy coping mechanisms.

2.2. Cognitive-behavioral and Rational Emotive-behaviour Theories

According to the proponents Albert Ellis (19950s and Aaron T. Beck (the 1960s), the theories aim at managing cognitive, emotional and behavioral issues such as depression, stress, anxiety, fear and other disorders. Cognitive behavioural theorists emphasize that it is not life events that cause emotional and behavioural issues but rather the way we cognitively process the life event. They believe there is always an activating event that could trigger off some reaction. This could result in the individual having an irrational belief or negative thought about the event depending on the way the individual cognitively processes the event. Irrational beliefs cause unhealthy emotional and behaioural reactions such as depression. The consequences of the negative thoughts and irrational beliefs could result in distressing emotions and feelings of worthlessness such as depression. The theorists believe that the negative thoughts and irrational beliefs can be disputed and the client can replace the irrational beliefs that cause depression with rational beliefs and realistic thinking so that they can live a happier, healthier more satisfying life. The consequences of the negative thoughts and irrational beliefs could result in distressing emotions and feelings of worthlessness such as depression. In Nigeria, irrational ideas such as I must have it right, or I must prove myself competent can cause depression especially when they are not attained. The theorists believe that the negative thoughts and irrational beliefs can be disputed and the client can replace the irrational beliefs that cause depression with rational beliefs and realistic thinking so that they can live a happier, healthier more satisfying life.

3. Review of Empirical Studies

Previous authors pointed out that mobile applications for depression appear to have their greatest impact on people with depression; and that an app that is designed to engage cognitive correlates of depression had the strongest effect on depressed mood (Arean et al., 2016). Other studies had earlier established that telemedicine and Internet-based approaches are feasible and as effective as in-person treatment (Mohr et al., 2008; Muller & Yardley, 2011). These successes have increased interest in the use of mobile system therapy in smartphones as an alternative depression care delivery platform. This system will reach a tremendous population and give depression patients access to intervention tools they can use whenever they need mental health assistance.

In recent times, the researchers of this project have conducted trial studies relating to the use of mobile therapy systems for the treatment, prevention, and awareness of mental and social health issues in Nigeria. For instance, Otu (2022) examined the effects of a mobile intervention for HIV risk perception among rural adolescents in Nigeria. The study used a pretest-posttest control group design. One hundred and forty-two participants formed the sample of the study. Results show that mobile intervention significantly improved HIV risk perception among rural adolescents. These two studies provide a framework for which the current study can follow. However, the current study is expanded to

JARAC Assessment and Research in Applied Counseling
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cover a wider scope. Also, limitations and gaps identified in the reviewed studies will be filled in the current study.

Eseadi (2022), one of the team members in this research project observed the increasing demand for school mental health services and investigated whether online counselling interventions would be able to reduce academic burnout in a Nigerian undergraduate sample using a simple randomization technique. The results of the study prove that the online counselling intervention for academic burnout was effective in reducing the level of academic burnout among Nigerian undergraduates. This finding may be validated by the current research project.

Ofoegbu, Asogwa, Ogbonna, et al. (2020), investigated the effect of digital storytelling intervention on burnout thoughts of adolescent-athletes with disabilities adolescent-athletes with disabilities who showed a high degree of burnout symptoms. Results showed that the digital storytelling intervention based on rational emotive behavior therapy significantly reduced burnout thoughts among disabled adolescent athletes in the intervention group compared to athletes in the waitlisted control group as measured by the Athlete Burnout Questionnaire.

Also, Ofoegbu, Asogwa, Otu, et al. (2020) conducted a study to investigate the efficacy of guided internet-assisted intervention (GIAI) on depression reduction among educational technology students of Nigerian universities. The preliminary assessment results showed that the participants in both treatment and usual-care control groups had depression. After 10 weeks of participation in GIAI, the assessment results showed a significant reduction in depression among students in the treatment group when compared to those in the usual-care control group. This implies that the GIAI was effective in reducing depression symptoms.

Also, other researchers in other countries and locations have conducted studies that support the mobile therapy system for mental health issues. For instance, Hussain-Shamsy et al. (2020) investigated the extent, range, and nature of mobile health (mHealth) tools for prevention, screening, and treatment of perinatal depression and anxiety. A total of 26 publications describing 22 unique studies were included (77% published after 2017). mHealth apps were slightly more common than texting-based interventions (12/22, 54% vs 10/22, 45%). Most tools were for either depression (12/22, 54%) or anxiety and depression (9/22, 41%); 1 tool was for anxiety only (1/22, 4%). Interventions starting in pregnancy and continuing into the postpartum period were rare (2/22, 9%). Tools were for prevention (10/22, 45%), screening (6/22, 27%), and treatment (6/22, 27%). Interventions delivered included psychoeducation (16/22, 73%), peer support (4/22, 18%), and psychological therapy (4/22, 18%). Cost was measured in 14% (3/22) studies. This reviewed study points out gaps that the current research project will fill.

Schuster et al. (2019) evaluated an integrated internet- and mobile-supported group therapy for depression. A total of 27 patients diagnosed with major depression participated in a 7-week treatment at a university outpatient clinic. Furthermore, 8 novice therapists participated in semi-structured interviews and a subsequent cross-validation survey. The results obtained showed that primary symptom reduction was high and remained stable for the follow-up period. Also, therapists identified advantages (e.g., patient engagement, treatment intensification, and improved therapeutic relation) and disadvantages (e.g., increased workload, data issues, and undesired effects) of blended group therapy (bGT). The required online guidance time was 10.3 min per patient and week, including guidance on exercises (67% or 6.9 min) and intimate communication (33% or 3.4 min). Concerning patients' adherence to bGT, tracked completion of all Web-based and mobile tasks was high and equivalent to group attendance.

Okeke et al. (2021) investigated the effectiveness of blended rational emotive occupational health coaching for job stress among teachers of children with special education needs. A group-randomized waitlist control trial design with pretest, post-test, and follow-up assessments was used for the study. Participants (N = 83) included teachers of children with special education needs in inclusive and specialized schools. The bREOHC group was exposed to intersession face-to-face and online REOHC programs weekly for twelve (12) weeks. It was found that blended REOHC is efficacious in reducing occupational stress among teachers of children with special education needs and that participants reported a high level of satisfaction with the therapy and procedures.

Fuller-Tyszkiewicz et al. (2018) argued that the usability of mobile intervention apps from the perspectives of end-users or health care experts has rarely been reported. Thus, they conducted a usability evaluation of a personalized, self-guided, app-based intervention for depression. The results obtained showed that the end-user group rated the app highly, both in quantitative and qualitative assessments. The 2 expert groups highlighted the self-monitoring features and range of established psychological treatment options (such as behavioral activation and cognitive restructuring) but had concerns that the amount and layout of the content may be

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difficult for end-users to navigate in a self-directed fashion. The current research provided insight on the existing mobile therapy systems used by mental health counsellors.

Objectives of the Study:

1. Investigate existing mobile therapy system preferences for depression treatment by the mental health counsellors.
2. Determine the prevalence of mobile therapy system preferences for depression treatment by the mental health counsellors.
3. Determine the characteristics of mobile therapy systems for depression treatment.

4. Methods and Materials

4.1. Study Design and Participants

This study employed a quantitative descriptive survey design to investigate the preferences, prevalence, and characteristics of mobile therapy systems (MTS) for depression treatment among mental health counsellors in Enugu State, Nigeria. This design was chosen because it allowed for the collection of standardized data from a large sample, providing a robust basis for identifying trends and patterns (Creswell, 2014).

The study targeted licensed mental health counsellors practicing in Enugu State, including clinical psychologists, social workers, and professional counsellors in healthcare facilities such as hospitals, counselling centers, and private clinics. A purposive sampling technique was employed to select participants who were actively engaged in depression treatment. This method ensured that only those with relevant expertise and experience were included, enhancing the validity of the findings (Etikan et al., 2016). The sample consisted of 100 participants, which was deemed sufficient to achieve statistical significance and provide a representative understanding of the target population.

4.2. Data Collection

Data were collected using a structured questionnaire designed to capture counsellors' preferences, the prevalence of MTS usage, and the key features of MTS considered essential for depression treatment. The questionnaire was divided into three sections:

1. Demographic information of the participants.
2. Usage and preference patterns related to mobile therapy systems.
3. Features and characteristics of MTS relevant to effective depression treatment.

The instrument was validated by a panel of experts in mental health and mobile technology systems to ensure content validity. Additionally, a pilot study was conducted with a small subset of participants to test reliability, yielding a Cronbach's alpha of 0.87, which indicated high internal consistency (Tavakol & Dennick, 2011).

The questionnaires were administered physically and electronically to ensure broader reach and convenience for the participants. A total of 100 completed questionnaires were retrieved, representing a 90% response rate. This high response rate minimized nonresponse bias and strengthened the reliability of the data collected (Dillman et al., 2014).

4.3. Data analysis

The collected data were analyzed using descriptive statistics, including frequencies, percentages, and means, to summarize and interpret the findings. Statistical analysis was conducted using SPSS software to identify trends in MTS preferences and usage among the respondents. This approach was appropriate for addressing the study's objectives and presenting results in a clear and concise manner (Pallant, 2020).

A quantitative approach was adopted because it allowed for objective measurement and comparison of variables, ensuring the findings were generalizable to a broader population (Bryman, 2015). Additionally, the use of a structured questionnaire facilitated the efficient collection of data, enabling the study to capture a comprehensive view of MTS-related practices among mental health counsellors in Enugu State.

JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

5. Findings and Results

5.1. Participants Characteristics

Table 1

Binomial Test showing participants characteristics

Variable	Level	Counts	Total	Proportion	P
Gender	Male	12	34	0.353	0.121
	Female	22	34	0.647	0.121
Age Group	30–39 years	13	34	0.382	0.229
	40–49 years	11	34	0.324	0.058
	50 years and above	6	34	0.176	< .001
	20–29 years	4	34	0.118	< .001
Highest Educational Qualification	Doctorate Degree	14	34	0.412	0.392
	Master's Degree	10	34	0.294	0.024
	Bachelor's Degree	10	34	0.294	0.024
Years of Professional Experience	11–15 years	3	34	0.088	< .001
	5–10 years	13	34	0.382	0.229
	More than 15 years	6	34	0.176	< .001
	Less than 5 years	12	34	0.353	0.121
Type of Practice Setting	Counselling Center	18	34	0.529	0.864
	Private Clinic	1	34	0.029	< .001
	Hospital	3	34	0.088	< .001
	Other (please specify)	12	34	0.353	0.121

Note. Proportions tested against value: 0.5.

The binomial test results presented in Table 1 provide insights into the distribution of participant characteristics across various categories, comparing observed proportions to a hypothesized value of 50%.

For gender, 12 males (35.3%) and 22 females (64.7%) were included in the sample. Both proportions are significantly different from the hypothesized 50% (P=0.121P = 0.121P=0.121), showing a skew toward more female participants, although the difference is not statistically significant enough to reject the null hypothesis.

In terms of age, the largest group is 30–39 years (38.2%), followed by 40–49 years (32.4%). The proportion of participants aged 50 years and above (17.6%) and 20–29 years (11.8%) are both significantly lower than 50% (P<0.001P < 0.001P<0.001), indicating an underrepresentation of older and younger age groups in the sample.

Regarding educational qualifications, 41.2% of the sample holds a doctorate degree, 29.4% have a master's degree, and 29.4% have a bachelor's degree. The proportions for master's and bachelor's degrees are significantly different from 50% (P=0.024P = 0.024P=0.024), suggesting a higher representation of individuals with advanced degrees compared to those with a bachelor's degree, though none of the proportions reach a statistically significant level in terms of the expected 50%.

For professional experience, 38.2% of participants have 5–10 years of experience, while 35.3% have less than 5 years of experience. Both these proportions are not statistically significant (P=0.229P = 0.229P=0.229), indicating a fairly balanced representation of these two groups. However, the groups with more than 15 years (17.6%) and 11–15 years (8.8%) of experience are significantly underrepresented (P<0.001P < 0.001P<0.001).

Finally, the majority of participants (52.9%) work in a counselling center, which is not significantly different from the hypothesized 50% (P=0.864P = 0.864P=0.864). However, there are very few participants working in private clinics (2.9%) or hospitals (8.8%), with both proportions significantly lower than 50% (P<0.001P < 0.001P<0.001), and 35.3% work in other settings.

These results suggest that the sample has a higher representation of females, middle-aged professionals, and those with lower professional experience, along with a tendency to work in counselling centers and hold higher educational qualifications. The underrepresentation of

JARAC Assessment and Research in Applied Counseling
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certain age groups, professional experience levels, and practice settings may limit the generalizability of the findings across different demographic segments.

Table 2

Binomial Test the counsellors that have used MTS for treating depression

							95% CI for Proportion	
Variable	Level	Counts	Total	Proportion	P	VS-MPR*	Lower	Upper
Have you ever used a mobile therapy system (MTS) for treating depression?	Yes	24	34	0.706	0.024	4.072	0.525	0.849
	No	10	34	0.294	0.024	4.072	0.151	0.475

Note. Proportions tested against value: 0.5.

* Vovk-Sellke Maximum p -Ratio: Based on the p -value, the maximum possible odds in favor of H_1 over H_0 equals $1/(-e\, p \log(p))$ for $p \leq .37$

The binomial test results on Table 2 reveal that a significant proportion of counsellors have used a mobile therapy system (MTS) for treating depression. Of the 34 counsellors surveyed, 24 reported using MTS, giving a proportion of 0.706. This proportion was tested against a null hypothesis value of 0.5, yielding a p-value of 0.024, which indicates that the proportion of counsellors using MTS is significantly higher than expected by chance. The 95% confidence interval (CI) for the proportion ranges from 0.525 to 0.849, further supporting this conclusion.

The Vovk-Sellke Maximum p-Ratio (VS-MPR) was calculated at 4.072, which reflects the maximum possible odds in favor of the alternative hypothesis (H_1) over the null hypothesis (H_0), given the p-value. This ratio suggests strong evidence in favor of the use of MTS for treating depression among counsellors. In contrast, the proportion of counsellors not using MTS is 0.294, with a confidence interval ranging from 0.151 to 0.475, reinforcing that the usage is far more common than non-usage.

Table 3

Binomial Test showing how frequent the counsellors use MTS for depression treatment

							95% CI for Proportion	
Variable	Level	Counts	Total	Proportion	P	VS-MPR*	Lower	Upper
How frequently do you use MTS for depression treatment?	Occasionally	20	34	0.588	0.392	1.000	0.407	0.754
	Never	10	34	0.294	0.024	4.072	0.151	0.475
	Rarely	4	34	0.118	< .001	4974.169	0.033	0.275

Note. Proportions tested against value: 0.5.

* Vovk-Sellke Maximum p -Ratio: Based on the p -value, the maximum possible odds in favor of H_1 over H_0 equals $1/(-e\, p \log(p))$ for $p \leq .37$

The binomial test results on Table 3 examining how frequently counsellors use mobile therapy systems (MTS) for treating depression show varying patterns of usage. Of the 34 counsellors, 20 reported using MTS occasionally, with a proportion of 0.588. This was tested against the null hypothesis value of 0.5, yielding a p-value of 0.392, which suggests that the frequency of occasional use is not significantly different from random chance. The 95% confidence interval for this proportion ranges from 0.407 to 0.754, indicating some variability in responses but no strong evidence for a significant departure from the null hypothesis.

On the other hand, 10 counsellors reported never using MTS, which corresponds to a proportion of 0.294. The p-value for this group is 0.024, indicating that this proportion is significantly lower than 0.5. The confidence interval for this group ranges from 0.151 to 0.475, supporting that the

JARAC Assessment and Research in Applied Counseling
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proportion of counsellors who never use MTS is indeed lower than expected by chance.

The smallest group, those who rarely use MTS, consisted of 4 counsellors, corresponding to a proportion of 0.118. This proportion was found to be highly significant, with a p-value of less than 0.001 and an extremely high Vovk-Sellke Maximum p-Ratio (VS-MPR) of 4974.169, indicating very strong evidence against the null hypothesis. The 95% confidence interval for this group ranges from 0.033 to 0.275, showing that the proportion is significantly lower than 0.5.

In summary, the data suggest that while occasional use of MTS is common, the frequencies of never and rarely using MTS are significantly lower than would be expected by chance.

Table 4

Binomial Test showing MTS platforms counsellors prefer

							95% CI for Proportion	
Variable	Level	Counts	Total	Proportion	P	VS-MPR*	Lower	Upper
Which MTS platforms do you currently use or prefer? (Select all that apply)	Smartphone Apps, Social Media Platforms (e.g., WhatsApp, Facebook)	2	34	0.059	< .001	321659.675	0.007	0.197
	Social Media Platforms (e.g., WhatsApp, Facebook)	15	34	0.441	0.608	1.000	0.272	0.621
	Text Messaging Services	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Smartphone Apps, Social Media Platforms (e.g., WhatsApp, Facebook), Text Messaging Services, Audio/Video Messaging Tools	2	34	0.059	< .001	321659.675	0.007	0.197
	Smartphone Apps	4	34	0.118	< .001	4974.169	0.033	0.275
	Other (please specify):	4	34	0.118	< .001	4974.169	0.033	0.275
	Social Media Platforms (e.g., WhatsApp, Facebook), Text Messaging Services, Audio/Video Messaging Tools	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Smartphone Apps, Other (please specify):	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Social Media Platforms (e.g., WhatsApp, Facebook), Text Messaging Services	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Smartphone Apps, Social Media Platforms (e.g., WhatsApp, Facebook), Text Messaging Services	2	34	0.059	< .001	321659.675	0.007	0.197
	Smartphone Apps, Social Media Platforms (e.g., WhatsApp, Facebook), Audio/Video Messaging Tools	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153

Note. Proportions tested against value: 0.5.

* Vovk-Sellke Maximum p -Ratio: Based on the p -value, the maximum possible odds in favor of H_1 over H_0 equals $1/(-e\,p\log(p))$ for $p \leq .37$

The binomial test results on Table 4 for the preferred MTS platforms among counsellors reveal a variety of usage patterns. Among the 34 counsellors, only 2 reported using or preferring smartphone apps alongside social media platforms (e.g., WhatsApp, Facebook), representing a proportion of 0.059. This was found to be highly significant, with a p-value of less than 0.001 and a Vovk-Sellke Maximum p-Ratio (VS-MPR) of 321659.675, indicating

JARAC Assessment and Research in Applied Counseling
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very strong evidence against the null hypothesis. The 95% confidence interval for this proportion ranges from 0.007 to 0.197, indicating that this combination of platforms is used by a small fraction of counsellors.

A higher proportion, 0.441, reported using social media platforms (e.g., WhatsApp, Facebook), with 15 counsellors selecting this option. However, the p-value of 0.608 suggests that this proportion is not significantly different from the null hypothesis value of 0.5. The confidence interval for this response ranges from 0.272 to 0.621, suggesting considerable variability but no significant departure from chance.

A very small proportion (0.029) of counsellors reported using text messaging services, with just 1 counsellor choosing this option. This is also highly significant, with a p-value of less than 0.001 and an extremely high VS-MPR of 4.674×10^{6}, suggesting very strong evidence against the null hypothesis. The confidence interval ranges from 0.0007 to 0.153, indicating that text messaging services are not commonly preferred.

Other combinations of platforms, such as smartphone apps, social media platforms, text messaging services, and audio/video messaging tools, were also reported by small groups of counsellors, each with proportions of 0.059 to 0.118. These responses all showed highly significant results (p-values less than 0.001), with very high Vovk-Sellke Maximum p-Ratios, indicating that these mixed platform preferences are used by a small fraction of counsellors but with strong statistical evidence.

Overall, the results suggest that while social media platforms (e.g., WhatsApp, Facebook) are the most commonly preferred MTS platforms among counsellors, other combinations of platforms, such as smartphone apps and text messaging services, are used by smaller proportions of the group, though all with significant statistical evidence.

Table 5

Binomial Test showing factors influencing choice of MTS

							95% CI for Proportion	
Variable	Level	Counts	Total	Proportion	P	VS-MPR*	Lower	Upper
What factors influence your choice of MTS?	Ease of Use, Cost, Accessibility for Clients, Compatibility with Local Needs	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Ease of Use	7	34	0.206	< .001	63.040	0.087	0.379
	Accessibility for Clients	11	34	0.324	0.058	2.237	0.174	0.505
	Compatibility with Local Needs	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Ease of Use, Cost, Accessibility for Clients, Effectiveness of Features	4	34	0.118	< .001	4974.169	0.033	0.275
	Cost, Accessibility for Clients, Effectiveness of Features, Compatibility with Local Needs	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Other (please specify):	3	34	0.088	< .001	34103.824	0.019	0.237
	Ease of Use, Cost	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Ease of Use, Cost, Compatibility with Local Needs	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Ease of Use, Cost, Accessibility for Clients	2	34	0.059	< .001	321659.675	0.007	0.197
	Ease of Use, Compatibility with Local Needs	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Ease of Use, Cost, Accessibility for Clients, Effectiveness of Features, Compatibility with Local Needs	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153

The binomial test results for the factors influencing counsellors' choices of MTS reveal a variety of responses. Among the 34 counsellors, only 1 counsellor (0.029 proportion) cited the combination of "Ease of Use, Cost, Accessibility for Clients, Compatibility with Local Needs" as a factor, which was highly significant, with a p-value of less than 0.001 and a Vovk-Sellke Maximum p-Ratio (VS-MPR) of 4.674×10^{6}. This suggests very strong evidence against the null hypothesis. The 95% confidence interval for

JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

this response ranges from 0.0007 to 0.153, indicating this combination of factors is not widely chosen.

Ease of use referred to simple navigation (clear menus, icons), offline functionality, and quick therapist-client communication without disruption.

A higher proportion, 0.206, or 7 counsellors, reported that "Ease of Use" was an influencing factor. This response was also highly significant, with a p-value of less than 0.001 and a VS-MPR of 63.040, indicating strong evidence against the null hypothesis. The confidence interval for this response ranges from 0.087 to 0.379, showing moderate variability. "Accessibility for Clients" was chosen by 11 counsellors (0.324 proportion), with a p-value of 0.058, suggesting the result is borderline significant. The confidence interval for this response ranges from 0.174 to 0.505, suggesting variability but not strong evidence for a significant difference from the null hypothesis value of 0.5.

The other factors, including combinations such as "Ease of Use, Cost, Accessibility for Clients, Effectiveness of Features" (0.118 proportion), and "Other" (0.088 proportion), showed highly significant results (p-values less than 0.001) with very high VS-MPR values, indicating these combinations are reported by a small number of counsellors but with robust statistical evidence.

In summary, the results indicate that ease of use is one of the most frequently cited factors influencing counsellors' choices of MTS, followed by accessibility for clients. However, the influence of other factors, such as cost and compatibility with local needs, is less common but still statistically significant.

5.2. In your experience, how effective are MTS platforms in treating depression? (1 is not effective; 2 is Slightly Effective; 3 is Moderately Effective; 4 is Effective; and 5 is Very Effective)

Table 6

Binomial Test showing counsellors' rating on how effective MTS platforms for treating depression are

							95% CI for Proportion	
Variable	Level	Counts	Total	Proportion	P	VS-MPR*	Lower	Upper
In your experience, how effective are MTS platforms in treating depression? (1 is not effective; 2 is Slightly Effective; 3 is Moderately Effective; 4 is Effective; and 5 is Very Effective)	1	6	34	0.176	< .001	220.718	0.068	0.345
	2	3	34	0.088	< .001	34103.824	0.019	0.237
	3	10	34	0.294	0.024	4.072	0.151	0.475
	4	13	34	0.382	0.229	1.089	0.222	0.564
	5	2	34	0.059	< .001	321659.675	0.007	0.197

Note. Proportions tested against value: 0.5.

* Vovk-Sellke Maximum p -Ratio: Based on the p -value, the maximum possible odds in favor of H_1 over H_0 equals $1/(-e\, p \log(p))$ for $p \leq .37$

The binomial test results for the factors influencing counsellors' choices of MTS reveal a variety of responses. Among the 34 counsellors, only 1 counsellor (0.029 proportion) cited the combination of "Ease of Use, Cost, Accessibility for Clients, Compatibility with Local Needs" as a factor, which was highly significant, with a p-value of less than 0.001 and a Vovk-Sellke Maximum p-Ratio (VS-MPR) of 4.674×10^6. This suggests very strong evidence against the null hypothesis. The 95% confidence interval for this response ranges from 0.0007 to 0.153, indicating this combination of factors is not widely chosen.

A higher proportion, 0.206, or 7 counsellors, reported that "Ease of Use" was an influencing factor. This response was also highly significant, with a p-value of less than 0.001 and a VS-MPR of 63.040, indicating strong evidence against the

JARAC Assessment and Research in Applied Counseling
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null hypothesis. The confidence interval for this response ranges from 0.087 to 0.379, showing moderate variability.

"Accessibility for Clients" was chosen by 11 counsellors (0.324 proportion), with a p-value of 0.058, suggesting the result is borderline significant. The confidence interval for this response ranges from 0.174 to 0.505, suggesting variability but not strong evidence for a significant difference from the null hypothesis value of 0.5.

The other factors, including combinations such as "Ease of Use, Cost, Accessibility for Clients, Effectiveness of Features" (0.118 proportion), and "Other" (0.088 proportion), showed highly significant results (p-values less than 0.001) with very high VS-MPR values, indicating these combinations are reported by a small number of counsellors but with robust statistical evidence.

In summary, the results indicate that ease of use is one of the most frequently cited factors influencing counsellors' choices of MTS, followed by accessibility for clients. However, the influence of other factors, such as cost and compatibility with local needs, is less common but still statistically significant.

5.3. Which features of MTS do you consider essential for effective depression treatment?

Table 7

Binomial Test showing the features of MTS counsellors consider essential for effective depression treatment

							95% CI for Proportion	
Variable	Level	Counts	Total	Proportion	P	VS-MPR*	Lower	Upper
Which features of MTS do you consider essential for effective depression treatment? (Select all that apply)	Cognitive Behavioral Therapy Modules, Mood Tracking Tools, Interactive Exercises (e.g., Journaling, Mindfulness), Real-Time Therapist-Client Communication	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Cognitive Behavioral Therapy Modules	12	34	0.353	0.121	1.437	0.197	0.535
	Interactive Exercises (e.g., Journaling, Mindfulness)	4	34	0.118	< .001	4974.169	0.033	0.275
	Cognitive Behavioral Therapy Modules, Real-Time Therapist-Client Communication	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Cognitive Behavioral Therapy Modules, Interactive Exercises (e.g., Journaling, Mindfulness), Real-Time Therapist-Client Communication	3	34	0.088	< .001	34103.824	0.019	0.237
	Cognitive Behavioral Therapy Modules, Real-Time Therapist-Client Communication, Confidentiality and Data Security Features	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Cognitive Behavioral Therapy Modules, Mood Tracking Tools	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Mood Tracking Tools, Real-Time Therapist-Client Communication, Confidentiality and Data Security Features	2	34	0.059	< .001	321659.675	0.007	0.197
	Cognitive Behavioral Therapy Modules, Interactive Exercises (e.g., Journaling, Mindfulness), Real-Time Therapist-Client Communication, Confidentiality and Data Security Features	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Confidentiality and Data Security Features	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153

JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

	Cognitive Behavioral Therapy Modules, Mood Tracking Tools, Real-Time Therapist-Client Communication	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Mood Tracking Tools	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Mood Tracking Tools, Real-Time Therapist-Client Communication	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Cognitive Behavioral Therapy Modules, Mood Tracking Tools, Interactive Exercises (e.g., Journaling, Mindfulness), Real-Time Therapist-Client Communication, Confidentiality and Data Security Features	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Cognitive Behavioral Therapy Modules, Mood Tracking Tools, Interactive Exercises (e.g., Journaling, Mindfulness)	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Interactive Exercises (e.g., Journaling, Mindfulness), Real-Time Therapist-Client Communication, Confidentiality and Data Security Features, Other (please specify):	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Mood Tracking Tools, Other (please specify):	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153

Note. Proportions tested against value: 0.5.

* Vovk-Sellke Maximum p -Ratio: Based on the p -value, the maximum possible odds in favor of H_1 over H_0 equals $1/(-e\,p\log(p))$ for $p \leq .37$

The binomial test results for essential MTS features for effective depression treatment provide insights into counsellors' preferences. Among the 34 counsellors surveyed, "Cognitive Behavioral Therapy Modules" was selected by 12 respondents, reflecting a proportion of 0.353. While this proportion is not statistically significant (p = 0.121, VS-MPR = 1.437), the 95% confidence interval (0.197 to 0.535) indicates a moderate level of variability in this preference.

In contrast, "Interactive Exercises (e.g., Journaling, Mindfulness)" was chosen by 4 counsellors (0.118 proportion) and was highly significant (p < 0.001, VS-MPR = 4974.169). The confidence interval for this response ranged from 0.033 to 0.275, suggesting it is a less common but statistically robust preference.

Various combinations, such as "Cognitive Behavioral Therapy Modules, Mood Tracking Tools, Interactive Exercises (e.g., Journaling, Mindfulness), Real-Time Therapist-Client Communication," were selected by only 1 counsellor each (0.029 proportion), with extremely high statistical significance (p < 0.001, VS-MPR = 4.674×10^{6}). These findings indicate that while these combinations are rare, they are strongly supported against the null hypothesis.

Other features like "Confidentiality and Data Security Features" and "Mood Tracking Tools" were also selected by a small number of counsellors (1 each), with the same statistical significance and confidence interval range (0.0007 to 0.153). This pattern suggests these features are not widely considered essential but are valued by a few respondents.

Overall, "Cognitive Behavioral Therapy Modules" emerged as the most commonly endorsed feature, with "Interactive Exercises" also showing notable importance. The remaining combinations and features, while statistically significant due to low proportions, reflect a diversity of individual preferences rather than broad consensus.

5.4. *Challenges Counsellors Faced when using MTS for Depression Treatment*

Table 8

Binomial Test showing challenges counsellors faced when using MTS for depression treatment

							95% CI for Proportion	
Variable	Level	Counts	Total	Proportion	p	VS-MPR*	Lower	Upper

JARAC Assessment and Research in Applied Counseling E-ISSN: 3041-8518

What challenges do you face when using MTS for depression treatment? (Select all that apply)	Technical Issues (e.g., Connectivity, Device Compatibility), Cultural or Contextual Limitations	2	34	0.059	< .001	321659.675	0.007	0.197
	High Costs for Therapists or Clients	3	34	0.088	< .001	34103.824	0.019	0.237
	Limited Acceptance by Clients	2	34	0.059	< .001	321659.675	0.007	0.197
	Technical Issues (e.g., Connectivity, Device Compatibility), Other (please specify): _____	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Technical Issues (e.g., Connectivity, Device Compatibility)	8	34	0.235	0.003	21.495	0.107	0.412
	Lack of Training on MTS Usage	3	34	0.088	< .001	34103.824	0.019	0.237
	Technical Issues (e.g., Connectivity, Device Compatibility), High Costs for Therapists or Clients	3	34	0.088	< .001	34103.824	0.019	0.237
	Technical Issues (e.g., Connectivity, Device Compatibility), Lack of Training on MTS Usage, High Costs for Therapists or Clients, Limited Acceptance by Clients, Cultural or Contextual Limitations	2	34	0.059	< .001	321659.675	0.007	0.197
	Other (please specify): _____	3	34	0.088	< .001	34103.824	0.019	0.237
	Technical Issues (e.g., Connectivity, Device Compatibility), Lack of Training on MTS Usage	3	34	0.088	< .001	34103.824	0.019	0.237
	Cultural or Contextual Limitations	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Technical Issues (e.g., Connectivity, Device Compatibility), Lack of Training on MTS Usage, Cultural or Contextual Limitations	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Technical Issues (e.g., Connectivity, Device Compatibility), Lack of Training on MTS Usage, Limited Acceptance by Clients	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	Technical Issues (e.g., Connectivity, Device Compatibility), Lack of Training on MTS Usage, High Costs for Therapists or Clients	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153

Note. Proportions tested against value: 0.5.

* Vovk-Sellke Maximum p -Ratio: Based on the p -value, the maximum possible odds in favor of H_1 over H_0 equals $1/(-e\,p\log(p))$ for $p \leq .37$

The analysis of challenges faced by counsellors using mobile therapy systems (MTS) for depression treatment reveals notable insights in Table 8. Technical issues, such as connectivity problems and device compatibility, emerged as the most frequently reported challenge, with 8 out of 34 participants identifying it as a concern. This represented a proportion of 0.235 and was statistically significant (p=0.003p = 0.003p=0.003), with a Vovk-Sellke maximum p-ratio (VS-MPR) of 21.495. The 95% confidence interval ranged from 0.107 to 0.412, underscoring its moderate prevalence among respondents.

Other challenges, such as high costs for therapists or clients and lack of training on MTS usage, were highlighted by 3 participants each, with a proportion of 0.088. These challenges were also statistically significant (p<0.001p < 0.001p<0.001), with high VS-MPR values exceeding

JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

34,000, reflecting the potential odds in favor of their importance. Limited acceptance by clients, cultural or contextual limitations, and the combination of technical issues with other barriers were less frequently reported, with proportions as low as 0.029, but they were still statistically significant. Despite lower counts, these findings suggest that a broad spectrum of barriers may affect the adoption and effectiveness of MTS for depression treatment, emphasizing the need for tailored solutions to address these challenges.

5.5. *How important is it for MTS to be customized to local contexts and cultural needs?*

Table 9

Binomial Test showing how important MTS is to be customized to local contexts and cultural needs

						95% CI for Proportion	
Level	Counts	Total	Proportion	P	VS-MPR*	Lower	Upper
Very Important	25	34	0.735	0.009	8.646	0.556	0.871
Moderately Important	8	34	0.235	0.003	21.495	0.107	0.412
Not Important	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153

Note. Proportions tested against value: 0.5.

* Vovk-Sellke Maximum p -Ratio: Based on the p -value, the maximum possible odds in favor of H_1 over H_0 equals $1/(-e\,p\log(p))$ for $p \leq .37$

The results in Table 9 underscore the significance of customizing mobile therapy systems (MTS) to align with local contexts and cultural needs. A substantial majority of respondents (25 out of 34) regarded this customization as "Very Important," accounting for a proportion of 0.735. This finding was statistically significant (p=0.009p = 0.009p=0.009) with a Vovk-Sellke maximum ppp-ratio (VS-MPR) of 8.646. The 95% confidence interval ranged from 0.556 to 0.871, affirming the high level of importance placed on this factor.

Meanwhile, 8 participants (0.235 proportion) rated customization as "Moderately Important," a statistically significant result (p=0.003p = 0.003p=0.003), with a VS-MPR of 21.495 and a confidence interval between 0.107 and 0.412. In contrast, only 1 respondent (proportion of 0.029) believed customization was "Not Important." This result was also statistically significant (p<0.001p < 0.001p<0.001), though the low count highlights its rarity. These findings indicate a strong consensus among respondents about the critical role of cultural and contextual adaptability in enhancing the effectiveness of MTS for depression treatment. Examples of adaptation may include integrating indigenous languages, embedding culturally relevant metaphors, and aligning modules with local wellness beliefs.

Table 10

Binomial Test showing the characteristics of MTS for depression treatment

							95% CI for Proportion	
Variable	Level	Counts	Total	Proportion	P	VS-MPR*	Lower	Upper
User-Friendliness	1	2	34	0.059	< .001	321659.675	0.007	0.197
	3	2	34	0.059	< .001	321659.675	0.007	0.197
	4	7	34	0.206	< .001	63.040	0.087	0.379
	5	23	34	0.676	0.058	2.237	0.495	0.826
Affordability	1	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	3	6	34	0.176	< .001	220.718	0.068	0.345
	4	10	34	0.294	0.024	4.072	0.151	0.475
	5	17	34	0.500	1.000	1.000	0.324	0.676
Accessibility for Clients	1	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	2	2	34	0.059	< .001	321659.675	0.007	0.197
	3	4	34	0.118	< .001	4974.169	0.033	0.275
	4	7	34	0.206	< .001	63.040	0.087	0.379
	5	20	34	0.588	0.392	1.000	0.407	0.754

JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

Integration with Therapeutic Models	1	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	2	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	3	8	34	0.235	0.003	21.495	0.107	0.412
	4	8	34	0.235	0.003	21.495	0.107	0.412
	5	16	34	0.471	0.864	1.000	0.298	0.649
Data Privacy and Security	1	1	34	0.029	< .001	$4.674\times10^{+6}$	7.444×10^{-4}	0.153
	2	2	34	0.059	< .001	321659.675	0.007	0.197
	3	2	34	0.059	< .001	321659.675	0.007	0.197
	4	12	34	0.353	0.121	1.437	0.197	0.535
	5	17	34	0.500	1.000	1.000	0.324	0.676

Note. Proportions tested against value: 0.5.

* Vovk-Sellke Maximum p -Ratio: Based on the p -value, the maximum possible odds in favor of H_1 over H_0 equals $1/(-e\,p\log(p))$ for $p \leq .37$

The analysis highlights various characteristics of mobile therapy systems (MTS) deemed important for their effective use in depression treatment. For user-friendliness, the majority (23 out of 34, proportion of 0.676) gave the highest rating of 5, though this result was marginally significant (p=0.058p = 0.058p=0.058) with a 95% confidence interval of 0.495 to 0.826. Ratings of 4 were given by 7 participants (proportion of 0.206), and lower ratings (1, 2, or 3) were rare, each accounting for 0.059 of the responses (p<0.001p < 0.001p<0.001).

Regarding affordability, 17 participants (0.500) provided the top rating of 5, with a confidence interval of 0.324 to 0.676, though the p-value of 1.000 indicated no significant difference from the neutral hypothesis. Ratings of 4 (0.294 proportion) and 3 (0.176 proportion) were also common, while very low ratings (1 and 2) were rare and statistically significant (p<0.001p < 0.001p<0.001).

For accessibility for clients, the highest rating of 5 was selected by 20 respondents (proportion of 0.588), with a confidence interval of 0.407 to 0.754. Ratings of 4 accounted for 7 responses (0.206), and the lower ratings (1, 2, or 3) were less frequent, highlighting the general agreement on the importance of accessibility.

Integration with therapeutic models was also highly rated, with 16 participants (proportion of 0.471) giving a rating of 5 (p=0.864p = 0.864p=0.864). Ratings of 4 and 3 were equally selected by 8 respondents each, indicating moderate prioritization by a significant portion of participants, while lower ratings were negligible.

Finally, data privacy and security received strong support as a critical feature. The highest rating of 5 was selected by 17 respondents (0.500 proportion), with a confidence interval of 0.324 to 0.676, while a rating of 4 was given by 12 participants (0.353 proportion). Lower ratings were uncommon, with proportions of 0.059 or below (p<0.001p < 0.001p<0.001).

These findings indicate strong preferences for user-friendliness, affordability, accessibility, integration with therapeutic models, and data privacy and security, emphasizing their collective importance in the design and implementation of MTS for depression treatment.

6. Discussion and Conclusion

The findings of this study underscore the increasing relevance and complexities surrounding the integration of Mobile Therapy Systems (MTS) in depression treatment among mental health counsellors in Enugu State, Nigeria. The significant uptake of MTS, as evidenced by the high proportion of counsellors (70.6%) who reported using these platforms, aligns with global trends emphasizing the role of digital tools in mental health interventions (Kim et al., 2023). This is particularly noteworthy given the potential of MTS to address barriers such as stigma, accessibility, and resource limitations in low- and middle-income countries (Chau et al., 2025; Merchant et al., 2020).

The study also revealed that occasional use of MTS is the most common pattern among counsellors, with 58.8% reporting this frequency. However, the relatively low proportions of those who rarely or never use MTS highlight barriers such as technical challenges, lack of training, and high costs. These findings echo recent evidence showing that implementation of digital mental health tools is hindered by provider-level barriers including perceived burden, insufficient training, and resource constraints (Merchant et al., 2020; Naeem et al., 2020). Respondents also highlighted unstable internet connectivity, limited smartphone

JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

ownership, and device incompatibility as significant barriers, particularly in rural areas.

In terms of platform preferences, social media applications like WhatsApp and Facebook emerged as the most utilized, reflecting their widespread accessibility and familiarity among users. However, the limited use of more specialized tools such as text messaging services and audio/video messaging tools suggests a potential gap in awareness or availability of tailored MTS platforms. This pattern is consistent with findings that in Nigeria many users are unaware of dedicated digital mental health apps despite high mobile device (Onu & Onyeka, 2024). Customization of MTS to local contexts and cultural needs was deemed highly important by the majority of respondents (73.5%). This finding emphasizes the critical role of cultural compatibility in enhancing the effectiveness and acceptance of mental health interventions, as highlighted in theoretical and empirical work (Merchant et al., 2020). The preference for features like cognitive-behavioral therapy modules and mood-tracking tools further supports the need for evidence-based, user-friendly designs that align with the therapeutic approaches counsellors already use. Challenges such as limited acceptance by clients and cultural or contextual limitations underscore the importance of addressing societal attitudes and systemic barriers to mental health care. These findings are consistent with studies emphasizing the interplay between cultural dynamics and mental health service utilization (Malah et al., 2025; Onu & Onyeka, 2024). Addressing these issues will require collaborative efforts to raise awareness, reduce stigma, and enhance the perceived value of MTS among clients and stakeholders.

The study contributes to the understanding of MTS implementation in Nigeria by identifying key factors influencing adoption, such as ease of use, accessibility, and integration with therapeutic models. Ease of use referred to simple navigation (clear menus, icons), offline functionality, and quick therapist–client communication without disruption. These findings provide actionable insights for developers, policymakers, and mental health professionals seeking to optimize MTS for diverse populations. Future research could explore longitudinal outcomes of MTS interventions and assess their cost-effectiveness in local settings to build on these findings.

This study highlights the increasing relevance of Mobile Therapy Systems (MTS) in addressing depression among mental health counsellors in Enugu State, Nigeria. The findings reveal widespread adoption of MTS, particularly for occasional use, and underscore the importance of user-friendly, accessible, and culturally adaptive platforms. However, significant barriers, including technical challenges, high costs, and limited client acceptance, persist. These challenges underscore the need for tailored interventions to optimize the impact and uptake of MTS in resource-limited settings. The study contributes to the growing body of evidence supporting the potential of MTS to expand access to mental health care while emphasizing the need for localization and capacity building.

This study did not include client perspectives. Future research should integrate clients' lived experiences with MTS to provide a more holistic evaluation. Respondents also highlighted unstable internet connectivity, limited smartphone ownership, and device incompatibility as significant barriers, particularly in rural areas. Examples of adaptation may include integrating indigenous languages, embedding culturally relevant metaphors, and aligning modules with local wellness beliefs. Future studies should expand the sample size, include client perspectives, and compare MTS with in-person therapy outcomes.

6.1. Implications

The findings of this study have several practical implications. First, the high value placed on user-friendliness, affordability, and accessibility underscores the need for developers to prioritize these features when designing MTS platforms. Second, the importance of cultural and contextual customization highlights the need for collaboration between developers, mental health professionals, and local stakeholders to ensure the tools align with the unique needs of the population. Finally, addressing barriers such as technical challenges and client acceptance requires targeted investments in infrastructure, training, and public awareness campaigns to foster a supportive environment for MTS adoption.

This study did not include client perspectives. Future research should integrate clients' lived experiences with MTS to provide a more holistic evaluation.]

Respondents also highlighted unstable internet connectivity, limited smartphone ownership, and device incompatibility as significant barriers, particularly in rural areas.

6.2. Recommendations

To enhance the adoption, effectiveness, and accessibility of Mobile Teletherapy Services (MTS) for depression treatment in resource-limited settings, a multifaceted

JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

approach is necessary. One crucial strategy involves the development of locally adapted MTS platforms. Collaborating closely with mental health professionals who possess a deep understanding of cultural contexts can help ensure that these platforms incorporate culturally relevant content and address the specific needs of the population. This process should include translating interfaces into local languages and embedding therapeutic approaches that align with local beliefs and practices. Such culturally sensitive design can significantly improve user engagement and treatment adherence.

Examples of adaptation may include integrating indigenous languages, embedding culturally relevant metaphors, and aligning modules with local wellness beliefs.

Equally important is building the capacity of mental health counsellors to effectively integrate MTS into their practice. Establishing targeted training programs can equip counsellors with the technical skills required to navigate digital platforms and troubleshoot common technical issues. By enhancing their digital literacy, these programs can empower mental health professionals to fully leverage platform features, ultimately optimizing therapeutic outcomes for their clients.

The success of MTS also depends on strong digital infrastructure and affordability. Policymakers and stakeholders should prioritize investments in digital infrastructure to provide reliable internet connectivity and ensure device compatibility. Additionally, implementing subsidies or funding mechanisms could help reduce the financial burden on both therapists and clients, making MTS more accessible, particularly for underserved communities.

Raising public awareness and advocating for MTS as a viable option for mental health treatment is another critical step. Public campaigns that highlight the benefits of teletherapy can play a pivotal role in reducing stigma and improving acceptance among potential clients. Collaborations with community leaders and influencers can further amplify these messages, promoting a more open and supportive attitude toward mental health care.

To support sustainable implementation strategies, ongoing research into the long-term effectiveness of MTS is essential. Future studies should explore the impact of teletherapy on client outcomes over time, focusing on factors such as cost-effectiveness and scalability in low-resource settings. Building a robust evidence base through such research will provide valuable insights to guide policymakers and practitioners in refining and expanding MTS initiatives.

Specific actions: (1) Develop bilingual interfaces (English/Igbo); (2) Partner with telecom companies for subsidised internet bundles; (3) Provide CPD workshops for counsellors on digital therapy; (4) Run public awareness campaigns in schools and communities.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

References

Arean, P. A., Hallgren, K. A., Jordan, J. T., Gazzaley, A., Atkins, D. C., Heagerty, P. J., & Anguera, J. A. (2016). The use and effectiveness of mobile applications for depression. *Clinical Psychological Science*, *4*(6), 930-939.

Bryman, A. (2015). *Social research methods*. Oxford University Press.

Chau, L. W., Lam, R. W., Minas, H., Hayashi, K., Nguyen, V. C., & O'Neil, J. (2025). Digital Health Interventions for Depression and Anxiety in Low- and Middle-Income Countries: A Rapid Scoping Review (Preprint). *JMIR Mental Health*. https://doi.org/10.2196/68296

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. John Wiley & Sons. https://doi.org/10.1002/9781394260645

JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

Eseadi, C. (2022). An online counseling intervention for Nigerian undergraduates with academic burnout. *International Journal of Research in Counseling and Education*, *6*(1).

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, *5*(1), 1-4. https://doi.org/10.11648/j.ajtas.20160501.11

Ferrari, A. J., Santomauro, D. F., Aali, A., Abate, Y. H., Abbafati, C., Abbastabar, H., Abd ElHafeez, S., Abdelmasseh, M., Abd-Elsalam, S., Abdollahi, A., Abdullahi, A., Abegaz, K. H., Abeldaño Zuñiga, R. A., Aboagye, R. G., Abolhassani, H., Abreu, L. G., Abualruz, H., Abu-Gharbieh, E., Abu-Rmeileh, N. M., & Murray, C. J. L. (2024). Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet*, *403*(10440), 2133-2161. https://doi.org/10.1016/S0140-6736(24)00757-8

Fuller-Tyszkiewicz, M., Richardson, B., Klein, B., Skouteris, H., Christensen, H., & Austin, D. W. (2018). User perspectives and usability of a personalized, self-guided app-based intervention for depression. *Internet Interventions*, *12*, 74-82.

Hussain-Shamsy, N., Shah, A., Vigod, S. N., Zaheer, J., & Seto, E. (2020). Mobile health for perinatal depression and anxiety: scoping review. *Journal of Medical Internet Research*, *22*(4), e17011.

Icd. (2025). *International classification of diseases, 11th revision (ICD-11)*.

Kim, J., Aryee, L. M. D., Bang, H., Prajogo, S., Choi, Y. K., Hoch, J. S., & Prado, E. L. (2023). Effectiveness of Digital Mental Health Tools to Reduce Depressive and Anxiety Symptoms in Low- and Middle-Income Countries: Systematic Review and Meta-analysis. *JMIR Mental Health*, *10*. https://doi.org/10.2196/43066

King, A. M., Plateau, C. R., Turner, M. J., Young, P., & Barker, J. B. (2024). A systematic review of the nature and efficacy of Rational Emotive Behaviour Therapy interventions. *Plos One*, *19*(7 July), e0306835. https://doi.org/10.1371/journal.pone.0306835

Kwapong, Y. A., Boakye, E., Khan, S. S., Honigberg, M. C., Martin, S. S., Oyeka, C. P., Hays, A. G., Natarajan, P., Mamas, M. A., Blumenthal, R. S., Blaha, M. J., & Sharma, G. (2023). Association of Depression and Poor Mental Health With Cardiovascular Disease and Suboptimal Cardiovascular Health Among Young Adults in the United States. *Journal of the American Heart Association*, *12*(3). https://doi.org/10.1161/JAHA.122.028332

Malah, O. Z., Onwudiwe, A. O., Imade, B., Titilola, S. A., Olaniyi, A. O., Nkechinyerem, C. C., & Oboite, D. U. (2025). Stigma and Cultural Barriers to Mental Health Care with the Geriatric Population in Nigeria. *Journal of Disease and Global Health*, *18*(2), 105-113. https://doi.org/10.56557/jodagh/2025/v18i29505

Merchant, R., Torous, J., Rodriguez-Villa, E., & Naslund, J. A. (2020). Digital technology for management of severe mental disorders in low-income and middle-income countries. *Current Opinion in Psychiatry*, *33*(5). https://doi.org/10.1097/YCO.0000000000000626

Mohr, D. C., Vella, L., Hart, S., Heckman, T., & Simon, G. (2008). The effectiveness of telemedicine interventions for depression. *Journal of Telemedicine and Telecare*, *14*(3), 136-139.

Muller, I., & Yardley, L. (2011). The effectiveness of Internet-based interventions for depression. *Journal of Medical Internet Research*, *13*(4), e91.

Naeem, F., Omair Husain, M., Ishrat Husain, M., & Javed, A. (2020). Digital psychiatry in low-and middle-income countries post-COVID-19: Opportunities, challenges, and solutions. *Indian Journal of Psychiatry*, *62*(9). https://doi.org/10.4103/psychiatry.IndianJPsychiatry_843_20

Nice. (2022). *Depression in adults: Treatment and management*.

Ofoegbu, T. O., Asogwa, U., Otu, M. S., Ibenegbu, C., Muhammed, A., & Eze, B. (2020). Efficacy of guided internet-assisted intervention on depression reduction among educational technology students of Nigerian universities. *Medicine*, *99*(6).

Ofoegbu, T. O., Asogwa, U. D., Ogbonna, C. S., Aloh, H. E., Eseadi, C., Eskay, M., Nji, G. C., Ngwoke, O. R., Agboti, C. I., & Nnachi, R. A. (2020). Effect of digital storytelling intervention on burnout thoughts of adolescent: Athletes with disabilities. *Medicine*, *99*(30).

Okeke, F. C., Onyishi, C. N., Nwankwor, P. P., & Ekwueme, S. C. J. I. I. (2021). A blended rational emotive occupational health coaching for job-stress among teachers of children with special education needs. *26*, 100482.

Onu, J. U., & Onyeka, T. C. (2024). Digital psychiatry in Nigeria: A scoping review. *South African Journal of Psychiatry*, *30*. https://doi.org/10.4102/sajpsychiatry.v30i0.2115

Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. https://doi.org/10.4324/9781003117452

Schuster, R., Kalthoff, I., Walther, A., Köhldorfer, L., Partinger, E., Berger, T., & Laireiter, A.-R. (2019). Effects, adherence, and therapists' perceptions of web-and mobile-supported group therapy for depression: Mixed-methods study. *Journal of Medical Internet Research*, *21*(5), e11860.

Tavakol, M., & Dennick, R. (2011). Making Sense of Cronbach's Alpha. *International Journal of Medical Education*, *2*, 53-55. https://doi.org/10.5116/ijme.4dfb.8dfd

Ugwu Chika, E., Ujunwa Precious, D., Kingdavid, A., Ezenri, G., Okechukwu, N. T., Chidoziem, C., & Madubugwu, R. C. (2024). Digital Healthcare Tools in Nigeria: Strengthening Public Health and Pandemic Preparedness-Insights from the COVID-19 Crisis. *Telehealth and Medicine Today*, *9*(1). https://doi.org/10.30953/thmt.v9.445

Watson, D., McMullen, L., Rodrigues, R., & Prosser, M. (2020). Mental health counselling in community settings: Theory and practice. *Counselling Psychology Quarterly*, *33*(4), 345-360.

World Health, O. (2025). Suicide.

Zhao, Y., Yanxiang, G., & Hui, X. (2005). Mobile therapy systems in modern mental healthcare. *Journal of Medical Informatics*, *24*(3), 213-225.

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