

Implementation of telepsychiatry in limited-resource settings: A perspective from Burkina Faso.

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Abstract

Background: Access to mental health services in limited-resource settings such as Burkina Faso remains a major challenge, particularly in rural areas where there is a shortage of specialized personnel and infrastructure constraints. Telepsychiatry, a subset of telemedicine, offers a potential solution by facilitating the delivery of psychiatric care remotely.

Objective: This study examines the knowledge, attitudes, and practices (KAP) of mental health professionals in limited-resource settings, based on Burkina Faso's case. It regards telepsychiatry and identifies key factors for successful implementation.

Methods: This cross-sectional descriptive study was conducted between February and September 2024 among 104 mental health professionals in several mental health centers in Burkina Faso. The sample size was calculated using OpenEpi. Data were collected via structured questionnaires distributed via Kobo Collect, which assessed participants' sociodemographic characteristics, familiarity with telepsychiatry, attitudes, and perceived barriers to its adoption.

Results: The study achieved a 100% response rate. The result found that 64.42% of respondents had a good awareness of telepsychiatry, while 51.92% expressed a positive attitude towards its deployment. However, significant concerns regarding data security were raised, with 52.88% expressing apprehensions regarding confidentiality. Telepsychiatry practices were largely limited to telephone consultations (52.88%), with infrastructural and technological limitations identified as the main barriers to wider adoption.

Conclusions: Telepsychiatry is generally well received by mental health professionals in limited-resource settings such as Burkina Faso, but its successful implementation requires overcoming critical barriers such as infrastructure deficiencies, training gaps, and data privacy concerns. The findings highlight the need for targeted investments in infrastructure, regulatory frameworks, and training to ensure the successful adoption of telepsychiatry.

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Original Manuscript

Original paper

Implementation of telepsychiatry in limited-resource settings: A perspective from Burkina Faso.

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Keywords: Telepsychiatry; Burkina Faso; Mental health; Implementation; Knowledge; Attitudes; Practices

Introduction

The burden of mental health disorders in low- and middle-income countries (LMICs), particularly in sub-Saharan Africa, is compounded by limited access to mental health care and a shortage of health professionals [1]. In Burkina Faso, mental health services are often concentrated in urban centers, leaving rural populations underserved. Inaccessibility of care in these areas is further compounded by security challenges posed by terrorism and internal displacement, factors that have increased demand for mental health services [2].

Telepsychiatry, a branch of telemedicine, offers a promising solution to address the care gap by providing psychiatric services remotely, using information and communication technologies (ICTs) to connect patients with mental health professionals [3]. Studies in other low- and middle-income countries have demonstrated the effectiveness of telepsychiatry in improving access to care, reducing travel constraints, and addressing shortages of mental health workers [4].

In developed countries, telepsychiatry has already been integrated into health systems to address disparities in access to psychiatric services, particularly in rural or underserved areas [5]. Similarly, studies in low- and middle-income countries such as South Africa [6] highlight the growing interest in digital health solutions to extend health services, including mental health care, to geographically remote populations. However, successful implementation of telepsychiatry requires that health care providers are adequately informed, trained, and supportive of this technology. This study examines the knowledge, attitudes, and practices of mental health professionals in Burkina Faso regarding telepsychiatry and identifies critical factors for its implementation in the country.

Methods

Study design and setting

This cross-sectional study was conducted between February and September 2024 in various mental health centers in Burkina Faso. The study aimed to assess the knowledge, attitudes, and practices of mental health professionals regarding telepsychiatry, with a focus on identifying barriers to its implementation. Study sites were selected to represent urban and rural areas, providing a comprehensive view of the national mental health workforce.

Studied population

The study population included 104 mental health professionals, psychiatrists, mental health assistants, and psychiatry residents. Inclusion criteria were mental health professionals actively practicing at the time of the survey and willing to participate. Administrative staff and non-medical

staff were excluded from the study.

Sample size and sampling technique

The sample size was calculated using OpenEpi, targeting a 95% confidence interval with a 5% margin of error. In Burkina Faso, the national density of mental health professionals is critically low, with approximately 0.7 professionals per 100,000 inhabitants [7], amounting to an estimated total of 142 practitioners. For this study, sample size calculations estimated that a minimum of 104 participants was necessary to achieve adequate statistical power. Accordingly, 104 professionals were recruited through non-probability sampling. Participants were distributed according to whether they worked in an urban or rural setting.

Data collection tools

Data were collected using a structured questionnaire, administered digitally via the KoboCollect app. The questionnaire was divided into four sections: (1) sociodemographic characteristics, (2) knowledge of telepsychiatry, (3) attitudes toward telepsychiatry, and (4) current practices. Responses were rated on a five-point Likert scale to assess participants' familiarity with telepsychiatry, their perceptions of its benefits, and their concerns about implementation challenges.

Statistical analysis

Data were analyzed using STATA version 14. Descriptive statistics were used to summarize participants' sociodemographic characteristics and KAP scores. Associations between sociodemographic factors and KAP scores were explored using Chi-square tests, with statistical significance set at $p < 0.05$. Binary logistic regression was performed to identify potential predictors of positive attitudes toward telepsychiatry.

Results

Sociodemographic characteristics

The study achieved a 100% response rate, with 104 professionals responding to the questionnaire. Of the respondents, 66.35% were male and 49.04% were between 35 and 44 years old. Most respondents (77.88%) worked in urban areas, and 77.88% had between 1 and 5 years of professional experience (Table 1).

Table 1: Sociodemographic distribution of participants

Variables	Categories	Staff (n)	Percentage (%)
Age	25-34 years old	37	35.58

Variables	Categories	Staff (n)	Percentage (%)
	35-44 years old	51	49.04
	45-54 years old	13	12.50
	55 years or older	3	2.88
Sex			
	Female	35	33.65
	Male	69	66.35
Grade			
	Mental Health Officer	42	40.38
	Specialist Doctor (DES)	53	50.96
	Doctor psychiatrist	9	8.65
Years of experience			
	1-5 years	81	77.88
	6-10 years	9	8.65
	More than 10 years	14	13.46
Place of practice			
	Urban	81	77.88
	Rural	23	22.12

Knowledge of telepsychiatry

Among the respondents, 64.42% demonstrated a high level of knowledge of telepsychiatry, scoring above average in the knowledge section of the questionnaire (Table 2). However, a significant proportion (49.04%) reported not knowing the specifics of telepsychiatry technologies, such as virtual consultation platforms and data-sharing protocols.

Attitudes towards telepsychiatry

A positive attitude toward telepsychiatry was observed among 51.92% of respondents. Many respondents (53.85%) believed that telepsychiatry could improve access to mental health care, while 54.81% believed that it could reduce the stigma associated with seeking mental health services. However, concerns about data privacy were significant, with 52.88% of respondents expressing apprehension about the security of patient information during telepsychiatry sessions (Table 2).

Telepsychiatry practices

Regarding current practices, 52.88% of respondents reported using telepsychiatry in the form of telephone consultations with patients, especially in rural areas where access to psychiatric care is limited. However, the use of advanced telepsychiatry platforms was minimal, largely due to the lack of infrastructure and technological support (Table 2). Despite current usage patterns, the majority of professionals—88.46%—acknowledge that telepsychiatry would be highly beneficial in their daily practice.

Table 2: Distribution of knowledge, attitudes and practices regarding telepsychiatry.

Category	Level	Staff (n)	Percentage (%)
Level of knowledge			
	Low knowledge (<8)	37	36.58
	Good knowledge (≥8)	67	64.42
Attitude level			
	Negative attitude (<10)	50	48.08
	Positive attitude (≥10)	54	51.92
Telepsychiatry practices			
	Irregular practice (<8)	49	47.12
	Regular practice (≥8)	55	52.88

Associations of sociodemographic data with Knowledge, Attitudes and Practices in telepsychiatry

The study results, as shown in Table 3, demonstrate significant associations between sociodemographic characteristics and knowledge and attitudes toward telepsychiatry among mental health professionals in Burkina Faso. Knowledge of telepsychiatry was significantly related to years of experience and practice location, with participants who had 1 to 5 years of experience displaying better knowledge ($p = 0.02$) and those from urban areas displaying higher levels of knowledge compared to those from rural settings ($p = 0.04$). However, there was no significant association between knowledge and age or gender. Attitudes toward telepsychiatry were significantly associated with age and gender, with younger professionals (25-34 years) displaying more negative attitudes than older ones ($p = 0.03$), and men were more likely to have negative attitudes than women ($p = 0.05$). Conversely, telepsychiatry practices showed no significant association with sociodemographic characteristics, including age, gender, years of experience, or practice location ($p = 0.59$). These results highlight the influence of some demographic factors on knowledge and attitudes but indicate that telepsychiatry practices remain similar across different groups of professionals.

Table 3: Association between knowledge, attitudes, practices and sociodemographic characteristics

Variables	Awareness			Attitude			Practices		
	Low knowledge (n)	High knowledge (n)	p-value	Negative attitude	Positive attitude	p-value	Irregular practice	Regular practice	p-value

			(n)	e (n)	(n)	e (n)	
Sex			0.12		0.05		0.06
Female	16	19	12	23		21	14
Male	21	48	38	31		28	41
Age			0.74		0.03		0.59
25-34	14	23	24	13		20	17
35-44	19	32	18	33		21	30
45-54	4	9	7	6		7	6
55+	0	3	1	2		1	2
Occupation			0.26		0.10		0.80
Mental health attendant	11	31	16	26		18	24
Resident physician (specialization)	22	31	31	22		27	26
Psychiatrist	4	5	3	6		4	5
Experience			0.02		0.65		0.61
1-5 years	34	47	40	41		39	42
6-10 years old	2	7	5	4		5	4
>10 years	1	13	5	9		5	9
Place of practice			0.04		0.98		0.07
Rural	4	19	11	12		7	16
Urban	33	48	39	42		42	39

Associations between Knowledge, Attitudes and Practices in telepsychiatry

The study found no association between the Knowledge levels of mental health professionals, their various attitudes, and their practices in telepsychiatry, as shown in Table 4 ($p > 0.05$).

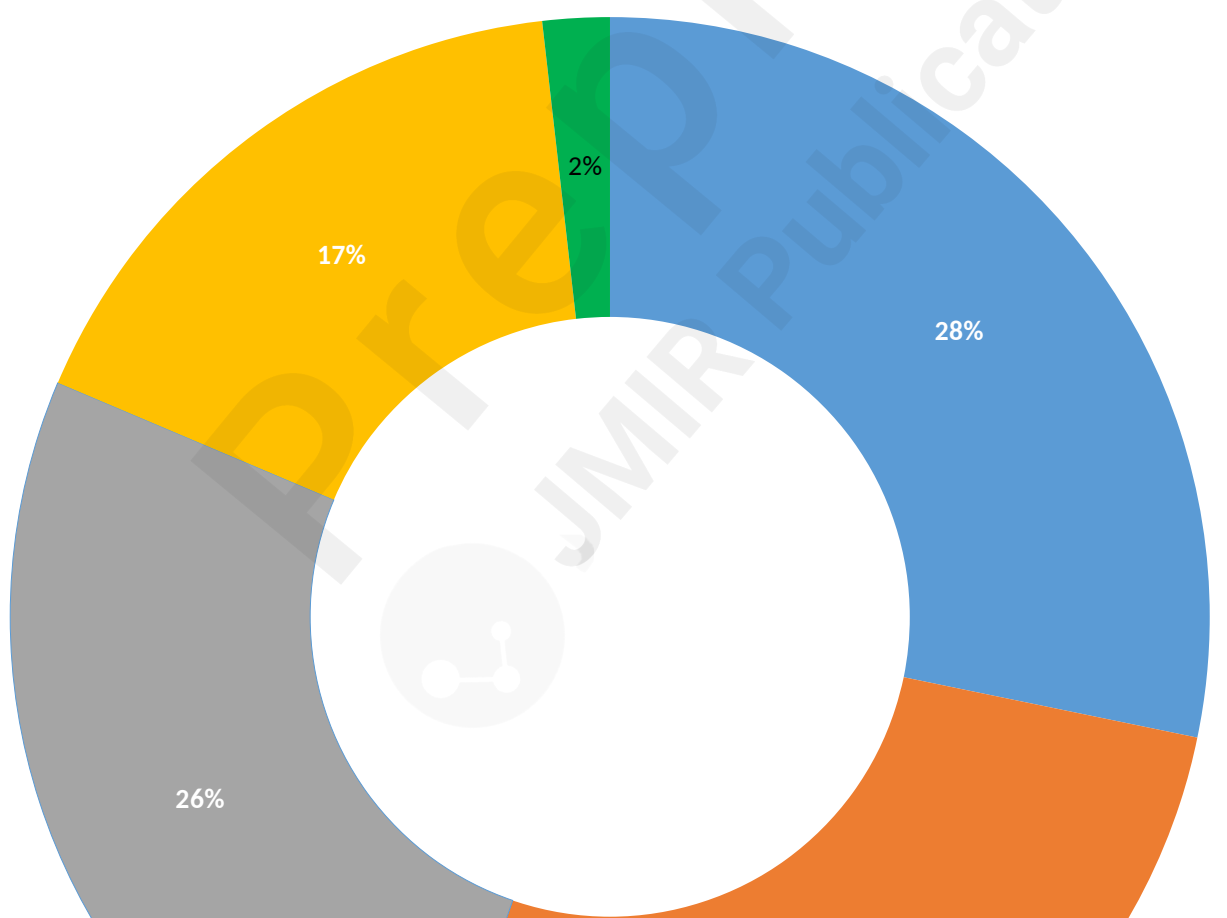
Table 4: Association between Knowledge, Attitudes and Practices of Telepsychiatry Awareness

Variables	Weak	Good	P
Attitude			
Negative	18	32	0.93

positive	19	35	
Practical			
Irregular	20	29	0.29
Regular	17	38	

Key steps and support for successful implementation of telepsychiatry

Based on the results of this study, as shown in Figure 1, several key steps are required for the successful implementation of telepsychiatry in Burkina Faso. Respondents to the survey conducted between February and September 2024 highlighted the following elements in order of importance: staff training (24%), technological infrastructure (22%), regulation and legal frameworks (21%), financial monitoring (19%), and international collaboration (11%). To support these efforts, Figure 2 identifies the types of support needed, including staff training (28%), access to technological resources (27%), financing (27%), and partnerships with international organizations (17%). These findings are essential to overcome barriers and ensure the successful deployment of telepsychiatry in the country.



■ Staff training ■ Access to technological resources ■ Funding ■ Partnerships with international organization
■ Others

Discussion

Our results indicate that mental health professionals in Burkina Faso generally possess an average to good level of knowledge about telepsychiatry, with 64.42% scoring above average in familiarity with the concept. This level of knowledge is comparable to findings from other low- and middle-income countries, such as Nigeria, where 81.3% of health professionals demonstrate a solid understanding of digital health tools [8]. This finding aligns with research suggesting that exposure to new information and communication technologies (ICT) is gradually increasing among healthcare professionals, even in resource-constrained settings. The exposure may be particularly pronounced among younger professionals who are more familiar with technology, as noted by previous studies [9]. However, it is important to consider that the level of familiarity with telepsychiatry in our study might also reflect the evolving landscape of digital health in Burkina Faso, which is witnessing increasing efforts to integrate digital tools into healthcare systems.

Older professionals, particularly those who are considered "digital immigrants"[9], may face challenges in adapting to telepsychiatry, which often requires proficiency with new technologies. As these professionals are typically less inclined to engage with ICT, the introduction of telepsychiatry might require additional training and support to overcome this barrier. This is consistent with findings from studies in other countries, such as India, where healthcare workers with less technological experience require more intensive training to successfully adopt telemedicine [10]. Our study's findings indicate that younger professionals, typically digital natives, are more likely to engage with telepsychiatry and are potentially key to driving its success in Burkina Faso. They are likely to be more open to using digital health tools as part of their practice, as evidenced in studies from various countries [10].

Our study's significant association between knowledge and professional experience suggests that older professionals may require additional training in telepsychiatry compared to their younger counterparts. Although younger professionals have shown a higher level of comfort with digital tools, older professionals can also learn and adopt new technologies, though at a slower pace. This dynamic is essential when planning for large-scale telepsychiatry implementation in Burkina Faso. Training programs should be tailored to address the needs of both groups, focusing on enhancing the technical skills of older professionals without undermining the enthusiasm of younger ones. Such a balanced approach has been recommended in studies from Sub-Saharan African countries where mixed-age teams were involved in telemedicine projects [11].

Attitudes toward telepsychiatry were generally positive, with over half (51.92%) of respondents expressing optimism about its benefits. These results are in line with studies conducted in India, Nigeria, and other African countries [3], where telepsychiatry has been embraced for its potential to expand access to mental health services, especially in rural or underserved areas [12]. The positive attitude toward telepsychiatry in Burkina Faso may also be attributed to the critical shortage of psychiatrists, particularly in rural regions. This shortage has created a substantial demand for alternative care models, and telepsychiatry offers a feasible and scalable solution [13]. The application of telepsychiatry is seen as a way to bridge the gap between the demand for mental health services and the limited availability of healthcare professionals.

Despite this general acceptance, some practitioners expressed hesitance, not due to patient resistance, but because of the behavioural and logistical adjustments that telepsychiatry requires [14]. This hesitation is common when implementing new healthcare models, particularly in settings where traditional face-to-face consultations have been the norm. Previous studies on telemedicine adoption have highlighted similar challenges, noting that healthcare workers often face difficulties in adjusting to new consultation methods and technology platforms [15]. It is therefore essential to provide clear, thorough, and ongoing training to healthcare professionals to ensure that they are confident in using telepsychiatry platforms. Additionally, providing robust technical support during the initial stages of implementation can alleviate concerns about the operational challenges of telepsychiatry, as recommended in studies from Kenya and Uganda [16,17].

Data privacy was a prominent concern among participants, with 52.88% expressing apprehensions about the security of patient data during telepsychiatry consultations. This finding is consistent with global concerns about data security in telemedicine and telepsychiatry. Previous studies have pointed out that data privacy and security are crucial factors for successful telemedicine adoption, particularly in low- and middle-income countries, where there is often a lack of secure infrastructure for digital health services [18]. The apprehensions of healthcare professionals in Burkina Faso emphasize the need for the establishment of robust data protection policies and secure data transmission systems. This will ensure that both patients and healthcare providers feel confident in adopting telepsychiatry. Moreover, healthcare providers should be trained on data protection protocols to ensure compliance with national and international regulations.

Although telepsychiatry is still in its early stages of implementation in Burkina Faso, with the primary mode of communication being basic phone consultations, there is enthusiasm for its

potential [19]. A strong majority of mental health professionals (88.5%) recognized telepsychiatry's usefulness in their daily practice, and 44.2% believed it would be highly effective for patient follow-up. These findings are similar to those observed in studies from other regions where telepsychiatry has been found to enhance the efficiency of care delivery [20]. In rural areas of Burkina Faso, where mental health services are limited, telepsychiatry could significantly improve accessibility. This suggests that rural regions in Burkina Faso may serve as ideal pilot sites for telepsychiatry, particularly in areas lacking specialized mental health services.

The importance of comprehensive training, infrastructure development, and financial support for telepsychiatry initiatives cannot be overstated. Previous studies have highlighted that successful telemedicine implementation depends on these factors [21]. Adequate training of healthcare professionals, investment in infrastructure (such as reliable internet and secure platforms), and sustainable financial planning are all-essential to the long-term success of telepsychiatry. Without these foundational elements, the potential of telepsychiatry to improve mental health care accessibility may not be fully realized.

Overall, telepsychiatry offers a promising pathway to improving mental health service accessibility in Burkina Faso, especially in rural and underserved regions. However, addressing critical barriers such as training, infrastructure, data security, and healthcare professional engagement will be pivotal for effective deployment. Given the positive attitudes of healthcare workers and the potential benefits identified in our study, Burkina Faso could serve as a model for telepsychiatry implementation in other low-resource settings, especially with the involvement of digital natives and a robust implementation strategy.

Finally, factors influencing knowledge and attitudes, such as location of practice, years of experience, age, and gender, should be carefully considered in the planning of telepsychiatry programs. Consistent with the Nigerian study, we found no significant associations between these factors and practices. However, it is crucial to continue exploring how these variables interact with the adoption of telepsychiatry in future studies.

Limitations of study

This study has several limitations. First, the sample size may not fully represent the diversity of mental health professionals across Burkina Faso, limiting generalizability, especially in rural areas. Second, self-reported data may introduce bias, as respondents could overestimate their familiarity or support for telepsychiatry. Additionally, the study's cross-sectional design captures data at one point

in time, limiting insights into changes over time. Finally, technological and infrastructure limitations in Burkina Faso may have influenced responses, particularly concerning data privacy and telepsychiatry practices, highlighting the need for further research to guide sustainable implementation.

Conclusion

This study provides important insights into the willingness of mental health professionals in limited-resource settings such as Burkina Faso to adopt telepsychiatry. Although many participants expressed positive attitudes toward telepsychiatry and demonstrated a good understanding of its potential benefits, significant concerns regarding data security and infrastructure limitations must be addressed. Targeted investments in training, technology, and legal frameworks will be essential for the successful implementation of telepsychiatry in the country.

Further research is needed to explore the economic and legal aspects of deploying telepsychiatry, as well as to assess the acceptability of this technology to patients. The results of this study can serve as a basis for future initiatives aimed at improving access to mental health services in Burkina Faso or other limited-resource settings through telepsychiatry.

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Author Contributions

AKA conducted the literature review, drafted the research protocol, collected and processed data, and prepared the initial manuscript. IO contributed to the research protocol, provided revisions, and improved the manuscript. KD assisted with literature review, survey development, and data collection. KK supervised the study and contributed to the manuscript. All authors reviewed and approved the final manuscript.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Abbreviations

ICTs: Information and communication technologies

KAP: Knowledge, attitudes, and practices

LMICs: Low- and middle-income countries

Supplementary information

- Additional file 1. Survey instrument

- Additional file 2. Tables of detailed results according to the different sections of the survey instrument (knowledge, attitudes, practices of telepsychiatry)

Availability of data and materials: The datasets supporting the conclusions of this article are included in the article and its supplementary files.

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Supplementary Files

Untitled.

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