

Exploring Ugandan Youth Perspectives Towards Using Mental Health Chatbots To Support Their Mental Health

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Lucy Namakula

Department for Knowledge and Communication Management

at University for Continuing Education Krems

Advisor: Dr. Claudette Pretorius

Advisor: Dr. Catarina Delaunay

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Lucy Namakula

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ABSTRACT

Background: The mental health of young people is of great concern. Chatbots can increase access to care and provide timely treatment, especially in Uganda, which has a predominantly young population, an under-resourced and underfunded mental healthcare system, and high treatment gaps. This study aimed to explore how young Ugandans perceive using mental health chatbots to support their mental wellbeing, highlighting the benefits and drawbacks of chatbots in this demographic.

Methods: Using purposive and convenience sampling methods, the study recruited nine young adult Ugandans (mean age: 24.7) who were required to use a mental health chatbot (Wysa) for two weeks. Data were collected through semi-structured interviews and analyzed thematically. The data was coded using both an inductive and deductive approach.

Results: Twelve major themes emerged from participant interviews and were categorized using the Technology Acceptance Model (TAM). Under Perceived Usefulness, participants identified emotional support and expression, non-judgmental support, affordability and accessibility, practical and personalized solutions, limitations beyond early intervention, and noted preference for human connection. Perceived Ease of Use included simple language, easy interface and navigation, and challenges related to text-based interaction and Limited interaction control. Subjective Norm included the influence of credible recommendations and use driven by perceived benefits.

Conclusion: Young Ugandans perceive chatbots as beneficial interventions but also highlight several barriers and limitations of the technology. The study findings contribute to designing and implementing more effective and user-aligned chatbots that meet the unique needs of young Ugandans.

Keywords: Mental Health, Chatbots, Artificial Intelligence, Young people, Uganda

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ABBREVIATIONS

ACT - Acceptance and Commitment Therapy

AI - Artificial Intelligence

APA - American Psychiatric Association

CBT - Cognitive Behavioural Therapy

CeHRes - Centre for eHealth Research

DBT - Dialectical Behaviour Therapy

DMH - Digital Mental Health

DMHI - Digital Mental Health Intervention

ML - Machine Learning

NLP - Natural Language Processing

PHQ-9 - Patient Health Questionnaire-9

PTSD - Post Traumatic Stress Disorder

TAM - Technology Acceptance Model

1. Introduction

Globally, over one billion people suffer from mental illness, with 75% of these residing in lower and middle-income nations (Dwanyen et al., 2024), where young people aged 10–29 bear the greatest share of this burden (Opio et al., 2021) and up to 90 percent of psychiatric disorders go untreated (Kalungi et al., 2025). This study defines young people as individuals aged 15 to 35, per the African Youth Charter (African Union, 2006).

With an age-adjusted rate of 13.4 percent for all mental health conditions, Sub-Saharan Africa also records the highest global prevalence of depressive disorders (Kalungi et al., 2025). This prevalence of mental disorders is driven by limited access to quality care and socioeconomic stressors such as youth unemployment, which often leads to maladaptive coping behaviors like alcohol use (Dwanyen et al., 2024). With the continent's population projected to double over the next thirty years, the demand for mental health services is set to intensify (Dwanyen et al., 2024).

Uganda, a low-income country of 49.9 million people (Uganda Bureau of Statistics [UBOS], 2024), exemplifies these challenges. It ranks among Africa's highest in depressive and anxiety-related disorders (Amone-P'Olak et al., 2023), with approximately one in four individuals experiencing depression or anxiety (Kalungi et al., 2025) and roughly 14 million people reporting a mental illness in 2022 (Kaggwa et al., 2022). This situation is exacerbated by factors such as social stigma and cultural taboos, alongside an underfunded and under-resourced mental healthcare system that is unable to meet people's mental health needs (Kaggwa et al., 2022). Many common conditions, such as mood disorders, trauma-related conditions like Post Traumatic Stress Disorder (PTSD), and difficulties in relationships stemming from intimate partner violence, frequently receive no treatment (Asiimwe et al., 2023), especially among young people who seldom seek formal care (Hoffman et al., 2024). Untreated mental disorders can significantly hinder individuals' social, occupational, and educational functioning, reducing their quality of life and overall productivity (Kalungi et al., 2025). Since most mental illnesses emerge during adolescence or early adulthood, their disabling effects persist throughout prime working years, affecting the productivity and economy of the world (McGorry et al., 2022). As such, the World Economic Forum projects that the global economic output will shrink by as much as \$16 trillion by 2030 if mental health issues remain unaddressed (McGorry et al., 2022).

Digital mental health tools like chatbots offer a scalable way to extend mental health support, especially in resource-limited settings like Uganda. They can take on specific aspects

of mental health care, such as screening, triage, and referral, thereby relieving clinicians of routine tasks without negatively impacting patient outcomes (Kosyluk et al., 2024).

A relevant example is the technology-based “Screening, Brief Intervention, and Referral to Treatment (SBIRT) program” that is used to recognize individuals in need and connect them with appropriate substance use treatment (Kosyluk et al., 2024, p. 2). Notably, research suggests that delivering SBIRT through technology is just as effective as in-person delivery, while also enhancing accessibility and reducing stigma-related barriers to care, especially for vulnerable populations like pregnant women who use substances (Kosyluk et al., 2024). This reallocation of responsibilities helps clinicians save time and relieves the strain on the already overburdened health care system (Kosyluk et al., 2024).

However, despite their potential, the real-world uptake of DMHIs remains low (Boucher et al., 2021). High dropout rates and significantly lower engagement outside controlled research environments are common challenges (Hoffman et al., 2024). DMHIs involving some form of human guidance, whether from clinicians or non-clinicians, are more effective and lead to better adherence outcomes (Hoffman et al., 2024). Interestingly, using AI in DMHIs has been proposed to simulate such guidance and improve adherence and engagement (Hoffman et al., 2024).

Notably, previous studies have demonstrated that chatbots, in particular, are suitable for young adults, who are often willing to engage with them to meet their mental health needs (Hoffman et al., 2024). However, a research gap remains in understanding mental health chatbots from the Ugandan youth perspective. The subjective experiences, preferences, and satisfaction levels of Ugandan youth with mental health chatbots are still largely unexplored.

Understanding Ugandan youth perspectives towards chatbots is important for several reasons. First, it could guide chatbot designers in designing culturally and contextually appropriate chatbot solutions that speak to many of the young Ugandans’ diverse needs, increasing adoption and reducing the mental health treatment gap.

Secondly, exploiting chatbots to meet Uganda’s youth mental health needs brings the country closer to achieving the third United Nations Sustainable Development Goal, which focuses on promoting good health and wellbeing, specifically the targets of improving mental health and tackling substance use disorders (United Nations Uganda, n.d). As such, this exploratory study paves the way for more systematic research that will raise awareness among decision-makers about the need to design evidence-based digital policies and programs for mental health care for young populations in Uganda.

On a continental scale, many African countries face challenges similar to those of Uganda in addressing mental health issues, such as high treatment gaps and limited government funding (Opio et al., 2022). Furthermore, between 2000 and 2015, mental health and substance use disorders accounted for a loss of 17.9 million disability-adjusted life years (DALYs) across Africa (Sankoh et al., 2018). Using digital mental health tools is essential for a continent with a large youth population in order to close the mental health gap and create a generation and future workforce that is healthier and more resilient.

In light of the rationale above, this study seeks to answer the research question below:

RQ: What are the perceptions and attitudes of young people in Uganda toward using mental health chatbots to support and manage their mental health and well-being?

Therefore, this study aims to examine the perceived facilitators and obstacles to chatbot use among Ugandan youth and the implications of these factors for the future adoption and integration of mental health chatbots within youth-focused mental health support systems in Uganda.

To answer the research question, the dissertation reviews the incidence of youth mental illness in Uganda and examines the country's mental health care system. It then investigates Artificial Intelligence in mental healthcare, with particular emphasis on chatbot functionality, benefits, limitations, effectiveness, and user perspectives.

The empirical component is based on semi-structured interviews conducted with Ugandan youth. These interviews were guided by the extended Technology Acceptance Model (TAM2), which informed the analysis by focusing on three constructs: Perceived Ease of Use, Subjective Norm, and Perceived Usefulness. This theoretical framework was used to identify and interpret the benefits and limitations of mental health chatbots perceived by young Ugandans.

The dissertation's remaining sections are organized as follows: a review of the literature: a literature review, a methodology chapter, presentation of thematic results organized by TAM2 constructs, and a discussion chapter synthesizes the facilitators and barriers to chatbot adoption, concluding with implications for chatbot design and mental health practice.

2. Literature Review

2.1. Mental Health of Young People

Young people's mental health demands urgent attention, as globally over 45 percent of the total disease burden among individuals aged 10–24-years is attributable to mental ill-health, and suicide is the second largest cause of mortality in this age group (McGorry et al., 2022). These concerns are particularly pressing given that most adult mental disorders start during adolescence or even earlier and often persist into adulthood if left untreated (Patel et al., 2007). Solmi et al. (2022) observed that nearly half of all mental disorders begin by age 18, and over 60% by age 25. They found that, across diagnostic categories, the average age at which disorders begin is 12 years for neurodevelopmental disorders, 17 years for fear-/anxiety-related disorders, 18 years for feeding/eating disorders, 19 years for obsessive-compulsive disorders, around 25 years for both substance-use and psychotic disorders, and between 30 and 31 years for stress-related and mood disorders. This significance is further reinforced by research showing that most long-term mental disorders start between 12 and 24 years, including depression, anxiety, personality-related disorders, substance use disorders, psychosis, and eating disorders (Patel et al., 2007). Early identification and intervention are critical to reduce suffering and long-term disability from mental illness (Girolamo et al., 2012).

Opio et al. (2022) report that over 85% of Uganda's population was under 30 years in 2022, and this age group had a higher prevalence of depression and anxiety. Their systematic review indicates that overall, 22.9 percent of children and 24.2 percent of adults had mental illnesses. Among those, 22.2 percent of children had depressive disorders, while the percentage for adults was 21, and anxiety disorders accounted for 14.4 percent of children and 20.2 percent of adults. With prevalence in low- and middle-income countries projected to rise by 130 % by 2050 (Opio et al., 2022), these figures underscore an urgent need for youth-focused early-intervention mental health strategies in Uganda. Multiple risk factors contribute to this crisis. Growing up in poverty increases exposure to adversities such as food insecurity, violence, poor education, and social isolation, all of which elevate the risk of mental illness (Patel et al., 2007).

Mental ill-health in young people not only disrupts the development of relationships and identity, achievement in academic and professional life, as well as their ability to manage their finances and make independent decisions, but also erodes their “mental wealth”, the cognitive and emotional capacities essential for success and well-being (McGorry et al., 2022). The youth life stage is when most individuals complete education, enter the job market, and form lasting social bonds (Patel et al., 2007). The presence of mental disorders during this

stage significantly increases the risk of poor economic and social outcomes in adulthood, such as school dropout, unemployment, increased healthcare costs (Patel et al., 2007), poverty, homelessness, or even criminal behavior (McGorry et al., 2022).

Moreover, mental health challenges in young people affect their emotional control, thought processes, decision-making, and behavior, increasing vulnerability to risky sexual behavior compared to other conditions (Kelebie et al., 2025). For instance, Lundberg et al. (2011) found that among Ugandans aged 18–30, depression, psychological distress, and heavy episodic drinking each independently predicted higher sexual risk behaviors, including more lifetime and concurrent partners and, in men, inconsistent condom use. These findings align with Kelebie et al. (2025), who found in their systematic review and meta-analysis that 43.4% of Africans with severe mental illness engage in risky sexual behaviors, with men, young adults, individuals in a manic phase, and those currently using alcohol at significantly higher risk. This implies that mental illness affects young people's decision-making capabilities, putting them in harm's way and leading to serious negative consequences that affect them, their families, communities, and nations at large.

Further evidence shows that many of the primary contributors to Disability-Adjusted Life Years (DALYs) in youth, while not formally classified as mental disorders, are strongly influenced by mental health (Patel et al., 2007). For instance, youth with mental illness are significantly more likely to contract HIV/AIDS than their mentally healthy peers (Patel et al., 2007). This increased risk is often linked to poor sexual communication, vulnerability to peer pressure, low self-confidence, and difficulties asserting themselves or negotiating safe sex (Patel et al., 2007). These patterns highlight the widespread impact of mental health issues, not only on individuals but also on public health systems and broader development efforts.

Despite the fact that most mental health disorders emerge during adolescence and early adulthood, many young people are hesitant to seek professional support, an issue particularly pronounced among young men (Rickwood et al., 2007). This reluctance undermines efforts aimed at early identification and timely intervention, which are critical for improving outcomes (Rickwood et al., 2007). Several factors contribute to this help-seeking reluctance. Young people do not find treatment when suffering from depression or experiencing suicidal thoughts or if they have internalised beliefs that they should manage their problems independently (Rickwood et al., 2007). Many also doubt the usefulness of mental health services, believing that seeking help will not make a meaningful difference (Rickwood et al., 2007).

Negative past experiences further reinforce this skepticism. For example, young people who felt dismissed, misunderstood, or not taken seriously by professionals are more likely to avoid seeking help again (Rickwood et al., 2007). Breaches of confidentiality, or fears that personal information might not remain private, can also erode trust, especially in services like school counselling (Rickwood et al., 2007). Additionally, the very nature of common youth mental illnesses, such as substance use disorders, mood disorders, and anxiety, often leads to increased isolation and a tendency to conceal distress (Rickwood et al., 2007). These symptoms can further reduce the likelihood that a young person will seek support, creating a cycle where those in greatest need are least likely to receive help (Rickwood et al., 2007).

Because most young people miss out on timely, high-quality, evidence-based treatment, many avoidable cases of mental illness become chronic and disabling during their most productive years (McGorry et al., 2022). Lack of treatment and poor access to service leads to poor prognosis, especially the longer treatment is delayed as echoed by Cheung et al. (2017) who report that delayed treatment for common mental disorders leads to the occurrence of secondary disorders, a heightened suicide risk and a general decline in the person's health status. They also note that untreated early-onset mental illness carries serious social consequences such as "school failure, teenage pregnancy, marital violence and inability to maintain employment and/or relationships" (p. 1).

Moreover, the conventional split between child and adult services that ends care at 18 years (McGorry & Mei, 2018) does not align with the apparent continuity between adolescent and adult disorders (Girolamo et al., 2012). Adult services' focus on older patients with severe psychosis leaves young adults with emerging, non-psychotic conditions underserved (McGorry & Mei, 2018). Given these persistent gaps in youth-focused care, and the fact that young people are accustomed to using technology, any expansion of their mental health services must integrate digital tools, not only because they are familiar with technology but also because digital platforms can scale rapidly, improve efficiency, and enhance access for individuals in remote or underserved areas (McGorry et al., 2022). These findings suggest that approaches must prioritize early intervention to prevent both the worsening of primary disorders and the emergence of comorbid conditions (Patel et al., 2007).

2.2. Mental Healthcare System in Uganda

Generally, mental health services across Africa are weak, and both the population and their governments do not prioritize or invest adequately in addressing the issue (Sankoh et al., 2018). The region's mental health system is considerably poorer than those in the rest of the world (Sankoh et al., 2018). As of 2018, there were only about 14 mental health workers per 100,000 people on the continent, and many facilities lacked essential infrastructure, such as hospital beds and other resources, necessary for effective mental health treatment (Sankoh et al., 2018). As a result, the World Health Organization (WHO) has highlighted the need for more and better-integrated mental health services in the African region and urged immediate action to tackle the mental health issues that plague the continent and hasten efforts to promote and protect Africans' mental health and well-being (World Health Organization [WHO], 2024).

Uganda has stood out in Africa for its forward-looking approach to mental health care, through establishing mental health legislation and expanding its clinical practice and research activities (Dwanyen et al., 2024). Before the late 1990s and early 2000s, Uganda's mental health services were largely overlooked and underfunded at the national level (Dwanyen et al., 2024). However, around the turn of the twenty-first century, the government began crafting formal policies and strategic frameworks to guide mental healthcare delivery with a key milestone being the 2006 amendment of the Mental Health Act of 1964, to align with modern standards, safeguard persons with disabilities' rights, and promote a more inclusive, integrated mental health system in Uganda (Dwanyen et al., 2024). The country's 2019 National Mental Health Action Plan further strengthened this momentum by prioritizing legislation, professional practice, research, and other key areas to meet the country's dire mental health needs (Dwanyen et al., 2024). Also, it highlighted the vital role of non-medical psychosocial practitioners such as counselors, psychologists, and social workers in delivering mental health care (Dwanyen et al., 2024). Nonetheless, persistent shortages of funding and trained personnel continue to strain Uganda's ability to meet the mental health demands of the people and provide comprehensive care to its growing population (Dwanyen et al., 2024).

Despite Uganda's notable increase in overall healthcare investment, the country allocates roughly 10% of its Gross Domestic Product (GDP) to the healthcare sector, with only 1% of the healthcare budget allocated to mental health (Amone-P'Olak et al., 2023). This shows how little priority is given to mental health when allocating health resources in Uganda. Moreover, most of these limited resources are spent at Butabika Hospital, the country's sole national mental health referral hospital, leaving rural populations largely dependent on NGO-provided services (Amone-P'Olak et al., 2023). Butabika hospital itself is faced with

overcrowding, poor treatment conditions, and coercive practices, circumstances that, while delivering some treatment, can cause further trauma with long-term effects (Molodynski et al., 2017).

To make matters worse, the limited government funding constrains the employment of qualified mental health professionals in Uganda, where the government only employs psychiatry professionals and just about 92 of these provide services nationwide (Dwanyen et al., 2024) many of which are primarily based in urban areas (Asiimwe et al., 2023). In contrast, there are over three times as many counselors, psychologists, and social workers, though most work in NGOs or the private sector (Dwanyen et al., 2024). Traditional healers, along with spiritual and religious leaders, also play a significant role in mental healthcare, as up to 60% of Ugandans turn to them for help with personal health and relationship challenges (Dwanyen et al., 2024). However, these community-based practitioners often lack formal training in evidence-based mental health interventions (Dwanyen et al., 2024). Even trained practitioners often lack the skills to accurately diagnose and treat psychiatric conditions, address family or system-level issues, or deliver comprehensive, multi-layered interventions, which creates a big service gap for children, adolescents, and families with complex needs (Asiimwe et al., 2023). The situation is further worsened by the migration of experienced healthcare professionals to high-income countries (Molodynski et al., 2017), leaving the few that stay with the burden of meeting the extremely high demand of mental health services.

Under these conditions, delivering even the most basic, person-centered care to most Ugandans is not realizable. Consequently, mental illnesses often go undiagnosed, and treatment uptake remains low (Akena et al., 2023), in addition to the ongoing global refugee crisis that places additional strain on Uganda's system (Dwanyen et al., 2024). As one of the world's leading refugee host countries, Uganda urgently requires expanded capacity and resources to meet refugee and local mental health needs (Dwanyen et al., 2024). To meet the growing demands on healthcare systems, service delivery models must be able to reach underserved populations, scale interventions widely, remain affordable, be accessible to both non-licensed staff and individuals, and adapt to settings where target users are most likely to engage (Kosyluk et al., 2024). Technology, particularly chatbot-based solutions, can help fulfill these five requirements and ease the strain on the mental healthcare workforce (Kosyluk et al., 2024), and bridge the mental healthcare gap in Uganda.

2.3. Artificial Intelligence and Mental Health

The global burden of mental disorders is of great concern, accounting for roughly 16 % of all disease worldwide and costing the global economy an estimated USD 1 trillion annually in lost productivity due to conditions such as anxiety and depression (Olawade et al., 2024). On top of this immense clinical and economic toll is a persistent stigma that prevents many individuals from seeking care, perpetuating a cycle of neglect and suffering (Olawade et al., 2024). Artificial Intelligence (AI) promises to expand mental health care access, enable earlier intervention, and tailor treatments to individual needs (Shimada, 2023; Olawade et al., 2024).

AI in mental healthcare extends back to the mid-20th century, when early theorists first proposed that machines might replicate aspects of human cognition (Olawade et al., 2024). In the 1950s and 1960s, Newell and Simon introduced symbolic AI frameworks to model human problem-solving, setting the conceptual stage for later cognitive simulations in mental health contexts and later in the 1960s, Joseph Weizenbaum's ELIZA demonstrated that a simple pattern-matching chatbot could engage users in text-based "therapeutic" dialogue (Olawade et al., 2024). Through the 1980s, rule-based expert systems encoded clinical knowledge to support psychological diagnostic and treatment decisions and, by the late 20th century, interactive computerized Cognitive Behavioral Therapy (CBT) programs began delivering structured and evidence-based mental health interventions, marking a shift toward technology-enhanced access to mental health care (Olawade et al., 2024).

The rapid advancement in AI is transforming mental healthcare and improving well-being in the 21st century by uncovering insights and delivering interventions that traditional approaches cannot achieve (Olawade et al., 2024). Advanced machine learning algorithms can evaluate extensive data volumes to identify mental illness symptoms and patterns (Shimada, 2023). This makes it easier to implement more targeted interventions and customized treatment plans (Shimada, 2023). As a result, AI is being applied across several fronts in mental healthcare: developing multifactorial predictive models that combine genetics, environment, lifestyle, and social determinants to forecast individual risk; leveraging predictive analytics to detect those with a heightened suicide risk and enable prompt interventions; creating individualized treatment plans unique to each patient's needs; employing AI-based diagnostic and assessment tools that analyze vast medical datasets to improve accuracy, reduce unnecessary tests, and free clinicians to focus on patient care; and deploying chatbots and virtual assistants powered by Machine Learning (ML) and Natural Language Processing (NLP) to provide human-like interaction, 24/7 emotional support, and potentially even companionship, particularly in contexts where human resources or wait-lists are limited (Shimada et al., 2023).

Undoubtedly, AI's integration in mental healthcare can increase access to healthcare, mitigate stigma, and enhance treatment outcomes (Olawade et al., 2024). However, deploying AI ethically in mental health hinges on safeguarding patient privacy and data security, given the intensely personal nature of mental health records, as well as ensuring transparency about data use and obtaining informed consent and confronting algorithmic bias by examining the diversity and representativeness of training data, since unaddressed biases can perpetuate discrimination (Mittal et al., 2023). The “black box” nature of many AI models raises concerns about explainability and accountability, as clinicians and patients need clarity on how recommendations are generated (Mittal et al., 2023). It is also important to question how AI tools affect the therapeutic alliance and, as such, AI must support, not replace, human expertise and empathy (Mittal et al., 2023). Finally, considerations of equity and accessibility are essential, since socioeconomic, cultural, and technological barriers can limit who benefits from AI-driven care, potentially reinforcing existing disparities (Mittal et al., 2023).

2.4. Digital Mental Health in Uganda

Chatbots were first introduced in Africa in the 1980s, when the first medical AI systems were piloted in Kenya, Egypt, Gambia, and South Africa but adoption remained slow until 2017 and accelerated markedly over the past six years (Phiri & Munoriyarwa, 2023). The COVID-19 pandemic further highlighted the importance of chatbots in public health in Africa, during which time, WhatsApp-based chatbots in South Africa, Rwanda, and Senegal supported rapid COVID-19 testing, and a free Telegram-app bot in Ghana helped counter misinformation and improve access to accurate data (Phiri & Munoriyarwa, 2023). In Africa, health chatbots are majorly being used for general medical support (including counselling and HIV testing), educational purposes (on topics such as sex education, perinatal depression, and HIV prevention), and psychological or mental-health assessment and support, among other emerging applications (Phiri & Munoriyarwa, 2023).

In sub-Saharan Africa, awareness of DMHIs remains low (Mwaka et al., 2025). Studies from the region have identified several key hindrances to DMHIs uptake, including “lack of cultural relevance, high internet costs, privacy concerns, low digital literacy and other technological challenges, and lack of national digital health frameworks to oversee and manage digital health” (Mwaka et al., 2025, p. 2).

Since the COVID-19 pandemic, uptake of digital health interventions, including tele-counselling and telepsychiatry mental health services, has increased in Uganda (Mwaka et al., 2025). Nevertheless, regulatory oversight is weak, and many health apps reach the market with minimal checks or regulatory approval (Mwaka et al., 2025). Although most young people in Uganda hold positive attitudes toward digital mental health (DMH) solutions and express strong intentions to use them, several barriers impede the adoption of these tools (Mwaka et al., 2025).

At the start of 2025, Uganda's internet penetration rate was just 28%, with only about 14.2 million online users (Kemp, 2025). People in rural areas have inadequate access to the internet, with just 4.3% connected, compared to 16.6% of those in urban centers (UBOS, 2024). Low smartphone ownership, widespread digital illiteracy, and limited access to internet-enabled devices compound this digital divide, suppressing awareness of and engagement with DMH tools (Mwaka et al., 2025). Moreover, most interventions are offered in English, lack contextual relevance, and do not resonate with Ugandan youth, exacerbating inequities in access to essential mental-health support in addition to the persistent stigma around mental illness that discourages help-seeking, as some young people may avoid engaging with chatbots for fear of being stigmatized (Mwaka et al., 2025).

2.5. Chatbot Features and Functionality

Chatbots are “AI-driven conversational agents that utilize algorithms and neural networks to process complex user inputs and facilitate open-ended discussions that mimic human interactions” (Chaudhry & Debi, 2024, p. 2), learning and adapting from each interaction to provide tailored responses and accurately manage complex inquiries (Chaudhry & Debi, 2024). Interaction complexity ranges from simple rule-based systems, such as ELIZA, to advanced ML and NLP models (Boucher et al., 2021). User inputs may be free-text entries or selectable options, while chatbot responses can be conveyed in written, spoken, or visual formats (Boucher et al., 2021). Chatbots can be embedded in mobile apps, websites, Short Message Service (SMS), smart devices, and virtual reality environments (Boucher et al., 2021).

In healthcare settings, chatbots have been designed to assist with administrative functions such as scheduling appointments, disseminating health information, managing chronic illnesses, and supporting assessment and triage (Chaudhry & Debi, 2024). Within mental healthcare, chatbots are being adopted to increase accessibility and reduce treatment costs (Chaudhry & Debi, 2024). They are trained with foundational mental health knowledge

to simulate empathetic dialogue and aid users in coping with psychological distress (Tosti et al., 2024). These text-based tools analyze the user's words and emojis and infer nonverbal cues, such as facial expressions, gestures, and vocal tone variations (Tosti et al., 2024) to enhance their interpretive accuracy.

Mental health chatbots offer a range of mental health support functions, such as guiding users, conducting screenings and psychoeducation, delivering therapeutic interventions, tracking behavioral changes, and aiding in relapse prevention (Boucher et al., 2021). Some of their most common functions encompass symptom management, diagnostic assistance, and content delivery (Boucher et al., 2021).

Research highlights the capacity of chatbots to serve as preliminary screening tools for mental health concerns that include “dementia, substance abuse, stress, depression, anxiety disorders, depression and suicide, anxiety disorders and Post Traumatic Stress Disorder (PTSD)” (Boucher et al., 2021, p. 4). By posing a structured series of questions in a conversational style that closely mimics human dialogue, they gather symptom data, generate provisional diagnoses, and suggest next-step treatments or explain diagnostic findings to users (Boucher et al., 2021). Although some clinicians question the appropriateness of automated diagnosis, these tools offer the advantage of identifying at-risk individuals for timely intervention and potentially reducing more severe complications in the future (Boucher et al., 2021).

Beyond screening, many mental health chatbots can deliver psychotherapeutic interventions requiring minimal clinical expertise (Boucher et al., 2021). They often emulate a therapeutic conversational approach, guiding users using research-backed techniques (Boucher et al., 2021). Cognitive Behavioral Therapy (CBT) is the most applied technique alongside Acceptance and Commitment Therapy (ACT), Dialectical Behavior Therapy (DBT), motivational interviewing, and mindfulness practices (Boucher et al., 2021). They deliver structured talks and practical suggestions to assist users in managing and alleviating psychological distress (Tosti et al., 2024). These programs can be tailored to specific populations, for instance, supporting young cancer survivors in building positive-psychology skills to reduce anxiety or offering broad self-help strategies aimed at distress management and suicide prevention (Boucher et al., 2021). Finally, chatbots can offer personalized therapeutic activities, such as cognitive reframing exercises that help users adopt new perspectives, guided breathing routines, and motivational messages (Tosti et al., 2024) to relax and encourage users.

As personal digital health assistants, chatbots can conduct regular well-being check-ins during and after formal interventions (Boucher et al., 2021). In addition, these tools check on users' behaviors, thoughts, and emotions daily, generating reports that help individuals better understand and track their mental states (Tosti et al., 2024). They also track physical activity, sleep duration, and social-media usage metrics, helping users translate therapeutic insights into daily routines (Boucher et al., 2021). By monitoring progress, delivering targeted resources, and offering timely support, these tools improve the self-management of symptoms and reduce the likelihood of relapse, especially for individuals with limited access to mental-health professionals (Boucher et al., 2021).

2.5.1 Advantages and Limitations of Chatbots

Chatbots offer anonymity, lowering stigma and encouraging more honest self-disclosure (Tosti et al., 2024). They provide a private avenue for those who find it hard to discuss personal challenges, helping users open up more sincerely (Tosti et al., 2024). Because chatbots cost less than face-to-face therapy and use minimal data, they remain affordable and accessible to people with limited resources and those without strong internet connectivity (Tosti et al., 2024). Their 24/7 availability means immediate support is always available, saving people from long appointment waits (Tosti et al., 2024). For some, chatbots can supplement ongoing therapy between sessions, while others serve as a first step toward recognizing psychological distress and seeking professional help (Tosti et al., 2024).

Despite the benefits, data privacy and confidentiality remain unresolved issues, as it is often unclear who has access to users' conversations and how secure their information is stored (Kretzschmar et al., 2019; Tosti et al., 2024). The evidence base for chatbot efficacy across diverse populations is still emerging (Tosti et al., 2024). As such, there are still questions regarding whether their support is evidence-based or if they can handle emergencies effectively (Kretzschmar et al., 2019), and, if they make a wrong diagnosis or inaccurately interpret users' situations, it is unclear who should be held accountable (Pham et al., 2022).

Relying on chatbots may also increase social isolation, discourage engagement in real-world activities, potentially worsen mood, and hinder recovery (Tosti et al., 2024). More critically, chatbots cannot fully interpret complex human language such as "ellipses, metaphors, colloquialisms, and hyperbole" (p. 5), which is made even more challenging by the vast diversity of human languages (Boucher et al., 2021). As such, chatbots can still not fully comprehend human experience, interpret human emotions, or grasp the complex psychological underpinnings of personality traits and mental disorders, all understood

through human interactions (Tosti et al., 2024). This is further supported by Pham et al. (2022), who argue that chatbots lack the diverse expertise of trained mental health professionals, are constrained in utilizing patient-specific information to support the necessary cognitive work expected of patients and often fall short of the emotional intelligence and empathy exhibited by human professionals. Understanding the user's life history and present situation is crucial for making accurate diagnoses and providing effective treatment, capabilities that chatbots do not possess (Kretzschmar et al., 2019).

These limitations hinder user adoption and engagement and must be addressed for chatbots to realize their potential.

2.5.2. Use and Effectiveness of Chatbots

Evidence from recent case studies indicates that AI-driven mental health chatbots can meaningfully support individuals with mental health issues. Research on popular and widely used mental health chatbots like Woebot and Wysa demonstrates their effectiveness and ability to supplement traditional care by providing accessible, empathetic assistance. Both Woebot and Wysa are designed for young individuals who experience mild to moderate depression, anxiety, and stress to improve their well-being (Wysa, 2025; American Psychiatric Association [APA], n.d). The chatbots employ evidence-based, CBT-informed self-help tools to build emotional resilience skills (Inkster et al., 2018; Qi, 2024).

Inkster et al. (2018) evaluated Wysa's user engagement and effectiveness among individuals with depression. They found that users with higher engagement showed significantly greater reductions in Patient Health Questionnaire-9 (PHQ-9) scores, and 67.7 % of respondents rated the app as helpful and encouraging. In another study, Beatty et al. (2022) explored whether, and how quickly, users form a therapeutic alliance with Wysa among users with depression and anxiety and found that a meaningful connection was made with the app after just five days of use. This sense of alliance deepened over the following three days. Remarkably, the strength of this bond was comparable to that observed in traditional and online CBT and remained stable over time.

Fitzpatrick et al. (2017) assessed the feasibility and preliminary efficacy of delivering CBT via Woebot, among young adults with depression and anxiety. Over a two-week period, participants engaged with Woebot in daily conversations incorporating CBT-based self-help strategies. Depressive symptoms were reduced for those in the chatbot group, whereas the information-only group showed no such change. Although anxiety symptoms improved in

both groups, participants who used the chatbot reported greater engagement, averaging over 12 interactions during the study period. Similarly, Qi (2024) examined Woebot with 84 university athletes and found that those who engaged in daily conversations with the chatbot experienced a steady decline in mild depressive symptoms from week five onward.

In line with these findings, He et al. (2022) conducted a three-arm randomized controlled trial with 148 Chinese university students with depression, comparing a chatbot employing CBT techniques against an electronic book control and a basic chatbot, and found that users of the CBT-based chatbot experienced significantly greater reductions in PHQ-9 scores at both one week and one month post-intervention than those in either control group.

Furthermore, a systematic review of mental health chatbots conducted by Ahmed (2021) demonstrated that the chatbots are high-quality and widely downloaded, and they can potentially increase the capacity of mental health self-care for managing mood and anxiety symptoms. This implies that many people believe chatbots help support their mental health needs and improve their mental well-being.

Kosyluk et al. (2024) evaluated the feasibility, engagement, and acceptability of a mental health screening and referral chatbot. The chatbot assessed psychological distress and directed users to suitable resources based on their needs and preferences. Of the 222 participants, 75.7% completed the screening process, indicating strong user engagement and the practical potential of chatbot-based interventions. Participants also reported the chatbot as acceptable, suggesting that such digital tools may offer a viable and scalable option for mental health screening and referral, particularly in settings with inadequate access to traditional mental health services (Kosyluk et al., 2024).

The above findings demonstrate the ability of mental health chatbots to establish and sustain meaningful therapeutic relationships and to treat and manage common disorders like anxiety and depression in young people. However, many studies on chatbot efficacy do not include follow-up studies to assess long-term effectiveness, and findings regarding user engagement are often inconsistent or highly variable (Hoffman et al., 2024). For instance, in an 18-week study, Yeh et al. (2025) examined using the Woebot app among 42 master's students enrolled in group counselling courses. Although some students reported increased motivation and understanding, the app did not significantly reduce anxiety or depression related to course demands and leadership roles. Overall, users' acceptance of Woebot decreased over time, primarily because of usability challenges, including technical problems, an unsatisfactory user experience, and language difficulties. These findings, combined with

limited research directly comparing chatbots to conventional mental health care approaches, make it challenging to determine mental health chatbots' long-term effectiveness and practical acceptability (Hoffman et al., 2024).

2.6. Young People's Perspectives on Chatbots

Studies worldwide have examined the experiences of young individuals with digital mental health platforms, with a growing emphasis on mental health chatbots. For instance, Koulouri et al. (2022) synthesized studies examining young adults' perspectives on mental health chatbots and identified several consistent themes. First, users overwhelmingly described chatbots as providing a safe, anonymous environment where they felt comfortable disclosing sensitive information. Second, participants appreciated the immediacy with which chatbots delivered support and information. Third, users found chatbot interactions more applicable to their daily lives and noted that session lengths were appropriate. Fourth, users found the chatbots empathic and personable, which motivated regular engagement. Fifth, the users had greater ease in articulating their issues to the chatbots and experienced increased self-awareness.

Consistent with these findings, Kostenius et al. (2024) surveyed 122 Swedish youth and found that ChatPal's 24/7 availability, anonymity, and quick access to psychoeducational exercises (e.g., breathing and sleep exercises) were highly valued for reducing stigma and effort in finding reliable resources. However, participants also reported that conversations often felt "impersonal" and "one-sided," noting that the chatbot "only responds with theories and science" (p. 7) without validating feelings, and sometimes even increased loneliness by reminding them they were talking to a machine. Content breadth was limited, prompting repetitive interactions and participants wishing for more bite-sized, multimedia, or gamified activities. Technical issues, such as lag, misrouting of free-text inputs, and confusing navigation due to hidden menus and lack of back buttons, further disrupted the user experience.

Similarly, Balaskas et al. (2023) examined young adults' experiences using Wysa, Woebot, or Sanvello apps for anxiety management. They found that while many valued the CBT-based coping tools and mood-tracking features, several disengaged over time due to high chatbot fees, insufficient free content, lack of personalization, and technical/navigation issues. Another study by Chaudhry & Debi (2024) found that while many users value Wysa's confidential, always-available space and structured exercises for managing their mental health, experiences varied: some appreciated its empathy and human-like personality cues,

whereas others felt constrained by rigid scripting and a lack of contextual understanding, limiting their ability to vent or receive personalized follow-up. Most participants saw the chatbot as a supplemental, not a replacement, tool for psychotherapy. They emphasized the need for greater flexibility, transparency about how the system works, and more emotionally intelligent, individualized interactions to foster sustained engagement and trust.

Furthermore, Boucher et al. (2021), report that young people generally express high satisfaction with mental health chatbots, finding them encouraging and helpful, especially when interactions feel private, the content aligns with prior therapist recommendations, and the chatbot's tone is consistent and of high quality. They further state that many users appreciate chatbots' nonjudgmental nature, and some even prefer them to human professionals because of the flexibility and anonymity they offer, while others value the accountability provided by daily check-ins and the concrete guidance or direction the chatbot delivers. However, Boucher et al. (2021) state that not all experiences are positive: some participants found interactions unhelpful, annoying, or overly self-focused, and raised concerns about the "accuracy, trustworthiness, and privacy of the chatbots" (p. 4). A frequent drawback is that chatbot conversations can become repetitive, reducing their human-like quality and undermining users' motivation to continue engaging (Boucher et al., 2021). Misunderstandings, particularly when users submit long or complex messages, can trigger irrelevant or inappropriate responses from the chatbot that weaken the therapeutic alliance (Boucher et al., 2021).

In addition, Bae Brandtzaeg et al. (2021) demonstrated that young people perceive Woebot as nonjudgmental, always-available companions they can reach out to without burdening friends or family. Chatbots give young people social support to manage stress, regulate emotions, and feel connected even when human help feels out of reach (Bae Brandtzaeg et al., 2021).

Although many users report satisfaction with chatbot interactions, broader public attitudes towards AI in therapeutic roles are often more skeptical (Hoffman et al., 2024). There is notable unease about AI handling sensitive tasks that require empathy, sound judgment, or understanding the social context, with AI-driven psychotherapy often viewed as lacking comfort and capability (Hoffman et al., 2024). Nevertheless, individuals who do use mental health chatbots tend to appreciate their anonymity and nonjudgmental tone and prefer them over health professionals (Hoffman et al., 2024). These contrasting views highlight that while chatbots offer a scalable and accessible form of support, they are not yet a one-size-fits-all solution due to their limitations (Hoffman et al., 2024).

Together, these studies demonstrate that while mental health chatbots hold significant potential for supporting young people, their effectiveness depends on how well they reflect users' real needs and experiences. To ensure sustained engagement and meaningful impact, it is important to center young people's perspectives in these tools' design, functionality, and implementation. Chatbots can only become a truly supportive and inclusive mental health resource by addressing the emotional, technical, and contextual barriers identified by users.

2.7. Chatbots and Mental Health Stigma

Mental health stigma is a global public health concern and a significant obstacle limiting access to mental health treatment for young individuals (Song et al., 2023) and increasing the risk of suicide and death, in addition to reducing quality of life (Rodriguez-Rivas et al., 2022). Stigma makes people feel humiliated, devalued, degraded, unwelcome, at fault, and stressed about their condition and life (Prizeman et al., 2023).

Mental health stigma is primarily categorized into self-stigma and public stigma (Song et al., 2023). Public stigma refers to societal prejudice or discrimination toward individuals with mental health conditions, while self-stigma is the internalization of negative stereotypes, beliefs, and devaluation about oneself due to having mental illness (Rodriguez-Rivas et al., 2022; Song et al., 2023).

Mental health stigma is particularly prevalent among individuals living with conditions such as bipolar disorder and schizophrenia, with young people being especially vulnerable (Rodriguez-Rivas et al., 2022). For many, the effects of both public and internalized stigma contribute to worsened mental health (Song et al., 2023). These stigmas can severely impact a young person's sense of self, undermining their self-esteem, self-worth, and identity (Prizeman et al., 2023). This often leads to social withdrawal and strained relationships with peers and significant others (Prizeman et al., 2023). In efforts to maintain a façade of strength, many young people internalize the belief that having a mental illness is a personal weakness and consequently avoid seeking help (Song et al., 2023). This is further supported by Prizeman et al. (2023), who note that youth is a key period for identity exploration and relationship formation, and that stigma can make it challenging for young individuals to integrate mental health experiences into their identity or disclose this part of their identity due to fear of rejection or feelings of shame and guilt resulting from being misunderstood. The level of support young people with mental illness receive is crucial in determining their mental wellbeing over time and how their diagnosis affects them (Prizeman et al., 2023). Furthermore, stigma related to suicidal ideation also has serious consequences. As Thomas et

al. (2024) point out, public stigma toward individuals experiencing suicidal thoughts often discourages help-seeking, thereby increasing the risk of suicide.

Mental health stigma is widespread in Africa, with a recent systematic review and meta-analysis on internalized stigma among people with mental illness across the continent demonstrating that roughly 29 percent of people with mental illness experience internalized stigma (Alemu et al., 2023). In Uganda, this stigma often takes the form of attributing mental illness to personal weakness or laziness; blaming, shaming and labelling affected individuals; believing mentally ill people deserve to die or to be punished; viewing mentally ill people as a danger to themselves or others and excluding them from family and community life (Asiimwe et al., 2023). In their study about how mental health stigma influences loneliness and social isolation and affects the relationships of depressed young people, Prizeman et al. (2023) discovered that young people experienced increased feelings of loneliness and isolation as a result of feeling misunderstood, judged and discriminated against by their family and friends making them hesitate to disclose their condition (Prizeman et al., 2023).

Regrettably, even health professionals, who should offer understanding and care, can reinforce stigma. In primary care settings worldwide, practitioners may deny or delay mental health services, deliver substandard medical services, subject people with mental illness to verbal or physical mistreatment, relegate their care to less experienced staff, exclude them from clinical decisions, use coercive tactics and threats, withhold information about co-occurring conditions or alternative treatments, adopt a paternalistic or demeaning tone, and even predict that the patients will never recover (Abaatyo et al., 2024).

Stigmatizing perceptions toward people with mental illness are evident not only among practicing clinicians but also among future health professionals in Uganda. A cross-sectional study showed that doctors, nurses, and clinical officers at a referral hospital were found to hold moderate levels of stigmatizing attitudes toward patients with mental illness (Abaatyo et al., 2024). Likewise, a survey of 259 undergraduate medical students at a public Ugandan university showed that, despite over 70% exhibiting a solid understanding of mental health, many still held negative beliefs towards mental illness, beliefs often rooted in deeply held religious convictions and family experiences with mental health challenges (Asiimwe et al., 2023).

This kind of treatment from care staff results in poorer physical and mental well-being for the affected person, prolongs recovery, affects treatment adherence, and reduces their willingness to seek help in the future (Ori et al., 2023). Stigma from healthcare professionals has been linked to burnout resulting from heavy workloads and an under-resourced healthcare system that places a significant strain on healthcare providers (Ori et al., 2023).

Exploiting anti-stigma interventions can reduce stigma, improve the quality of life for people with mental health conditions (Rodriguez-Rivas et al., 2022; Song et al., 2023), and reduce the mental healthcare burden on healthcare professionals. Interventions like video games have been used in the past to treat depression and anxiety symptoms and to address misconceptions about severe mental illnesses (Rodrigues-Rivas et al., 2022). Digital mental health technological advancements such as AI chatbots can mitigate mental health stigma and improve access to care and treatment for young people. They are especially effective because they can be adapted to different contexts and age ranges (Rodriguez-Rivas et al., 2022).

Hoffman et al. (2024) suggest that the anonymity and confidentiality mental health chatbots offer may help reduce stigma and encourage young adults to seek treatment. The study investigated how self-stigma around seeking help influences attitudes toward different therapy delivery methods. They discovered that individuals hesitant to pursue human-led therapy because of stigma were more willing to try AI-based chatbots (Hoffman et al., 2024). Hoffman et al. (2024) further argue that DMHIs are suitable for younger people because of their online nature. Young people are used to communicating through texts and images and prefer to talk to others about their problems online rather than in person (Hoffman et al., 2024). Similarly, Kosyluk et al. (2024) examined the influence of mental distress and avoiding labels on using mental health chatbots. They found that individuals are less likely to seek traditional psychotherapy when they are afraid of being labelled with a mental disorder but more open to engaging with a mental health chatbot. Interestingly, participants who were experiencing mental distress showed a preference for chatbots for both screening and accessing resources.

Miles et al. (2021) also discovered that people were more likely to use chatbots when seeking help for stigmatized health concerns, especially when sharing personal information was difficult. Likewise, Kim et al. (2022) observed that college students who held high stigma toward mental health treatment were more likely to choose mobile health apps over face-to-face services.

Nevertheless, capitalizing on mental health chatbots to provide young people with stigma-free support could promote help-seeking behaviors, facilitate earlier diagnosis, deliver timely interventions, and ultimately reduce the mental health burden among young people.

3. Framework: Technology Acceptance Model 2 (TAM2)

Technology acceptance is a person's willingness to adopt and use new technology (AlQhuda et al., 2021). It reflects a person's psychological status regarding using a specific technology (AlQhuda et al., 2021). Technology acceptance is important throughout the technology's lifecycle, from its design, implementation, evaluation, and improvement (AlQhuda et al., 2021). Since information systems constantly evolve, along with user environments, system features, and user demographics, people's expectations and preferences may shift in response to these changes, as well as due to social or cultural influences, which makes understanding how users respond to emerging technologies important because poor acceptance can delay or derail their successful implementation (AlQhuda et al., 2021). In healthcare, in particular, uncertainties around what encourages or prevents technology adoption lead to the inability to gain user buy-in, which can undermine the core goals of the system (AlQhuda et al., 2021)

This research is therefore grounded in the Technology Acceptance Model (TAM), a framework broadly utilized in healthcare studies to investigate the acceptance and use of healthcare technologies (Holden & Karsh, 2010). Developed in the 1980s, TAM is based on the premise that individuals must first accept a technology before they use it (Holden & Karsh, 2010). Numerous frameworks, including the Diffusions of Innovation Theory, Theory of Planned Behavior, Unified theory of Acceptance and Use of Technology, Usability Framework, Task-Technology Fit Model, explain technology use, however, TAM remains the most widely recognized model in the Information Systems field (Schorr, 2023) and in the healthcare domain (AlQhuda et al., 2021) showing its credibility in examining technology acceptance. TAM was the most appropriate for this study due to its flexibility and broad applicability, which Schorr (2023) identifies as the model's greatest strength.

TAM states that two important constructs, perceived usefulness (PU) and perceived ease of use (PEOU), are crucial in determining a user's acceptance or adoption of a technology (Holden & Karsh, 2010). According to PU, if users think a health technology enhances their performance, they are more likely to adopt it (Holden & Karsh, 2010). In contrast, PEOU suggests that users are more inclined to accept a technology if it requires minimal physical or mental effort and is easy to use (Holden & Karsh, 2010). Research further shows that these constructs jointly shape behavioral intention to use health technologies. For instance, Pang et al. (2024) argue that when users find an mHealth application easy to operate, they develop stronger intentions to use it directly and perceive it as more useful, creating a dual pathway through which ease of use enhances adoption intentions. In turn, perceived usefulness influences behavioral intention, as users are more inclined to embrace technologies they

believe will meet their needs (Pang et al., 2024). AlQhuda et al. (2021) further emphasize that individuals' attitudes toward using healthcare technology are largely shaped by how effective and easy to use they believe the technology will be. For users to develop positive attitudes, the tools must enhance performance and be easy to navigate (AlQhuda et al., 2021).

Recognizing that TAM's traditional two-factor model may overlook critical social dynamics, this study sought to apply the extended TAM model, TAM 2. Enhancing TAM's prediction quality, TAM2 incorporates variables like Subjective Norm (SN), also known as Social Influence (Schorr, 2023), that precede PU and PEOU and shape users' attitudes toward new technology systems. SN is defined by how much someone believes that important others think they should or should not perform a particular behavior (Pang et al., 2024).

The relationship between social influence, behavioral intention, and perceived usefulness has been extensively confirmed (AlQhuda et al., 2021). An individual's social group's beliefs about a technology's usefulness can shape their attitudes and increase their intention to adopt it (AlQhuda et al., 2021). Users are more inclined to regard a tool as helpful and desire to use it themselves when they notice that their friends or significant others support it.

Because stigma is a known obstacle to seeking treatment among young individuals (Song et al., 2023; Prizeman et al., 2023; Hoffman et al., 2024), perceived approval and encouragement from significant others can counteract stigma and facilitate engagement with mental health chatbots.

Malhotra & Galletta (1999) also claim that successful technology adoption often hinges on a range of social influences. They argue that these social forces shape individuals' attitudes and behaviors, leading them to internalize, identify with, or comply with the promoted behavior and thereby strengthen their dedication to an information system. These processes relate to the beliefs in positive consequences of using the technology. Moreover, Malhotra & Galletta (1999) contend that only when use is truly internalized does it result in enduring, committed engagement with a technology. In addition, Pang et al. (2024) argue that subjective norm strongly shapes users' intentions to use chatbots, especially when they lack the experience or knowledge about the technology and depend on others' opinions for guidance.

Understanding the factors influencing technology acceptance enables stakeholders to manipulate these variables to promote increased adoption of Information Technology (IT) (Holden & Karsh, 2010). Therefore, this study draws on the TAM 2's PU, PEOU, and SN to explore young Ugandans' perspectives and attitudes on mental health chatbot use.

Although no studies have yet applied TAM to digital mental-health tools in Uganda, empirical research on other health-care technologies in the country strongly supports the model's applicability, as do studies on digital mental health tools across Sub-Saharan Africa.

For example, Musakuro and Gie (2024) investigated the factors influencing the future intention of university staff in South Africa to adopt digital mental health tools based on their experiences with the tools. They report that perceived usefulness, user experience, satisfaction, delivery mode preference, and ethical considerations significantly influenced adoption intentions. The participants associated e-health tools with practical benefits such as enhanced accessibility, convenience, and continuity of mental health support. These findings suggest that the tools' perceived usefulness and alignment with users' preferred service delivery modes can drive commitment and future uptake.

Similarly, Mugabirwe et al. (2021) evaluated the acceptability and feasibility of a health technology application among hypertensive adults accessing care in rural Ugandan health centers. The study involved participants using the app to report on "medication adherence, social support, and blood pressure control" (p. 1). The study found that the patients widely accepted the application, attributing their positive experience to its ease of use and perceived usefulness, reporting improvements in controlling their blood pressure and adhering to medication. However, internet access and the affordability of the devices were highlighted as potential barriers.

Sekandi et al. (2021) explored the acceptability of "Video Directly Observed Therapy (VDOT)" (p. 1) for treating tuberculosis in Uganda. Although the study used a hypothetical scenario, it yielded rich insights into the perceived benefits and barriers to its adoption. Most participants found VDOT acceptable and recognized its advantages, particularly monitoring patients easily, following up on missed treatment promptly, improving communication between patients and providers, and reducing financial costs associated with clinic travel. The study also identified critical barriers such as limited digital literacy, poor technical infrastructure, the cost of smartphones, unreliable internet access, and privacy concerns, such as the risk of unintended disease disclosure and the potential for stigma.

Nanyombia & Ejiri (2016) examined the adoption of a mobile health tracking system by health workers in public health facilities in Kayunga District, Uganda. They noted four main factors influencing adoption: the ease with which the workers could use the tracking system, thinking it improved their job performance, encouragement from colleagues and performance expectancy, effort expectancy, social influence, and the availability of resources and assistance to use the health tracking system. They also noted that the cost of mobile devices negatively affected adoption. The respondents believed that the health tracking system

improved job performance by enabling them to complete their tasks faster and was easy to use and understand.

Further evidence from Ugandan studies supports the subjective norm (i.e., social influence) as a key adoption driver. Osingada et al. (2025) investigated predictors of telehealth use for follow-up care among HIV positive Ugandans. They observed that effort expectancy (PEOU) significantly predicted telehealth adoption. Their study also revealed that social influence, measured as perceived opinions of peers and healthcare providers, was significantly higher among those with strong intentions to adopt telehealth. They observed that when family members or community peers endorsed telehealth, patients felt more supported and confident in using it.

Tumuhimbise et al. (2023) examined the acceptability of a mobile health application for enhancing tuberculosis care among healthcare workers in Southwestern Uganda. They identified that this peer endorsement encouraged individual use when colleagues and supervisors expressed positive opinions about the app and viewed it as important for linking private and public facilities. Participants reported that knowing their peers supported and valued the technology made them more inclined to adopt it in their daily workflows.

Furthermore, Namatovu et al. (2021) explored expectant mothers' perspectives on eHealth in routine antenatal care in Uganda. They reported that social influence, particularly spousal support, was pivotal in technology uptake. Some women reported that when their husbands dismissed digital tools as "for white people", they lacked the resources, such as smartphones and data, and encouragement needed to try eHealth systems. This was mainly because most women were stay-at-home mothers dependent on their husbands for support, who, if they viewed eHealth tools as unnecessary or culturally inappropriate, would not allocate money for a smartphone or the data bundles needed to run the apps. Therefore, sociodemographic variables such as gender, education, cultural background, marital status, and income can influence people's intention to use DMHIs.

Despite its widespread use, TAM has been critiqued for its research that heavily relies on cross-sectional surveys and self-reported intention measures that may fail to capture long-term usage behaviors or support strong causal inferences (Chuttur, 2009). Furthermore, despite TAM's wide citation, researchers hold mixed opinions about its core assumptions and practical effectiveness, arguing that the model "lacks sufficient rigor and relevance to be a well-established theory" (Chuttur, 2009, p.2).

Nevertheless, TAM is still relevant for explaining the acceptance of mental health chatbots. Users might accept the technology if they perceive it offers tangible benefits in

supporting their mental health, if the design is intuitive, simple, and requires minimal effort, or if significant others vouch for it. The model provides a clear framework that captures key psychosocial drivers of technology adoption, making it well-suited for understanding user behavior in the mental health context.

4. Methodology

4.1. Study Design

The study used an exploratory qualitative approach, drawing on data collected through semi-structured interviews, to acquire a deep, nuanced understanding of young Ugandans' perceptions and attitudes toward mental health chatbot use. Qualitative methods are extensively employed in healthcare to inform theory development, uncover behavioral patterns, assess patient needs, capture individuals' lived experiences, and guide the design of effective health interventions (Renjith et al., 2021). Because mental health chatbots are new in Uganda and there has not been any prior research on this topic, a qualitative approach was deemed most appropriate: it enables rich description of complex human behavior and helps uncover the contextual factors that influence the creation of health interventions (Renjith et al., 2021).

This study is further informed by the “CeHRes (Center for eHealth and Wellbeing Research) Roadmap”, a participatory framework for “developing, implementing, and evaluating eHealth technologies” (Kip et al., 2025, p. 2). The roadmap emphasizes the importance of context-driven innovation and ongoing stakeholder involvement throughout the process (Kip et al., 2025).

Many eHealth interventions fail to reach their full potential because there is a mismatch between the health technology, the users' needs and characteristics, and the context they are used in (Kip et al., 2025). Implementing a technology is a continuous and repeated process that begins right from the initial stages of development (Kip et al., 2025). It requires considering and adapting to many interconnected systems, such as users, institutions, infrastructure, and social factors.

As such, the “CeHRes Roadmap” suggests a “contextual inquiry” as the “first step” in designing health technology (Kip et al., 2025, p. 5). Understanding who will utilize the technology and determining the primary areas for improvement to offer value are the goals of this step (Kip et al., 2025). This approach raises the possibility of creating an eHealth intervention that

addresses real problems, works well in its intended setting, and is welcomed by the people who need to use or support it (Kip et al., 2025).

In line with the CeHRes Roadmap, qualitative methods allow us to uncover contextual factors, expectations, and concerns of potential users in Uganda, ensuring that future chatbot designs truly reflect their needs and expectations.

Therefore, this qualitative study serves as a foundational step before any mixed-methods or quantitative follow-up, using an exploratory descriptive approach grounded in the Technology Acceptance Model covering PEOU, PU, and SN. Given the limited awareness of mental health chatbots in Uganda, participants were required to engage with Wysa, a mental health chatbot, to enable them to provide informed responses during subsequent interviews.

4.2. Study Participants

The researcher recruited nine young Ugandans, aged 18-30. Of these, 4 were male and 5 were female; 5 were aged 18–24 and 4 were aged 25–30. All participants met the following criteria: access to a smartphone and internet connection, proficiency in English, basic digital literacy, and no mental distress during the study.

4.3. Selection and Sampling

Given the study's remote nature and the fact that participants were required to use the WYSA mental health chatbot over a sustained period, we employed a combination of purposive and convenience sampling.

Participants who satisfied the inclusion criteria of basic digital literacy, smartphone access, dependable internet, and English proficiency were chosen through the use of purposive sampling. This made it possible for people to participate in remote interviews and communicate with the chatbot in an efficient manner.

Convenience sampling was used to recruit participants who were readily accessible to the researcher through existing social networks established during her previous time living and studying in Uganda. Potential participants were approached via WhatsApp based on referrals from trusted contacts.

Fourteen young people were initially recommended and invited to participate, of which nine consented and joined the study. Nine participants were considered sufficient for qualitative inquiry, in line with Hennink & Kaiser's (2022) finding that focused qualitative studies with relatively homogeneous populations typically reach data saturation within 9-17 interviews.

While general guidance on qualitative sample sizes often suggests anywhere between 5 to 60 interviews, these recommendations are not evidence-based (Hennink & Kaiser, 2025). As Young & Casey (2019, p. 12, cited in Hennink & Kaiser, 2022) argue, "rigorously collected qualitative data from small samples can substantially represent the full dimensionality of people's experiences." Thus, small samples do not affect the credibility, validity and reliability of qualitative research (Hennink & Kaiser, 2025).

4.4. Procedure

Following the referral, the researcher contacted potential participants via WhatsApp to verify eligibility and obtain informed consent. Each participant was then instructed to use the free version of the WYSA chatbot for 10-15 minutes daily over a two-week period. To facilitate correct setup, the researcher provided annotated screenshots illustrating the app's interface and the specific chatbot feature. Refer to Appendix A for the screenshots.

Participants were encouraged to use WYSA in whichever way suited their needs, whether sharing experiences, seeking emotional support, asking questions, practicing self-management techniques, or simply conversing. Throughout the two weeks, the researcher conducted brief check-ins (approximately two per week) via WhatsApp to track usage, support adherence, and address any challenges.

Upon completion of the usage period, the researcher arranged a remote, semi-structured interview at each participant's convenience, sending meeting links two days in advance.

4.4.1. Why Wysa

Wysa was chosen due to its wide accessibility across the globe. The app has a 24/7 free version that is available for download via the Google and Apple stores. Using evidence-based CBT techniques, the chatbot promotes mental well-being and resilience (Beatty et al., 2022). The chatbot mimics human interactions in a text-based conversational format, allowing free dialogue like everyday human communication and providing a safe, supportive, and

anonymous environment (Beatty et al., 2022). Most importantly, the app does not collect personally identifiable user information such as name, age, or gender, ensuring user privacy. The study does not assess Wysa's effectiveness or functionality but uses it as a representative example of contemporary mental health chatbot technology.

4.5. Interview Guide Design

Based on TAM, which provided the theoretical basis for this investigation, the interview guide was created. The guide was revised and improved with input and feedback from the researcher's academic supervisors. The final guide comprised two sections and thirteen items in total. Demographic information such as age, gender, education level, and prior experience with chatbots was gathered in the first section. The second section focused on attitudinal data related to the TAM constructs of PEOU, PU, and SN. This section included three PEOU, three PU, two SN, and one item exploring Behavioral Intention (BI) to use chatbots in the future. As is characteristic of semi-structured interviews, the researcher did not strictly follow the questions or their order. The guide only served as a foundation. The researcher paraphrased questions and probed for clarification based on participants' responses to allow the conversation to flow naturally while ensuring coverage of key themes. The interview questions are provided in Appendix B.

4.6. Data Collection

Semi-structured interviews were used to collect data. Upon completing the two-week Wysa interaction period, participants were invited to interviews via Zoom. Interviews lasted approximately 40 minutes each and were recorded with participants' informed consent using Zoom's built-in recording functionality.

Semi-structured interviews were chosen because they facilitate a detailed exploration of participants' experiences and perspectives and allow for the flexibility to ask spontaneous follow-up questions based on individual responses (Karatsareas, 2022). They also allowed participants to express their views on mental health chatbots in their own words and based on their experiences, contributing to their empowerment and engagement with the research process (Karatsareas, 2022). The method also enabled the researcher to build rapport with the participants, collect detailed data, and uncover both common and differing perspectives on mental health chatbots across participants (Karatsareas, 2022).

However, semi-structured interviews come with limitations that were considered during the study design. Karatsareas (2022) notes that semi-structured interviews involve a high degree of obtrusiveness, as participants are directly asked to report on their attitudes, which may lead to subjective or socially desirable responses (Karatsareas, 2022). Furthermore, these interviews are influenced by the context in which they happen. The interview setting, timing, relationship between the interviewer and interviewee, and differences in familiarity with the interview format can influence how comfortable participants feel, how much they disclose, or how they choose to frame their responses (Karatsareas, 2022). These challenges are especially relevant when discussing sensitive topics such as mental health or digital therapy, where cultural context and perceived stigma may shape participants' openness and candour.

4.7. Data Analysis

Using the thematic analysis framework developed by Braun & Clarke (2006), the data were analyzed. Thematic analysis supports a flexible yet rigorous approach to identifying patterns within qualitative data, providing a “rich and detailed, yet complex, account of data” (Braun & Clarke, 2006, p. 3). The researcher adopted a contextualist approach, aiming to capture and report the participants’ experiences and perspectives as they described them while also interpreting these through the Technology Acceptance Model (TAM), which considers how both individual perceptions and social context shape technology use.

The researcher aimed to describe the entire dataset, including all important themes. Therefore, the identified themes within each construct accurately reflect the entire data set. The researcher chose to do this to give a broad picture of young Ugandans' perspectives on mental health chatbots, as they are under-researched and not well-known. The themes were semantically identified, focusing on explicit meanings expressed by participants regarding their experiences and attitudes towards mental health chatbot use.

In stage 1 of the analysis, the interviews were transcribed word-for-word using Zoom’s automatic transcription tool and then meticulously reviewed against the audio recordings by the researcher to correct errors and clarify inconsistencies. The finalized transcripts were imported into Nvivo software for systematic analysis. In stage 2, the researcher conducted a sentence-by-sentence analysis, identifying meaningful units in participants’ responses that reflected patterns related to perceptions and use of the mental health chatbot. The researcher adopted a hybrid coding strategy. Initially, deductive codes were derived from the TAM

constructs: PU, PEOU, and SN, as outlined in the interview guide. These constructs served as an initial framework for organizing the data. Within each of these broad categories, the researcher then applied inductive coding to allow new themes under each construct to emerge directly from participants' narratives. This ensured that the participants' perspectives shaped the analysis within each construct rather than being confined to pre-existing categories. The entire content of the data set was coded within each construct. Through this process, 49 initial codes were generated across the three TAM constructs.

In stage 3, the codes were then refined and grouped based on similarity and thematic relevance, resulting in twelve distinct themes: six under PU, four under PEOU, and two under SI. In stage 4, each theme was iteratively reviewed and examined against the codes, considering alternative interpretations of patterns in the data. In the final stage, the themes were clearly explained and backed up by illustrative data excerpts to ensure coherence and depth. The combination of theoretical structure and emergent insight allowed for a comprehensive interpretation of how young Ugandans perceive and engage with mental health chatbots.

4.8. Ethical considerations

This study's data collection and analysis followed ethical research standards. Informed consent was received remotely via WhatsApp. Participants were sent study information sheets and consent forms through WhatsApp, and they provided written confirmation of their consent by signing and returning the form. Participants were free to leave the study at any time without incurring any penalty because participation was completely voluntary.

Each participant was given a unique non-identifying code number, and all their details were de-identified during data analysis to safeguard their anonymity. All participants' documents pertinent to this study, such as informed consent forms, interview recordings, interview transcripts, and corresponding outputs, were stored on an encrypted drive accessible only to the researcher. Upon completing the master's degree, the researcher will permanently delete all the participant data and forms.

To minimize the potential risk of harm, only participants without mental health distress were enrolled in the study. The study information sheet provided contact information for free mental health support services, such as Mental Health Uganda and Butabika National Referral Hospital, in case participants experienced any distress related to their participation and required help.

4.9. Researcher Positionality

The researcher is Ugandan by upbringing and holds a bachelor's degree in community psychology. Over four years as a mental health social worker, the researcher supported young Ugandans through a range of mental illnesses and challenges. While this background provides valuable insider insight into the systemic, cultural, and social factors affecting mental health and health technology attitudes in Uganda, the researcher recognized that it may also shape their assumptions about the feasibility and value of digital mental health interventions among young Ugandans. Therefore, the researcher engaged in regular reflexive journaling and peer discussions to mitigate potential bias and maintained a participant-centred approach throughout the research process. Reflexivity was also central during data analysis, with the researcher carefully examining how personal experiences and expectations could influence thematic interpretation. This ensured that the conclusions were based on the viewpoints of the participants rather than the assumptions of the researcher.

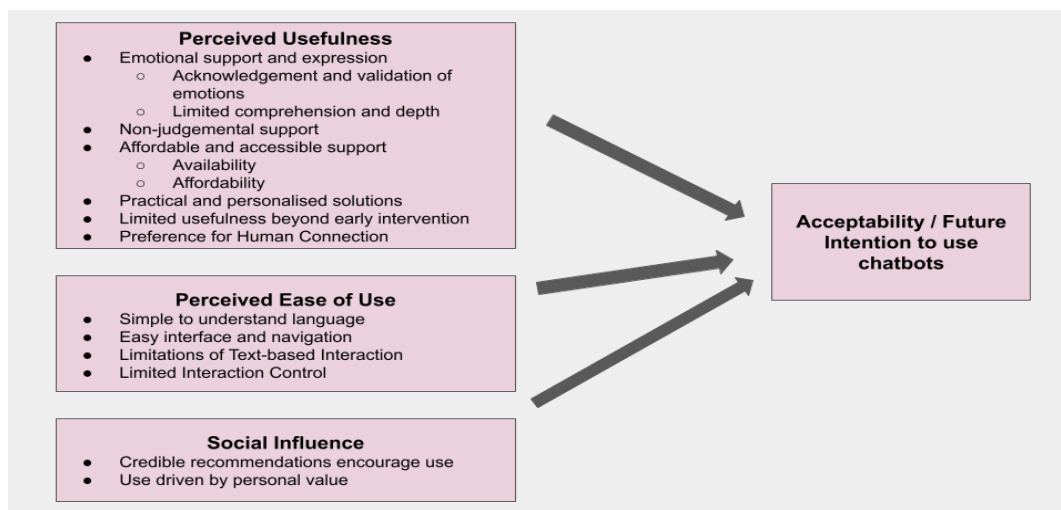
5. Results

5.1. Participant demographics

The participants (n=9) were 44% male and 56% female, with a mean age of 24.7 years. Five participants (56%) were between the ages of 18 and 24, while four participants (44%) were between the ages of 25 and 30. All participants were educated, with 30% having postgraduate qualifications. All but one participant (89%) had never used a mental health chatbot before the study.

Table 1: Study participants demographic characteristics

Attribute	Range	Sample size
Gender	Female	5
	Male	4
Age	18-24	5
	25-30	4
Education level	High school diploma	3
	Bachelor's degree	3
	Postgraduate diploma	1
	Master's degree	2
Previous experience with mental health chatbots	Yes	1
	No	8

**Figure 1: Key themes from participant interviews analysed within the study**

5.2. Perceived Usefulness

5.2.1. Emotional Support and Expression

Acknowledgement and Validation of Emotions

Several participants expressed an appreciation, and sometimes surprise, for the perceived emotional sensitivity and responsiveness of the chatbot, for its active interest in, and engagement with, the user's emotional state, and even a perception of a relational connection:

“At some point I felt like, huh. It is very understanding. It is sensitive and responsive to my emotions. I confided in it how I was feeling and then it responded in a very sensitive and empathic manner.”

“Literally, it was like I’m talking to another version of myself which understands me. It felt like someone was actually listening to me for the first time.”

“It kind of builds a relationship with you, and you connect with it... It gives you genuine helpful answers.”

“It asks a lot of questions... it would always love to hear what you are saying.”

Limited comprehension, lack of depth, and inadequacy

There was a mismatch between the user's expectations and the chatbot's output, particularly in terms of lack of informational depth and relevance, the chatbot's inability to engage meaningfully with complex or nuanced emotional and psychological issues, and the failure to meet the deeply personal emotional or cognitive needs of users:

“Sometimes you ask a question and the information that you get back is not exactly what you expected [...] some responses lack depth.”

“It finds difficulty comprehending certain things... ChatGPT is better at making sense of disorganized information.”

Some participants expressed that the chatbot was unable to provide tailored context-rich feedback, but instead standardized responses in line with specific keywords:

“It only understands a few short responses. If you’re having a panic attack and go into depth of what’s causing it, it’s only going to pick out ‘I’m having a panic attack,’ because that is what is in its system, then it’s going to help you by giving you, let’s say, breathing exercises or a meditation forum or tell you a story, but it’s not going to address or help you exactly with what you’re dealing with.”

Some participants expressed frustration with the chatbot’s inability to remember previous conversations, noting that each session felt like a reset. Although past messages were saved in a journal, the chatbot did not actively follow up or reference them. As a result, users had to reintroduce their issues if they wanted to continue receiving support on the same topic, which could be tiring and discouraging:

“Even though it saves previous conversations in a journal, it doesn’t follow up. Each session starts fresh, with no reference to what was discussed before.”

5.2.2 Non-judgmental support

A consistent theme across all participants was the non-judgmental space provided by the chatbot that encouraged them to express themselves more freely without fear of lasting stigma. The non-judgmental support was also associated with the anonymity of interaction (users can choose a fake name) and the confidentiality of the information shared with the chatbot. This facilitated trust and emotional safety, since participants felt they were free from human judgment in terms of moral evaluation, public exposure, or social stigmatization, thus fostering greater disclosure and authentic self-expression:

“[...] when you download the chatbot and it asks for your username, you put anything that you want. So you’re not afraid that maybe someone on the other side knows who you are. So you have your chosen name or the one you want.”

“In terms of maybe confidentiality, and also fear of not being judged, I think this mental health chatbot would be okay for me because I get to express myself so easily without this fear of knowing someone is judging me, someone is looking at me, and they’re thinking, ‘you mean you did that’ [...] But here [chatbot] I’m expressing myself in whichever way I feel like. I am free to say whatever situation that I’m dealing with without any fear, because I know it doesn’t know who I am on a personal level, so I will not be judged forever.”

“I personally have a problem approaching real people for help. I’ll be like, ‘will this person judge me if I tell them that this is what I’m doing, or this is what happened?’ I express myself fully to the chatbot. I tell it exactly what the issue is, but with people I would always sugarcoat and leave out some things that I think are going to cause them to judge me.”

“I have a lot of trust issues. I think if I share my problem with someone, they may end up sharing it with someone else, even by mistake, maybe as an example or something—and before I know it [...] it has become known everywhere. So I think my trust issues make me feel comfortable talking with the chatbot because I know this is confidential and it will go nowhere.”

Some participants feared seeking help from health professionals for fear of being judged. They noted that while they might seek help from a psychologist or counselor, they would still withhold specific details:

“I’m more open to it than any other individual that I would seek help from [...] for example, if I know that I’m dealing with a professional psychologist, I would just talk about a few things and not exhaust everything like the way I do with the chatbot.”

5.2.3. Accessible and affordable support

Most participants appreciated the chatbot’s constant availability and affordability. They liked that they could turn to the chatbot for support anytime and anywhere, and that it was a pocket-friendly intervention that most people could afford. These features were essential in contrast to traditional therapy, which is not always accessible and often requires payment and prior scheduling. However, external factors such as poor internet connectivity or lack of mobile access were highlighted as barriers to realizing these benefits.

Availability of chatbots

According to participants, a significant advantage of mental health chatbots was their immediacy, permanent and uninterrupted accessibility, temporal flexibility, and user-centric timing, which contrasts with conventional mental health services.

The chatbot's round-the-clock support made them especially valuable in emotionally distressing moments when no one else was available to talk to:

"It is accessible 24/7, like anytime I would want a session with it, it would always be there available. That is one thing I love about it."

"If I'm faced with a situation or having a challenge and I don't have an immediate person to quickly talk to, I can always go to the chatbot and express myself there. And I know I would get a response that probably would encourage me [...]."

Participants also felt that chatbots were better than conventional therapy, which requires scheduled appointments, sometimes subject to delays or cancellations:

"They are flexible. Anytime you have the need, or you feel the urge to seek help or talk to someone, be it at night, the morning, and stuff like that. And yet, if you want to meet, let's say a psychiatrist, you'll have to schedule that."

"Also, traditional psychotherapy, sometimes you can schedule an appointment and it's cancelled and all that. So it's convenient."

Affordability of chatbots

For many participants, chatbots were seen as a more affordable alternative to traditional therapy, especially for those with limited financial resources or restricted access to mental health services:

"Sometimes psychotherapy is also expensive. If most people knew about [chatbots], it [would be] cheaper for them to use [a chatbot] [...] compared to the traditional psychotherapy method. Poor people don't have the resources sometimes to access a therapist, and they would opt for this chatbot. It's easier and less expensive."

"In situations where you cannot afford fees for a therapist or a psychologist you can always download the application, maybe pay a small fee, and you have someone to answer some of those questions that you may be struggling with."

Beyond therapy fees, some participants also pointed out that transportation costs made in-person mental health services harder to access:

"For me, I think mental health chatbots are very convenient [because] you don't have to move from one place to another."

However, other participants noted that while chatbots are low-cost, their affordability is contingent on digital access. Users without smartphones and internet connections would not be able to benefit from chatbot support, and this is especially true for individuals from lower-income backgrounds or rural areas:

"[...] are we saying people are going to get mental health support only when they can afford the Internet [data]? Sometimes you can't access mobile money, or you're out of cash and you can't buy data [...] and not everyone is going to have a smartphone, not everyone is going to have a laptop."

"[...] you [will] get a response as long as you have the Internet [data]."

5.2.4. Practical and Personalized Solutions

Many participants felt that the support and strategies they received from the chatbot were practical and tailored to their unique needs and challenges. They highlighted the chatbot's ability to offer practical and actionable support in areas such as stress management, behavior modification, improving self-image and self-esteem, and reframing negative thoughts, which they found very useful:

"I had a problem with sleep. I would stay online all the time. And then I realized that with this Wysa you could actually set a reminder and it could always remind you 'now it is time to do a sleep exercise'. It [the exercises] helped me deal with my sleep challenge [...] Oh now I would never want to separate with the sleep schedule."

"One time I was kind of stressed. So I contacted the chatbot. And it gave me some relief methods I should use to overcome it. I tried them, and it worked [...] like getting enough sleep, getting people to talk and getting involved in different activities. They worked for me."

"It would help me get out of that negative self-image, and it would give me a way I could improve. And I start seeing myself in a more positive way, with regards to a particular topic."

“[...] and also suggesting different ways of coming up with a different interpretation of my event, instead of thinking, ‘oh, my God! I think I am lazy because I’m not getting so much done,’ How about you take the approach that you have a lot of work [and] you’re actually doing your best. But you have a lot on your table and maybe thank yourself for what you have been able to accomplish.”

5.2.5. Limited Usefulness Beyond Early Intervention

Participants felt that chatbot support was only appropriate for early-stage emotional support or when access to professional care is limited and the chatbot is the only available alternative. Their support was viewed as effective primarily for mild or initial distress, but inadequate for addressing more serious or complex mental health conditions.

One participant highlighted the supplementary and preventive role of mental health chatbots in the absence of immediate professional help, particularly in contexts with limited access to professional care or low-resource settings, either in terms of time or money:

“For settings where we have a very concerning scarcity of mental health professionals, having a chatbot that you can run to can be very helpful, maybe can save you. You get the initial support. If you think you need more advanced care, maybe you can find time and resources to get a professional, but before you find that person, a chatbot can support you, encourage you, push you up to some point so that you don’t feel like you’re completely helpless, and no one and nothing can save you. In that sense, it is very helpful.”

Another participant expressed that the support provided by chatbots was suitable for everyday stressors and minor emotional struggles, such as stress about daily planning or mild panic, but not more severe, complex, and lasting mental health challenges:

“It really depends on how far the person needs the help. If the level of mental health that you’re dealing with is little, and it’s not big—or the simple things like, ‘Oh, I’m having a panic attack,’ or ‘I’m failing to plan my days and this is giving me stress,’ the simple things—then chatbots can be useful. But if it’s something very serious, then probably [it] wouldn’t be as effectful because the mental health chatbots do not comprehend a full description. They can’t help you that well. They do help if it’s like the little things, because they’ll tell you a story, or they’ll

give you a quick response. So it's like for things that need a quick response but not things that need continuous help.”

This perception of chatbots as a form of early intervention was echoed by another participant who found the tools helpful for stabilizing emotional states but lacking in depth. The strategies offered, such as mindfulness and breathing exercises, were considered too basic to be meaningful for those facing more overwhelming issues:

“I expected to get more advanced strategies and techniques on how to go about my condition, something beyond mindfulness exercises, breathing in, stretching. One would say, those are basic [...] because I don't think that if I'm being overwhelmed by work, that breathing exercise or being mindful, whereas it is really excellent, I don't think it is going to be sufficient in terms of meaningfully supporting me [...]. Chatbots are very good for the early stages of helping somebody to maybe stabilize in preparation for more, deeper and meaningful, much deeper psychotherapy or mental health care.”

5.2.6. Preference for Human Connection

While many participants valued the chatbot's attempts to provide empathy and support, they felt that the responses were superficial and experienced a sense of emotional distance in their interactions. For these individuals, their awareness that the chatbot was not human created a psychological barrier that limited their emotional expression and ability to form a genuine connection and made them doubt the authenticity of the chatbot's care and empathy. As a result, they preferred human interaction and human therapists over a chatbot.

Some participants noted that although the chatbot responded with helpful suggestions, the interaction often felt mechanical or programmed:

“[I felt like] It is mechanical. It is programmed to do that, not that it actually feels or connects, connects genuinely with what you're going through and how you feel. It's giving you some bit of advice, but there's a bit of distance.”

“The chatbot is programmed to just give me an answer depending on what I tell it. So maybe it doesn't care. The algorithms are like, this is what you say next in response to something like this [...] I prefer a fellow human being to be my therapist.”

“[...] chatbots do not have emotion. Let me just put it like that.”

Others expressed difficulty in opening up or expressing themselves. The experience felt emotionally flat and superficial compared to face-to-face conversations with real people:

“I think I failed to express myself in the way I would if it were a human being. I think it just doesn’t evoke the same emotions a human being would evoke from me. Like, I’ve tried talking to someone, and I prefer the way I talk to that person, and the way I feel talking to the chatbot is not the same. It just doesn’t feel real [...] personally, I would prefer to talk to a real person, and preferably physically.”

For other participants, they valued that human therapists were not only trained professionals but also fellow human beings who bring compassion rooted in lived experience, making their responses feel more genuine and enabling a deeper emotional connection. This shared humanity was essential in helping participants feel understood, supported, and safe to express themselves without fear of judgment:

“I would prefer psychotherapy with a fellow human being, because [...] my experience has been that my therapist was empathic, very understanding very considerate [...] they were trained to attune themselves to tap into my feelings, understand them, connect with me well, and say whatever they’re saying genuinely, as a fellow human being who has had the experience that humans do have [...] I mean largely hardships that all human beings on the planet endure. A part of him or her is speaking from experience. The shared connection with the distress that we all go through, what you can call the human condition.”

5.3. Perceived Ease of Use

5.3.1. Simple to Understand English Language

Participants expressed that the chatbot used basic English language that was clear, simple, and easy to understand, and they felt that even individuals with limited literacy would still be able to use it successfully. The simple language made it easy for participants to communicate with the chatbot and to understand its responses and suggested strategies and exercises, making it easy to apply them:

“It [chatbot] was using the simplest English to understand. Primary [school] kids can use it because the English is simple and clear.”

“One of the positive things I love about it [chatbot] is that they actually don't use complicated English. That's one. I don't think I have found any word that I cannot relate to.”

The familiarity and conversational tone of the language made users feel like they were interacting with a real person, rather than navigating a technical system:

“It was the way you could be talking to a therapist, asking you just things that are relatable. Okay, like, even a child could use it, because we're not using very difficult language. So navigating it was not a big challenge for me personally.”

5.3.2. Easy interface and navigation

The participants noted that the chatbot was easy to navigate because of its intuitive interface and helpful built-in features. Visual tools such as emoji sliders, pre-written response suggestions, and guided prompts helped guide users and reduce the complexity of interaction:

“It's pretty easy actually. When you go to the chat, they have features like the emoji, where you just have to move the smile up or down to determine your mood for how you're feeling at that moment.”

“It gives you an idea on how you could have responded to a question, or how to put your words together.”

“Like even if you're answering, it gives you a question, then it brings some... some like possible feedbacks already written for you.”

“I never needed guidance or someone to contact like, ‘How does this work?’ I was able to figure it out on my own.”

However, some participants noted that initial interaction with the chatbot could be challenging, especially for first-time users, those less familiar with digital platforms, or who have limited digital literacy:

“Okay, using it, interacting with it for the first time, it may not be quite very easy, especially if you're coming across it for the first time. You may need, of

course, probably a tutorial to help you navigate through its interface and the different features that are in it. But once you get to learn how to use it, it becomes easy.”

“If I haven’t mastered how to use my phone, it’s going to be even harder to use a chatbot. But from my personal experience, it was largely easy to navigate. I’m just thinking about others.”

5.3.3. Limitations of Text-Based Interaction

Participants expressed concerns about chatbots’ text-based interaction, noting that typing responses repeatedly was tiring and demotivating and, in some cases, a barrier to meaningful engagement for users with disabilities, low literacy, limited digital fluency, and users who struggle to express themselves in writing. The participants felt that having an audio feature would simplify engagement with the chatbot.

Some participants described feeling fatigued by the need to constantly type out their thoughts, leading them to cut conversations short even when they would have preferred otherwise:

“It’s [the chatbot] answering my questions, and then it would be like, ‘Is that enough for today?’ and all. But I would feel like we’ve not exhausted everything that we needed to talk about, majorly because I was typing. I would feel lazy to keep typing an explanation. If there was an audio function, I would just talk and maybe they transcribe [...]. I would actually end some conversations in the middle because of that.”

The act of typing was not only physically tiring for some, but also limiting for individuals who struggle with written expression:

“In order to use it, you have to be able to type. Probably they could add like a voice thing for people who are not good with expressing themselves in written form.”

In terms of accessibility, participants pointed out that reliance on text alone excludes people who cannot read or write, or those who would benefit more from audio-based interactions:

“Maybe for people who can’t write or read, if there was an option for them to use sound or talk, and then maybe get a response.”

5.3.4. Limited Interaction Control

Some participants felt restricted in their ability to truly express themselves when the chatbot only provided the option of preset responses to questions that it posed, either because the options were difficult to interpret and differentiate from each other, or because, being pre-formatted and standardized, they did not meet or reflect individual specificities. As a result, the participants were left feeling misunderstood. Participants thus recommended that chatbots maintain the typing feature even when they suggest responses to allow users to express themselves in their own words when they find difficulty choosing from the pre-set options:

“[Sometimes] I was supposed to just choose those options without typing, I had a challenge of choosing [...], because [while] the two different options, were a bit similar, the outcome was different [...] unless you are clear about what you want from the bot, some options sometimes may be a bit challenging to choose from.”

“It gives you an idea on how you could have responded to a question [...] but it only becomes a bad thing when you want to type more, and it's only giving you options to choose from.”

“It will give you options to choose from [...] I think if they left the typing feature open, it would be easier for other people to express themselves in their own words rather than choosing an option made by it.”

5.4. Social Influence

5.4.1. Credible Recommendations Encourage Use

Participants expressed that they were more likely to trust and adopt a chatbot if it was recommended by someone they considered credible, such as a health professional or someone personally connected to them, such as trusted friends and family members. These recommendations were seen as strong expressions of care and the chatbot's potential effectiveness.

For some participants, a chatbot endorsed by someone they knew and trusted was perceived as a gesture of care and concern for their well-being:

"I would be more likely to use it because it has been recommended by a significant other. I would think that they really care about me and want the best for me. They wouldn't recommend something that is not going to be helpful."

Positive experiences shared by others enhanced the trustworthiness of the chatbot. Participants used others' behavior as a shortcut for judging the credibility and efficacy of chatbots and willingness to engage with the tool:

"It would depend on how this chatbot has really helped them, if they would tell me some of the things that they have achieved, and the changes that they have experienced, the positives and the negatives, of course."

"If someone would give me their life experience with it, it would actually be more convincing [...] I would actually trust the chatbot more. I would now want to go deeper [into it]."

"I would have the assumption that they have used it themselves and it has worked for them. I would go with that belief within me that this is something that is trustworthy."

A few participants were driven more by curiosity than by the strength of their relationship with the recommender. They expressed a willingness to explore the tool independently and form their own opinion:

"I love trying out new stuff... I would download it and maybe just try checking [it] out and then maybe I would just fall in love with it or just leave it, depending on what I find."

"I would use it. I would love to just try and adventure to see if it works."

"I'm a person who loves to learn [...] so if I knew something like this [...] would offer hope or help [even if] not necessarily to me, but to society. I would definitely try because then I would be sure that it would help someone else. I would want to see or find out how it would work for me as well."

In contrast, a health professional's recommendation added legitimacy for some participants. It reduced doubts about the chatbot's usefulness, highlighting the importance of expert validation and referral in fostering acceptance and trust:

"Depending on the person recommending it, if they're working in the medical field [...] because they're into medicine, I don't have to doubt anything. "

5.4.2. Use Driven by Perceived Benefits

Many participants expressed that while family members, peers, and broader society often held negative perceptions about using chatbots, these views would not discourage them from continuing to use the tools.

Some participants noted that significant others typically favored traditional, human-based mental health interventions and were likely to interpret the use of a chatbot as a sign of severe mental illness, abnormality, or even irrationality:

"First of all, they would think that there is a very big problem. Like, they would think I really have something wrong with me... My mom, I guess she would be like, 'This girl has failed to manage her mental health physically. Oh, now she really needs to have a chatbot on her phone to help her manage her mental health.'"

"Some of them would question why I would talk to a bot about my mental health [...] They will actually see it in a negative view. 'How do you talk to your bot? Are you normal or something?' They see such things like maybe they're [chatbots] trying to take control of your mind."

"They would ask, 'Are you out of your mind? Instead of talking to people—maybe some elder, maybe the church person, maybe a counselor—who talks to a machine? Does a machine understand what you go through? Does it understand your language? Does it feel for you? Does it even care?"

Despite the external stigma and skepticism, the participants' willingness to explore the tool was primarily influenced by its perceived usefulness and benefits, particularly how helpful or relevant it was in addressing their emotional needs, such as providing them with private, nonjudgmental, and accessible support:

"At the end of the day, you're not there to monitor what I'm doing. Okay, it's something that I'm doing on my personal phone. So you do not have access to it directly. You wouldn't even know unless I told you."

“If it’s something that’s going to help me get better, or deal with an issue other people haven’t been able to help me with [...] even if people started judging me, it wouldn’t stop me from using it.”

“Even if I get a negative reaction from my family or friends or members, I’ll continue using it either way, because it doesn’t judge you or criticize you. You feel like you’re being understood by someone.”

Other participants suggested that their continued engagement with chatbots depended more on the quality of their personal experience with the tool than on external approval:

“It would largely depend on my own experience. if I’ve had a good experience [...] maybe I would care less what they say, as long as I’m getting support. So the impact on my relationship with the chatbot depends on how the chatbot is treating me or how I’m working with it.”

Some participants' motivation to use chatbots stemmed not only from personal benefit but also from an informed understanding of the broader role of digital innovations in healthcare. They highlighted their openness to and awareness of technological advancements in health:

“I would keep using it [...] because I’m very informed about technology and advancements that are taking place [...] to support health. I feel like they really have a difference that they make when it comes to our health [...] some of which are even being used in hospitals [...] so this wouldn’t be something new to me [...] using the bot to get to know how it works, such that when I get someone I can share it with, I am sharing out of experience, basing on how it has worked for me.”

5.5. Acceptability and Future Intention to Use Chatbots

Participants’ perceived usefulness and ease of use of the chatbot influenced their future intention to use the tool. Many participants were willing to continue using chatbots as long as they remained accessible, responsive, and emotionally beneficial.

Some participants noted that the chatbot’s capability to offer emotional relief in moments of distress was a key motivator for future adoption:

“It is likely that I would use a mental health chatbot in the future. Because I have used it [and] I felt relieved [...] like there was something off my heart [...] So if I ever felt like that again, there's a likelihood that I would use.”

For other participants, their belief that the chatbot would help with improving thinking patterns and solving problems influenced future intentions to use the chatbot:

“With [the] experience I've had with this particular chatbot, I really think I want to take it a step further [...] I'm sure there are certain things about me that I can change with time, if I keep on using the chatbot [...] I'm more likely to keep using it even five months from now until I see I can get the results I want.”

The chatbot's future use was also influenced by its constant availability, affordability, and nonjudgmental support:

“[I am] very likely because it's accessible, like readily available anytime any minute. It is cheap compared to talk therapy [...] I can ask questions that I feel maybe are silly [...] something that I would feel uneasy to ask a human being.”

“I see myself interacting with it more because of the convenience that it provides [...] I don't have to go through the hassle of looking for a therapist. I just pull out my phone [...] and I get the responses.”

6. Discussion

Young Ugandans' perspectives on mental health chatbot use require thoughtful reflection because they are understudied and underrepresented in existing literature. This literature has focused on the use of mental health chatbots by people from North America, Europe, Asia, and Oceania, with Africa being underrepresented and users from Africa being somewhat neglected. This study explores how a sample of young Ugandans perceives mental health chatbots as interventions for supporting their mental health and well-being, with findings indicating both high interest and notable concerns. The findings highlight a tension between the promise of digital mental health tools and the realities of limited contextual fit, infrastructure gaps, and user expectations. Notably, the findings reinforce the TAM2 model's utility in understanding the acceptance of mental health chatbots, with key emphasis on the tools' perceived usefulness, how easy they are to use, and the influence of others' opinions driving acceptance.

Concerning perceived usefulness, the findings revealed that young Ugandans appreciate the anonymity and privacy offered by chatbots, which enables open self-expression without fear of judgment. This supports existing literature, which highlights the value of anonymity in encouraging engagement with chatbots (Bae Brandtzaeg et al., 2021; Chaudhry & Debi, 2024) and mitigating mental health stigma in young people (Kim et al., 2022; Hoffman et al., 2024; Kosyluk et al., 2024). Given that mental illness is stigmatized in Uganda (Asiimwe et al., 2023; Abaatyo et al., 2024), which often discourages young people from seeking support (Rickwood et al., 2007), chatbots may help overcome this barrier by offering a private, non-judgmental space. Young people reported feeling safer when using pseudonyms and not being required to disclose personally identifiable information, a feature that may enhance their willingness to seek help. These findings support Kosyluk et al. (2024) who note that mental illness label avoidance influences chatbot use due to the anonymity of interactions and support Rickwood et al. (2007), who emphasize that confidentiality concerns are a significant deterrent for young people accessing mental health care. Creating a judgment-free and confidential digital space thus appears critical for building trust and promoting engagement with mental health chatbots (Chaudhry & Debi, 2024) and reducing mental health stigma (Hoffman et al., 2024).

Chatbots' 24/7 availability and low cost were highly appealing to young people, aligning with findings by Hoffman et al. (2024) and Tosti et al. (2024). Chatbots were seen as convenient, reducing travel time and offering timely care (Sweeney et al., 2021; Kostenius et al., 2024) at a significantly lower cost than conventional therapy, which remains inaccessible to many due to financial constraints. In the context of high unemployment among Ugandan youth (Dwanyen et al., 2024), free or low-cost health chatbots encourage adoption (Liou & Vo, 2024) and present a practical alternative for mental health support. However, concerns remain regarding internet and digital devices access, both of which are needed to benefit from chatbots. Despite improvements in mobile phone coverage in Uganda, smartphone ownership and internet connectivity, particularly in rural areas, remain limited (UBOS, 2024). These infrastructural constraints hinder the full realization of chatbot benefits and risk widening the digital divide in the country. Additionally, while young people found the free version of the chatbot helpful, it is uncertain whether they would engage similarly if access required payment. Even minimal costs might still pose a barrier for some users.

The ability of the chatbot to provide a safe space for expression, a sense of relational connection, and emotional support and validation was well received by young people. This is particularly valuable for young people who feel dismissed or misunderstood by adults or professionals and whose previous negative experiences discourage future help-seeking (Rickwood et al., 2007). Establishing trust and relational safety was fundamental for effective

engagement with chatbots, as it builds the user's competence in self-expression and confidence in seeking help. However, participants also expressed dissatisfaction with the chatbot's poor capability to understand their context and respond in a personalized manner. This is consistent with Tosti et al. (2024), who argue that chatbots cannot fully grasp the complexity of human experiences. These limitations negatively impact perceived information quality, reducing the likelihood of continued use (Liou & Vo, 2024). Chatbots can only provide adequate support when they fully comprehend the user's history and situation (Kretzschmar et al., 2019). As such, the lack of contextual understanding may lead to unmet expectations, which results in dissatisfaction and disengagement with chatbots (Chaudhry & Debi, 2024).

The results also revealed that young people find chatbot-suggested strategies and exercises relevant to their issues, such as stress and low self-esteem. This aligns with Sweeney et al. (2021), who note that young people believe chatbots can help reduce stress levels. In Uganda, where youth have previously reported experiencing anxiety and depression (Bukonya et al., 2022), chatbots may offer personalized techniques for managing the related symptoms, including those associated with stress and self-esteem.

Young people emphasized the mechanical and impersonal nature of chatbot interactions. These conversations were described as emotionally flat, superficial, and lacking in genuine engagement and empathy, creating a barrier to forming a meaningful connection. This finding aligns with prior research showing that chatbots often fail to replicate human professionals' emotional intelligence and empathy (Pham et al., 2022; Chaudhry & Debi, 2024; Kostenius et al., 2024). While some healthcare chatbots attempt to simulate natural human communication, their responses are based on data patterns rather than understanding human emotions, which may be helpful but emotionally lacking (Chaudhry & Debi, 2024). This can make chatbot responses ineffective or even harmful, especially in a mental health context where empathy is needed (Chaudhry & Debi, 2024). By contrast, healthcare providers can dynamically adapt their responses based on social cues, cultural context, and the emotional needs of the person in front of them (Chaudhry & Debi, 2024). This highlights the importance of user-centered design in making chatbot interactions feel more emotionally intelligent and culturally attuned.

Young people noted that chatbots were most suitable for early intervention, especially in resource-limited settings, and for managing mild emotional distress. In line with the results of a previous study (Miles et al., 2021), young Ugandans perceived chatbots as too basic to address severe or complex mental health issues. This is also consistent with Pham et al. (2022), who argue that chatbots lack the diverse expertise of trained professionals and therefore cannot substitute human therapy. Chatbots are better suited for a supplementary or

preventive role, not substituting but offering support alongside human therapists (Chaudhry & Debi, 2024; Miles et al., 2021), and as a result, their usefulness is significantly influenced by the degree of human involvement and assistance (Liou & Vo, 2024). Kosyluk et al. (2024) emphasize the importance of clearly communicating to users that chatbots are not meant to take on the role of mental health professionals but may instead refer users to them when appropriate. Ensuring young people understand this distinction can prevent overreliance on chatbot support when professional intervention is needed.

The findings further align with Kostenius et al. (2024), who suggest that chatbots are particularly appropriate in contexts where resources and healthcare professionals are scarce. Uganda's mental healthcare system is significantly under-resourced and understaffed, making chatbots a valuable entry point for mental healthcare access while still allowing individuals to seek more comprehensive treatment when necessary to reduce delays in care.

Regarding perceived ease of use, young people identified the need for greater control during chatbot interactions. They found the preset responses limiting and desired more expressive freedom and conversational autonomy, including the ability to type custom messages, findings supported by Chaudhry & Debi (2024). Rigid conversation flows are poorly suited for processing complex emotions, and flexible input is necessary for meaningful and comprehensive expression. About 26% of Uganda's population is illiterate (UBOS, 2024) and reliance on written text alone excludes a substantial portion of potential users. Young people advocated for an audio function alternative to ensure that individuals who cannot type or write fluently are not left out. This would make chatbots more inclusive, even for people with disabilities, and help chatbot interactions feel more natural. Chaudhry & Debi's (2024) assert that enhancing usability and user experience is key to chatbot adoption.

However, although young people want the freedom to express themselves, they also complain about having to type out their responses, revealing limitations with the chatbot text-based interactions. They described the experience as tiring and demotivating and noted that it also limits access for those with disabilities, low literacy, or limited digital fluency. This challenge is further complicated by the linguistic diversity in Uganda, where over 40 languages are spoken (Ethnologue, n.d). Given that chatbots already struggle to understand the complexity of human language (Boucher et al., 2021), they are unlikely to generate responses that reflect the full emotional and cultural nuance of such diverse linguistic expressions. As a result, pre-suggested responses often fall short of fully capturing users' lived experiences, leaving interactions feeling impersonal or inadequate.

Young people wanting the freedom to express themselves, yet frustrated with typing their responses, illustrate a core paradox in chatbot design and show that users want flexibility and minimal effort. It speaks to the need to balance these conflicting demands and design chatbot systems that offer layered interaction options, such as combining voice, text, and visual input choices.

The findings also revealed the importance of simple language, which facilitates comprehension and encourages continued chatbot use. Using straightforward language ensures effective communication and information exchange (Liou & Vo, 2024) and enhances the perception of chatbots as both valuable and user-friendly. When chatbots communicate in a way resembling natural human conversation, users are likely to engage with them (Liou & Vo, 2024). However, all chatbot interactions in this study were conducted in English. In Uganda, where most of the population speaks their native language, language becomes a barrier to access when chatbots are only designed in English. There is a need for future chatbot design to incorporate local languages to ensure inclusivity and broader reach. Furthermore, the results emphasise that ease of interface and navigation are crucial for maintaining user interest, as difficulty navigating chatbot platforms often leads to user frustration and eventual disengagement (Kostenius et al., 2024).

Concerning subjective norm, the findings suggest that recommendations from trusted individuals, such as peers, family members, or healthcare professionals, increase the likelihood of chatbot adoption. These recommendations are perceived by young people as expressions of care for their mental wellbeing from their loved ones and carry even more weight when their significant others have had previous positive experiences with the chatbot. These findings support existing evidence that social influence plays an important role in the uptake of digital health tools (Tumuhimbise et al., 2023; Osingada et al., 2025). When users have no prior knowledge or experience with chatbots (Pang et al., 2024), the opinions of their significant others about the perceived usefulness of the technology will influence their intention to use the chatbot (AlQhuda et al., 2021). Given that young people often confide in people they trust about their mental health problems (Rickwood et al., 2007), endorsement of chatbots by significant others can increase the likelihood of using them. Professional recommendations were critical in influencing acceptance and use, superseding any doubts young people may have about chatbots. Therefore, mental health professionals should be supported in assessing the reliability and suitability of chatbots before recommending them to young users. Additionally, recommendations from trusted individuals sparked curiosity among young people, prompting them to try to explore the chatbots. This aligns with existing

studies demonstrating that young people are generally more open and willing to use DMHIs (Hoffman et al., 2024).

The findings revealed that despite negative social pressures towards using chatbots, young people's motivation to use these tools stemmed from their perceived benefits. This pattern suggests a growing sense of agency among young users, where the perceived benefit of a digital mental health intervention can outweigh stigma rooted in traditional norms. It also reinforces the argument in earlier findings that perceived usefulness is a key factor in the adoption and sustained use of health technologies (Holden & Karsh, 2010). Additionally, the tension between external stigma and internal motivation reflects a shift toward greater help-seeking autonomy, where young users prioritize their need for emotional support over social validation. Their continued use of stigmatized tools, driven by substantial perceived personal benefits, suggests that DMHIs may not only foster resilience to mental health stigma but also reflect young people's desire for more personally meaningful forms of care. Moreover, the findings indicated that young people's technological familiarity fosters openness toward innovations in healthcare, aligning with similar observations by McGorry et al. (2022). This familiarity presents a valuable opportunity: Uganda's public health system can capitalize on this openness by framing chatbots as innovative, effective, and empowering technological tools for managing mental health. Positioning chatbots as part of the broader ecosystem of digital health may enhance their appeal and normalize their use, especially when combined with initiatives to address stigma surrounding mental health and reinforce the benefits of private, accessible, and judgment-free support.

The findings further confirm TAM's explanatory power in understanding technology acceptance (Schorr, 2023), reaffirming that behavioral intention to use chatbots is significantly influenced by perceived usefulness and ease of use (Holden & Karsh, 2010). Participants' future likelihood to use chatbots was closely tied to the practical benefits they perceived, particularly the convenience, constant availability, affordability, and non-judgmental emotional support the chatbot provided. These findings echo AlQhuda et al. (2021), who claim that users' perceptions of effectiveness and usability primarily shape positive attitudes toward digital healthcare adoption. In this study, participants' intention to reuse the chatbot appeared to be a direct result of the value they placed on its capability to offer quick, accessible support, especially in moments when formal care was inaccessible.

While chatbots offer scalable solutions to Uganda's youth mental health crisis, their current form, though promising, is insufficient on its own. The findings emphasize the need for contextually grounded, user-informed, and socially supported design, deployment, and

policy approaches. Chatbots should not be seen as standalone fixes but tools embedded within a broader care ecosystem, including human therapists, social support systems, and culturally sensitive communication strategies.

6. 1. Implications for Design and Practice

Policy makers should invest in improving digital infrastructure and internet accessibility, especially in remote and under-resourced areas, to enable wider use of mental health chatbots and promote policies that encourage the development and adoption of affordable or free mental health chatbots, ensuring cost is not a barrier for vulnerable youth populations. Policy makers should also endorse and support initiatives that raise awareness and reduce stigma around mental health and digital mental health interventions to foster greater acceptance and engagement. To promote greater acceptance and sustained engagement, public health campaigns should actively involve families, peers, and healthcare practitioners in endorsing evidence-based chatbot tools to increase their credibility and adoption among young people. Chatbots should be recommended as tools for early intervention or supplementary support, not as replacements for professional care. Users should be guided on when to seek human professional support, emphasizing the limitations of chatbots in handling complex or severe mental health issues.

Developers of chatbots targeting Ugandan youth should explore offline-capable chatbot solutions or SMS-based interactions due to the limited internet and smartphone access, especially in rural Uganda. They might consider collaborating with telecom companies to help avail subsidized data costs for chatbot applications or offer zero-rated platforms to enhance access among economically disadvantaged users. Chatbots intended for use in Uganda should be designed with multilingual capabilities to reflect the country's linguistic diversity. English proficiency is not universal, especially among underserved or rural populations; thus, developing tools that communicate in local languages would improve access and ensure that individuals from all backgrounds can benefit from chatbot support.

In addition, developers should collaborate with practitioners to design chatbots that reflect culturally appropriate content and incorporate clinical best practices tailored to Uganda's context. This includes recognizing how important spiritual and traditional healing practices are in mental health care in Uganda (Asiimwe et al., 2023). Many Ugandans turn to religious or traditional leaders for emotional and psychological support (Asiimwe et al., 2023). If chatbots are to be accepted and trusted, they must be designed in a way that is sensitive to local belief systems, rather than contradicting or ignoring them. Including community leaders,

such as religious and spiritual counselors, elders, or healers, in the design and implementation process could help align chatbot functions with cultural norms and increase adoption.

Designers should also enable more open-ended text input and flexible dialogue structures to make chatbot conversations more dynamic and relevant to Ugandan youth's individual experiences. There is also a need to emphasize user anonymity and privacy in chatbot design to build trust. Developers should also consider integrating audio input/output options to make chatbots more inclusive, especially for people with disabilities and those with limited digital literacy. To maintain usability, chatbot dialogue must be written in simple, relatable, and conversational language to make the chatbot feel more human-like and encourage engagement. Lastly, designers and implementers of chatbots should leverage young people's natural curiosity and openness to technology to introduce chatbots to them. Marketing, awareness campaigns, or onboarding strategies should focus on provoking curiosity through credible social channels to increase initial engagement and trial.

7. Limitations and Future Research

The purposive sample used in this study restricts its generalizability to the larger Ugandan youth population. All participants demonstrated English proficiency, basic digital literacy, and had reliable internet access, factors that likely influenced their experiences with the chatbot, therefore under-representing rural, less educated, and less connected youth. Moreover, the sample size is too small to capture the diversity of Uganda's millions of young people. Future studies should employ a mixed-methods design with larger, diverse samples including a broader range of socioeconomic backgrounds, levels of digital literacy, and English proficiency to capture broader perspectives. This approach will yield more robust, generalizable insights, directly informing policy development and product refinement.

Additionally, the study only included individuals who were not experiencing mental distress, preventing insights into chatbot use among those with acute or chronic conditions. Given that mental health chatbots are designed to support those in distress, excluding their voices leaves a significant gap in understanding how chatbots might perform under more challenging conditions or whether they risk exacerbating distress when emotional needs surpass the chatbot's capability. Therefore, future research should prioritize the perspectives of young Ugandans experiencing anxiety, depression or trauma. Such insights will reveal their needs, evaluate whether current chatbot features effectively address them, and flag any design flaws that could inadvertently exacerbate symptoms.

Reliance on a single chatbot (Wysa) restricted comparisons with other chatbots to give a broader picture of youth perspectives towards chatbots. Each chatbot differs in terms of structure, interface, therapeutic foundation, tone, and responsiveness. Limiting the study to one chatbot restricts the ability to compare how different design elements across various platforms affect user perception, engagement, and satisfaction. Future research should explore comparative studies of multiple mental health chatbots to identify which features, approaches or conversational styles Ugandan youth find most engaging and effective. This would allow developers to integrate best practices across platforms and inform evidence-based decisions when implementing chatbot solutions at scale.

Another limitation is the short two-week chatbot interaction period which may not fully capture the long-term engagement, usefulness, or limitations of the technology. While early impressions are important, chatbot adoption and effectiveness often depend on sustained engagement. Over time, users may encounter new technical or emotional challenges and experience a decline in perceived benefit. Future longitudinal research is needed to examine evolving attitudes over several months. This would provide clearer insights into how youth perceive and interact with chatbots in real-life conditions, beyond the novelty phase.

Healthcare professionals play a vital role in accepting and using healthcare technologies by acting as key intermediaries between the technology and patients. Their expertise, endorsement, and guidance significantly influence patients' trust, acceptance, and effective use of these tools. Future research might explore the perspectives of Ugandan mental health professionals on young people's use of mental health chatbots for managing their mental well-being. These perspectives are critical for designing clinically safe, culturally appropriate chatbots that fit into existing care pathways, ultimately fostering their acceptance and utilization in Uganda.

Future research should explore differences in young people's perspectives across various regions in Africa. This understanding could inform the refinement of mental health chatbots to improve their efficacy and scalability across the continent.

Future research should also adopt a transdisciplinary, participatory co-design approach that engages young people alongside experts in psychology, Human Computer Interaction (HCI), design, and community health to collaboratively develop and evaluate tools whose features, language, and interaction flows authentically reflect local cultural values and address young people's real needs prior to wider dissemination.

8. Conclusion

Grounded in the Technology Acceptance Model 2, this study explored the perceptions and attitudes of young people in Uganda toward using mental health chatbots as a support tool for their mental well-being. Against the backdrop of a significant and growing burden of untreated mental illness among youth in Uganda driven by structural limitations, stigma, and socio-economic stressors (Kaggwa et al., 2022), this research responds to a pressing need for scalable and accessible mental health interventions presenting chatbots as potential solutions that can bridge the mental health treatment gap in Uganda.

Existing studies emphasize the effectiveness of chatbots in reducing symptoms of depression and anxiety (Inkster et al., 2018; Beatty et al., 2022; Qi, 2024), the commonest mental disorders among young people in Uganda (Kalungi et al., 2025), and providing affordable, anonymous, and non-judgmental support at all times (Tosti et al., 2024). The literature also cites chatbots as potential responses to mental health stigma in Uganda, reducing fear of help-seeking and providing timely treatment to young people (Kim et al., 2022; Hoffman et al., 2024).

However, limitations persist concerning data privacy and confidentiality of user information and the accuracy and consistency of the support provided (Kretzschmar et al., 2019; Tosti et al., 2024), and the chatbot's incapacity to fully comprehend human language, feelings and context, all of which are required to make proper diagnoses and provide personalized and effective treatment (Kretzschmar et al., 2019; Boucher et al., 2021; Pham et al., 2022; Tosti et al., 2024).

The findings suggest that Perceived Usefulness, particularly the anonymity and affordability of chatbots, and 24/7 support strongly motivate initial engagement. These digital tools represent a meaningful and empowering alternative for young people facing stigma and limited access to traditional care. However, infrastructural issues such as inadequate internet connectivity, limited smartphone ownership, and high data costs raise equity concerns, especially for Ugandan youth from low-income and rural areas, limiting their ability to fully realize the potential and advantages of mental health chatbots. Furthermore, the findings affirm previous research highlighting using chatbots to complement the services provided by mental health professionals instead of replacing them (Pham et al., 2022; Kosyluk et al., 2024).

Perceived Ease of Use also significantly influences acceptance. Young people appreciate the ease with which they can navigate the chatbot's interface with little to no difficulty, but

challenges such as impersonal and limited interaction resulting from pre-set responses and the burden of typing highlight key barriers.

The findings further suggest that chatbot recommendations by significant others foster trust and uptake, affirming Subjective Norm as another key driver of DMH tools acceptance. A key insight is that many young people demonstrate growing autonomy by prioritizing personal well-being over societal judgment, signaling a generational shift in mental health attitudes and treatment.

Mental health chatbots hold real promise for addressing Uganda's youth mental health crisis, but only if designed with, and not just for, the youth so that they are not only technically effective but also socially accepted and contextually grounded. Successful implementation must consider access barriers, cultural alignment, emotional resonance, and personalization. By capturing youth voices in this early phase of chatbot exploration in Uganda, this study contributes to a growing movement to make mental health treatment more inclusive, innovative, and attuned to the mental health needs of Uganda's and Sub-Saharan Africa's young generation.

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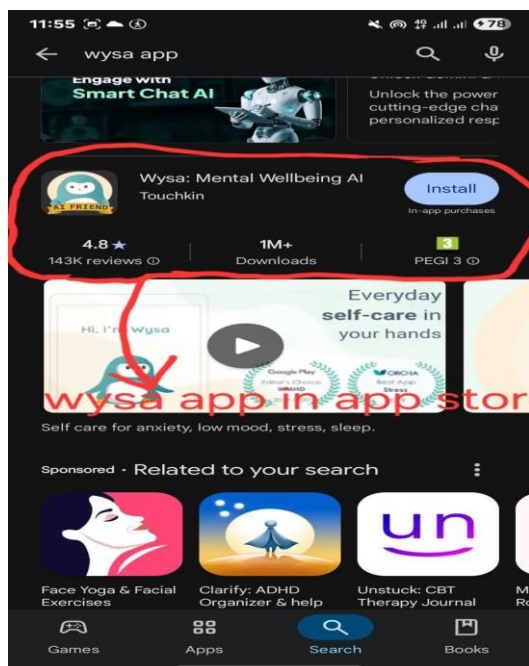
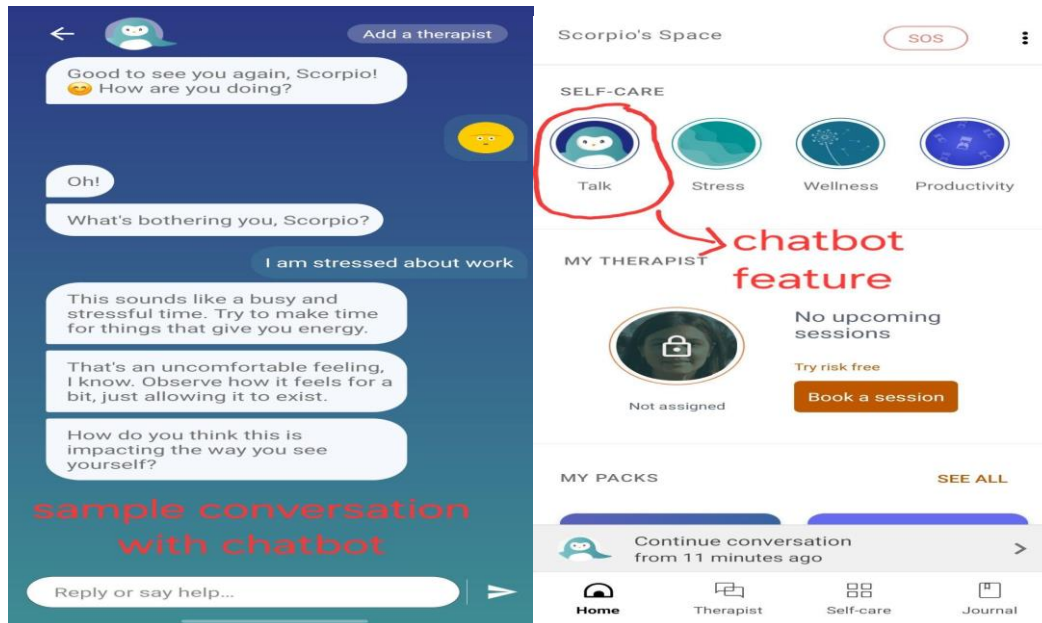
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10. Appendices

10.1. Appendix A: Annotated Screenshots of Wysa App Interface



10.2. Appendix B: Interview Guide Questions

Demographic Information

1. How old are you?
2. What is your gender
3. What is the highest level of education you have completed?

Perceived Usefulness

5. From your experience using Wysa, do you think mental health chatbots are helpful and can provide meaningful support? Why or why not?
6. What features or content have you found most useful?
7. Have you used traditional psychotherapy before? If yes, how would you compare chatbot-based mental health support to conventional psychotherapy?

Perceived Ease of Use

8. From your experience using Wysa, how easy do you believe it is to use mental health chatbots?
9. If you have used traditional psychotherapy before, how do mental health chatbots compare to seeking psychotherapy in terms of ease of use?
10. What features make a mental health chatbot easy or difficult to use?

Subjective Norm (Social Influence)

11. How do you think your friends, family, or community would react if they knew you were using a mental health chatbot? Would their opinions encourage or discourage you from using it?
12. If a friend, family member, or healthcare professional recommended this technology, Would that make you more likely to use it? Why or why not?

Behavioral Intention to Use

13. How likely would you use a mental health chatbot in the future? Why or why not?