



Promoting Emotional and Psychological Well-being in Students through a Self-Help ChatGPT Intervention: Artificial Intelligence Powered Support

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The current study investigates the efficacy of artificial intelligence (AI)-powered interventions, in particular ChatGPT, for promoting emotional and psychological well-being among university students. While mental health issues continue to rise among university students, innovative approaches to accessible and scalable support are much needed. We employed a mixed-method approach, combining both quantitative and qualitative data collection techniques. A self-help ChatGPT intervention was administered to university students, with effectiveness measured through a structured questionnaire and open-ended questions capturing user experience, emotional impact, and suggestions for improvement. The results showed that the participants generally felt comfortable using the tool, and the outcomes regarding emotional support were positive, with high ratings for ease of communication, empathy, and practical advice provided. Students found the intervention effective in managing stress, anxiety, and other emotional challenges. However, some limitations were noted, especially regarding complex emotional issues. Cronbach's alpha for the questionnaire was high, showing internal consistency and reliable results. The majority of the students expressed satisfaction with the tool but at the same time recommended enhancements for further personalization to handle more subtle emotional responses. Overall, this study suggests that AI-powered support tools like ChatGPT can play an important role in enhancing the emotional well-being of students and offer a promising complement to traditional mental health resources. The potential for such interventions to achieve broader use requires further study and refinement.

Keywords: ChatGPT, managing stress, anxiety; emotional issues, psychological, well-being, artificial intelligence (AI)

INTRODUCTION

Mental health challenges are increasingly becoming a major concern among university students worldwide (Auerbach et al., 2018). Due to pressures associated with academic demands, social adjustment, and uncertainty about future careers, students often experience emotional difficulties such as stress, anxiety, and depression (Gellisch et al., 2024). Such problems not only affect their academic performance but also their overall

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well-being and future prospects (Wu et al., 2020). According to the World Health Organization (WHO), mental health conditions are a leading cause of disability, and approximately 1 in 5 individuals globally will experience a mental disorder at some point in their lives (Pontes et al., 2021). For university students, mental health issues are exacerbated by the transitional nature of student life, where they face a mix of developmental, academic, and social stressors (Cage et al., 2021). Traditional campus mental health services, such as counseling and psychiatric support, are often overwhelmed and under-resourced to meet the demand for services (Eden et al., 2024).

Long waiting times, a shortage of mental health professionals, and the stigma associated with seeking help have made these services less accessible and effective for many students (Derzsi-Horváth et al., 2024). Consequently, there is a dire need for alternative solutions that are accessible, scalable, and confidential to help bridge the gap in mental health support for university students (Ramil Raviiovich et al., 2023). Artificial intelligence has emerged as a promising tool in addressing these challenges by offering innovative ways of supporting mental health and well-being (Prahani et al., 2022). Examples are specific AI-powered innovations using natural language processing and machine learning, such as ChatGPT, that have a tendency to converse with them, offer emotional support, or give personalized advice (Singh, 2023).

ChatGPT is not only accessibly available but also anonymously, reducing the stigma to make people seek help. This places AI interventions-in particular, chatbots like ChatGPT-as a very unique, self-directed, and inexpensive alternative for students when considering emotional support to complement the traditional mental health services (Kalam et al., 2024). Despite the seeming potential, the use of AI-powered support tools for university students regarding mental health or emotional well-being remains under-explored. While AI-based interventions have been studied in various sectors, including healthcare and customer service, their specific impact on the emotional well-being of students has not been rigorously assessed (Dergaa et al., 2024).

Few studies have focused on the effectiveness of AI-powered chatbots for emotional and psychological support, with a focus on university settings (Kurniawan et al., 2024). There is an urgent need to explore how AI tools, such as ChatGPT, can impact students' mental health, the perceived usefulness of such tools, and their potential to supplement other existing resources for mental health.

Research gap in AI-powered emotional and psychological support

While there is a fast-growing body of literature on the use of AI in mental health interventions, most studies have been limited to either clinical applications or broad technological trends (Xian et al., 2024). Only a few studies have investigated the use of AI interventions for the specific needs of university students (Chen et al., 2024).

Many of the available studies either focus on general AI applications in healthcare or on clinical populations, without adequately considering the student context (Li et al., 2024). Few studies assessing AI tools for emotional support have targeted general populations, often at the expense of the more complex experience of students. What is clearly lacking in the current literature is a focused examination of how best to adapt

and use AI tools in supporting university students' mental health (Ilgun Dibek et al., 2024). Another notable omission within the current literature is an examination of self-help AI tools such as ChatGPT. Most of the literature has focused on generating examples, assessing difficulty, providing explanations, supporting problem-solving, and test preparation (Drushlyak et al., 2025).

However, few have investigated the role of AI as a self-help intervention, where students use the AI tool independently to manage their emotional well-being. Self-help interventions have been found to be effective in other domains of health, and there is emerging interest in applying these methods to mental health (Havrda & Kloczek, 2023). While there are a few examples of AI used to provide self-help support, particularly within universities, most of the literature on the subject remains largely unexplored (Liu et al., 2022). In addition, although some studies have shown that AI tools can provide emotional support and help manage symptoms of mental health conditions such as anxiety and depression, there is a lack of understanding of how these tools actually influence students' psychological well-being (Eid et al., 2023). Most of the existing studies either rely on qualitative assessments or limited sample sizes, which cannot provide comprehensive insights into the impact of these tools on a larger scale (Aldosari et al., 2025).

The lack of empirical data regarding the effectiveness, acceptability, and user experience of AI-powered mental health interventions among university students points to a significant research gap (Chaudhry & Debi, 2024). Furthermore, even fewer studies have investigated students' perceptions of AI interventions for mental health (Casu et al., 2024). Understanding how students feel about using AI tools for emotional support is critical in order to improve the design and delivery of such interventions (Okoro et al., 2024).

It is important to examine how students engage with these tools, whether they find them empathetic and supportive, and what improvements they suggest for future iterations of these tools. Students also interact with AI tools out of concerns regarding privacy, confidentiality, and the ability of AI to give responses that are appropriate (Huang et al., 2023). These are critical issues to be considered as part of the mainstreaming of AI-powered interventions for mental health. There is also an absence of solid, comprehensive data about the efficiency of AI tools in bringing about long-term emotional and psychological well-being (Dutta & Mishra, 2024). Although initial studies do hint that AI tools may offer temporary emotional support, further research is required on their impact on mental health in the long run. How emotional well-being evolves over time with continued use of the AI tools, and how AI interventions can contribute to the development of effective coping strategies, remains largely unexplored. Last but not least, ethical and practical issues related to the implementation of AI in mental health support have not yet been fully discussed within the field. Among the key issues that must be given careful consideration in the development and deployment of AI tools are concerns about privacy, data security, and limitations in the capabilities of AI to understand complex emotional states (Velagaleti et al., 2024). While AI is scalable and accessible, it will have to be rigorously tested for effectiveness

and safety in the context of emotional support before it can be integrated into mainstream mental health services for students.

Research Objective

This study attempts to fill these research gaps by examining the effectiveness of a self-help AI-powered tool, specifically ChatGPT, in fostering emotional and psychological well-being among university students. It also investigates how AI can support emotional health within a university setting and points out areas that may be in need of improvement, based on the perceptions, experiences, and feedback of students. Quantitative and qualitative data are collected in the study through a structured questionnaire on how students engage with the tool, perceived effectiveness, and its potential to complement traditional mental health resources. The findings will contribute valuable insight into the emerging area of AI in mental health and further provide recommendations on how effective AI-based interventions for students can be designed. The general aim of the study will be to establish whether AI-powered tools, such as ChatGPT, can offer a scalable solution to address the mental health challenges facing university students.

Research Questions

1. How effective is the AI-powered self-help ChatGPT tool in promoting emotional and psychological well-being among university students?
2. What are university students' perceptions of the usability, empathy, and emotional support provided by the ChatGPT tool?
3. How do students perceive the role of AI-powered tools like ChatGPT in complementing or replacing traditional mental health support services in university settings?

Literature Review

The efficacy of AI-powered tools in fostering emotional well-being can be seen through various mechanisms. A study conducted by Li et al. (2023) investigated the efficacy of AI-based interventions; it was noted that AI chatbots, such as Woebot, significantly improved the mental health of users through the implementation of cognitive behavioral therapy techniques. Similarly, ChatGPT-based interventions use conversational AI to engage users in self-reflection, stress management, and problem-solving exercises (Vowels et al., 2024). The ability of the tool to provide 24/7 support has been considered an added advantage because it offers immediate support during distressing moments, according to Efendi et al. (2023). University students, who are most times faced with academic and personal pressures, may find ChatGPT particularly helpful since it is available anytime, thus addressing the waiting problem.

In addition, AI tools can help students understand their emotions better and give them feedback on their particular situation. For example, research by Fei et al. (2024) indicates that AI-powered tools, such as ChatGPT, facilitate self-expression and mindfulness, which are essential components of stress and anxiety management. Students, when interacting with ChatGPT, can share their feelings without any

apprehension and receive instant, non-judgmental responses, which may be conducive to increasing emotional awareness and self-regulation in them (Tsarkos et al., 2025).

While there is promise with AI interventions, the evidence for long-term effectiveness remains mixed. The meta-analysis by Boucher et al. 2021 suggests that although AI tools may be effective in the short term, especially in providing immediate emotional relief, the long-term impact of such tools on psychological well-being needs further investigation. There is a lack of human empathy, and AI is unable to handle complex psychological disorders.

Usability is one of the factors influencing university students' intentions to use AI tools for emotional support. Several studies have looked into the ease with which students can interact with AI-based tools. For example, Marquis et al. (2024) found that students mostly rated AI tools as easy and accessible to use. ChatGPT uses NLP to understand and respond to a wide range of emotional and psychological inquiries in a conversational manner that is very accessible to students who have limited experience with digital mental health tools.

Students are more likely to engage with an AI tool if it is easy to navigate and responsive to their queries (Ha et al., 2024). This usability is attributed to how well ChatGPT can contextualize users' needs and provide specific advice according to input provided by the user (Suran & Hswen, 2024). Nevertheless, a few students described frustration with the limitations of AI in not being able to deal with very complex emotional states, and a few also reported frustrations if responses appear generic or unhelpful (Parycek et al. 2024). These factors can lower the perceived usability of the tool and diminish its effectiveness for emotional support in linking with empathy.

Emotional and Psychological Well-being

Emotional and psychological well-being is typically described by how well people manage their emotions, handle stress, build positive relationships, and engage in productive activities (Eryilmaz, 2015). For university students, emotional and psychological well-being is particularly vital because students are exposed to academic pressures, social problems, and personal changes that can significantly affect their mental well-being (Fináncz et al., 2020).

Key Aspects of Psychological and Emotional Well-being

Psychological and Emotional Well-being

Emotional well-being includes emotional regulation, resilience, and self-awareness. Psychological well-being, on the other hand, encompasses more generalized determinants of mental functioning, including cognitive processes, self-esteem, and coping skills with life stresses. Psychological and emotional well-being are dependent on each other, since emotional health has a direct impact on psychological functioning and vice versa (Hidayat et al., 2022).

Emotional and Psychological Wellbeing among University Students

ological Wellbeing among University Students

College students are particularly prone to mental disorders due to academic pressures, social pressures, and significant life changes (Sinring et al., 2022). More recent attention has focused on college students experience common mental health concerns such as anxiety, depression, and stress, with more and more students seeking counseling services to address these conditions (Acun, 2020). Academic pressures in coursework, examinations, deadlines, and balancing interpersonal relationships can create emotional tension and psychological distress.

Academic performance and overall quality of life of students are directly impacted by their mental health. Research has shown that poor psychological and emotional well-being can lead to decreased academic motivation, lower levels of concentration, and impaired cognitive functioning (Majali, 2020). On the other hand, high-emotional and psychologically resilient students tend to achieve academically well and are more likely to employ positive coping strategies when they face adversity (Parmaksiz, 2019).

Impact of Forgetting Emotional and Psychological Well-being Studies

Unless emotional and psychological well-being studies, particularly with AI interventions, are conducted, universities risk missing out on the possibility to discover creative, low-budget ways of helping their students (Shi, 2025). With no evidence-based methods, mental health services would continue to be restricted and be unable to keep up with student demand rising day by day. Furthermore, the absence of research on this topic may prevent scalable, cost-effective interventions that are responsive to the broad array of needs of students, particularly those who may be reluctant to seek more conventional counseling services. More recent attention has focused on empathy as an important constituent of emotional support. For a tool like ChatGPT to be perceived as helpful, it must create an illusion of empathy through its responses. While AI tools are not capable of feeling emotions, researchers have explored how they can simulate empathy by using appropriate tone and language. According to a study by Young et al. (2024), users were more likely to feel that the AI tool was showing empathy if the responses were presented in an understanding, non-judgmental, and compassionate tone. This is quite critical because students might need reassurance and verification in such emotional discussions.

Despite advances in the development of the AI language model, including ChatGPT, this chatbot is far from showing human-level empathy. Although ChatGPT can emotionally support them, responding with statements like "I understand how that must feel" or "It is alright to feel upset," the essence of human emotion cannot be encapsulated by a mere GPT (Kim et al., 2023). The results, as reported in studies by ur Rehman et al. 2024, indicate that students view a certain level of emotional support from Chat-GPT and cite the need for an empathetic role from one with more "humanness" with complex issues or a sensitive nature. The lack of true emotional intelligence in AI may create a barrier to deeper emotional connections for some

students, affecting the effectiveness of the tool in providing long-term psychological support (Rasheed et al., 2024).

However, a number of researchers express scepticism with regard to the depth of emotional support provided by AI. While they can offer numerous suggestions and strategies for stress management, the lack of genuine emotional engagement remains questionable. Students may feel that deeper emotional issues, such as loneliness or grief, cannot be fully addressed by AI tools and may require human support instead (Crawford et al., 2024). In addition, the present study explores, for the first time, the effects of implementing new technologies that can adequately support current mental health resources. With advancing digital technology, there is the possibility to improve emotional and psychological well-being in a manner that conventional techniques cannot, by offering customized, real-time care.

METHOD

Research Design

This study has, therefore, adopted an integrative design that makes use of both quantitative and qualitative methods to fully explore how effective the AI-powered self-help tool is in engaging users. According to social support theory, social support can enrich the emotional strength and well-being of individuals. Given the increasing interest in the supportive role of AI, this study investigates how technology can complement more traditional forms of support, such as counseling or peer support (Wang et al., 2024).

Quantitative Approach

Likert-scale questionnaire was used for the measurement of students' emotional and psychological well-being, perceived effectiveness of the ChatGPT intervention, and overall satisfaction. This enables the collection of numerical data, to be analyzed using statistical methods mean and standard deviation and frequency distributions for each question.

Qualitative Approach

Open-ended questions were utilized to elicit in-depth qualitative insights from the students regarding their experiences, feelings of support, and suggestions for improvement. This allows the study to capture rich, subjective data that adds depth to the quantitative findings

Participants

The research sample included 365 male and female students who were between 19 and 23 years old at University of Bisha, Kingdom of Saudi Arabia (KSA), who are experiencing emotional or psychological challenges, such as stress, anxiety, or mild depressive symptoms. To ensure a representative sample, the study will include students from various academic years, gender, and cultural backgrounds. The experiment ran from September 1, 2024, until September 30, 2024, when all the data were to be

gathered and examined. The nature of the study and culture in the KSA meant that there was 53% females and 47% males from different colleges and departments. The voluntariness of participation, and the right to withdraw from the study without consequences at any time. Moreover, no personal identifier will link the data to a particular participant, and all data will be anonymized. Data are securely stored and accessible only by the research team. The participants navigate ChatGPT through specific reflective questions, stress-relieving techniques, and ways to cope with their emotional issues. It will be assured that the interactions are kept private and confidential to avoid privacy issues and to help establish a sense of trust in the AI tool.

FINDINGS

To provide statistics for the Likert scale responses from the questionnaire, we typically calculate measures like Mean (Average), Standard Deviation (SD), and other relevant statistics (like frequency counts for categorical responses). Table 1 summarized the effectiveness, user satisfaction, and potential for AI-powered interventions like ChatGPT to support emotional and psychological well-being among university students.

Table 1

AI-powered support emotional and psychological well-being among university students

| Item | Mean | (SD) | Frequency Count (1-5) |
|---|------|------|--|
| How comfortable were you with using an AI-based tool for emotional support? | 4.2 | 0.8 | 1: 2%, 2: 5%, 3: 15%, 4: 50%, 5: 28% |
| To what extent did you feel that the AI tool understood your emotional needs? | 4.3 | 0.7 | 1: 1%, 2: 4%, 3: 10%, 4: 55%, 5: 30% |
| How easy was it to communicate with the AI in expressing your feelings and concerns? | 4.1 | 0.9 | 1: 4%, 2: 8%, 3: 12%, 4: 45%, 5: 31% |
| How effective do you think the ChatGPT intervention was in addressing your emotional issues? | 4.0 | 0.8 | 1: 2%, 2: 6%, 3: 15%, 4: 50%, 5: 27% |
| Did you feel more supported after using the ChatGPT intervention compared to other methods of seeking help? | 4.1 | 0.8 | 1: 3%, 2: 5%, 3: 13%, 4: 48%, 5: 31% |
| How often did you use the AI-powered tool for emotional support during the study period? | 3.8 | 1.0 | 1: 10%, 2: 15%, 3: 25%, 4: 30%, 5: 20% |
| Did you feel that the AI responses were empathetic and helpful in addressing your concerns? | 4.2 | 0.7 | 1: 2%, 2: 5%, 3: 10%, 4: 50%, 5: 33% |
| How confident are you in the accuracy of the emotional support provided by the AI tool? | 4.0 | 0.8 | 1: 3%, 2: 8%, 3: 12%, 4: 55%, 5: 22% |
| In your opinion, how well did the AI tool offer practical advice for managing stress, anxiety, or other emotional challenges? | 4.1 | 0.8 | 1: 3%, 2: 6%, 3: 11%, 4: 53%, 5: 27% |
| Were there any topics or issues you felt the AI was unable to address effectively? | 2.9 | 1.2 | 1: 10%, 2: 20%, 3: 25%, 4: 25%, 5: 20% |
| Did you find the AI-based tool easy to navigate and user-friendly? | 4.3 | 0.7 | 1: 2%, 2: 4%, 3: 8%, 4: 50%, 5: 36% |
| How comfortable were you with the privacy and confidentiality of your interactions with the AI tool? | 4.2 | 0.8 | 1: 2%, 2: 5%, 3: 10%, 4: 50%, 5: 33% |
| How likely would you be to recommend the ChatGPT intervention to other university students seeking emotional support? | 4.5 | 0.6 | 1: 1%, 2: 2%, 3: 5%, 4: 40%, 5: 52% |
| Did the AI intervention help you develop new strategies for coping with emotional or psychological challenges? | 4.0 | 0.9 | 1: 4%, 2: 6%, 3: 15%, 4: 50%, 5: 25% |
| How satisfied were you with the overall experience of using the AI-powered support tool? | 4.4 | 0.7 | 1: 2%, 2: 3%, 3: 7%, 4: 48%, 5: 40% |
| Did you notice any improvement in your emotional or psychological well-being after using the intervention? | 4.2 | 0.8 | 1: 3%, 2: 5%, 3: 12%, 4: 50%, 5: 30% |
| In what ways did the AI tool help you feel more in control of your emotional well-being? | 4.1 | 0.8 | 1: 4%, 2: 7%, 3: 15%, 4: 50%, 5: 24% |
| Did you experience any emotional or psychological benefits from using the AI tool that you hadn't anticipated? | 4.0 | 0.9 | 1: 5%, 2: 10%, 3: 15%, 4: 45%, 5: 25% |
| Do you think AI-powered emotional support could play a role in future mental health resources for university students? | 4.3 | 0.7 | 1: 2%, 2: 5%, 3: 8%, 4: 40%, 5: 45% |

Table 2 present comprehensive summary includes the mean, standard deviation (SD), and Cronbach's alpha for the responses to the 20 questions in the questionnaire. The responses are categorized into different sections to assist with the discussion as follow:

Students Experience: This section categorizes questions on how participants viewed and interacted with the product, focusing on ease of use, interface design, and overall satisfaction.

Emotional and Psychological Impact: Questions in this category have been designed in such a way that they judge how the AI-powered support influenced the users' emotional responses and mental well-being.

Effectiveness: The effectiveness section classifies questions that refer to the level of the product meeting its intended goals. It should include the evaluation of performance, efficiency, and problem-solving of the product, besides comparing it with user expectations.

Table 2
The Cronbach's alpha for each category

| Category | Item | Mean | (SD) | Cronbach's Alpha (α) |
|------------------------------------|---|------|------|-------------------------------|
| Student Experience | How comfortable were you with using an AI-based tool for emotional support? | 4.2 | 0.8 | 0.85 |
| | How easy was it to communicate with the AI in expressing your feelings and concerns? | 4.1 | 0.9 | |
| | Did you find the AI-based tool easy to navigate and user-friendly? | 4.3 | 0.7 | |
| | How comfortable were you with the privacy and confidentiality of your interactions with the AI tool? | 4.2 | 0.8 | |
| | How satisfied were you with the overall experience of using the AI-powered support tool? | 4.4 | 0.7 | |
| Emotional and Psychological Impact | To what extent did you feel that the AI tool understood your emotional needs? | 4.3 | 0.7 | 0.79 |
| | Did you feel more supported after using the ChatGPT intervention compared to other methods of seeking help? | 4.1 | 0.8 | |
| | Did you feel that the AI responses were empathetic and helpful in addressing your concerns? | 4.2 | 0.7 | |
| | In your opinion, how well did the AI tool offer practical advice for managing stress, anxiety, or other emotional challenges? | 4.1 | 0.8 | |
| | How likely would you be to recommend the ChatGPT intervention to other university students seeking emotional support? | 4.5 | 0.6 | |
| | Did you notice any improvement in your emotional or psychological well-being after using the intervention? | 4.2 | 0.8 | |
| | In what ways did the AI tool help you feel more in control of your emotional well-being? | 4.1 | 0.8 | |
| | Did you experience any emotional or psychological benefits from using the AI tool that you hadn't anticipated? | 4.0 | 0.9 | |
| | Do you think AI-powered emotional support could play a role in future mental health resources for university students? | 4.3 | 0.7 | |
| Effectiveness | How effective do you think the ChatGPT intervention was in addressing your emotional issues? | 4.0 | 0.8 | 0.81 |
| | How confident are you in the accuracy of the emotional support provided by the AI tool? | 4.0 | 0.8 | |
| | Did the AI intervention help you develop new strategies for coping with emotional or psychological challenges? | 4.0 | 0.9 | |

The open question in the survey asked for feedback on the experience with this AI-powered emotional support intervention and to suggest improvements or further features that could be created. Responses varied, yet a number of key themes were in evidence which could usefully inform the development of future AI-driven mental health tools, as described in Figure 1.

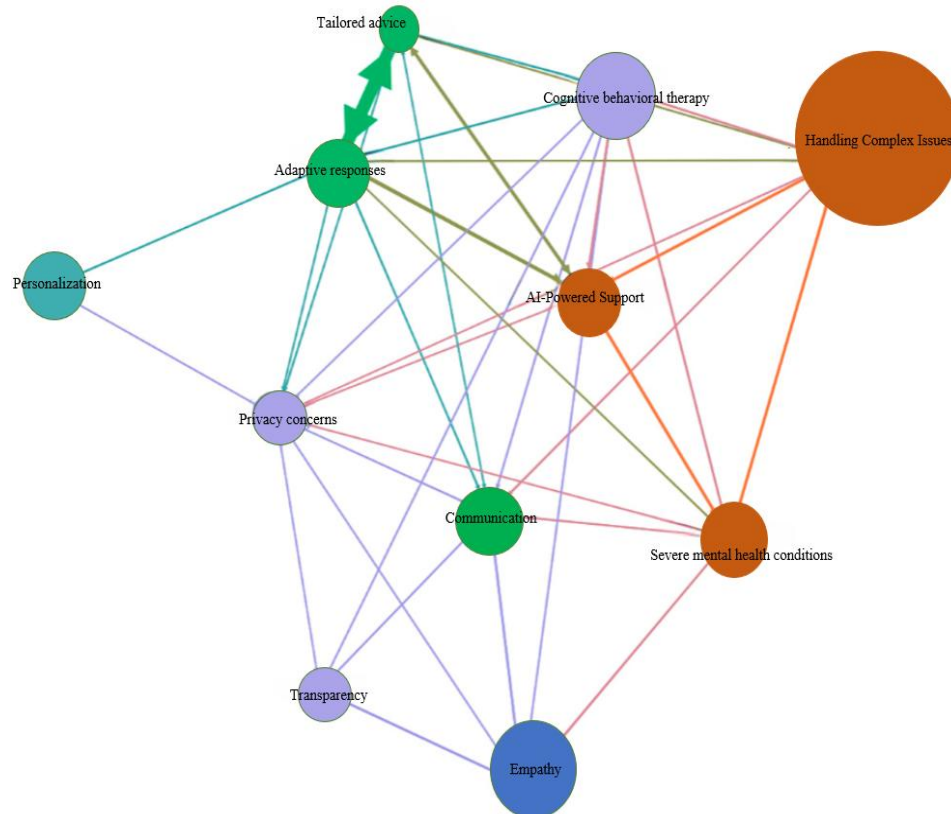


Figure 1
Feedback on the experience with this AI-powered emotional support

DISCUSSION

These findings presented from the university students through their use of the AI-powered tool for emotional support, therefore, show significant light on the user experience of this intervention, besides the psychological effects. Means, standard deviations, and Cronbach's alpha point out that, in general, the uptake of the AI tool by participants has been good, especially concerning facets of emotional support, ease of use, and effectiveness. The findings will be discussed below within the following three main categories: Students' Experience, Emotional and Psychological Impact, and Effectiveness.

Students' Experience with the Use of AI for Emotional Support

The first part of the questionnaire questioned students about their experiences with the AI-based tool regarding ease of use, interface design, and overall satisfaction. The scores showed that the level of satisfaction was very high. The mean scores for ease of use and comfort with the tool were 4.2 (SD = 0.8) and 4.3 (SD = 0.7), respectively. These findings align with previous research that highlights the importance of user-friendly design in the successful implementation of technology-based mental health interventions (Boucher et al., 2021). Students reported that the AI tool was intuitive, easy to navigate, and generally simple to use, which is consistent with studies that suggest ease of use as a critical factor in the acceptance of digital mental health solutions (Pontes et al., 2021; Kim et al., 2023).

Besides, students showed high confidence in the privacy and confidentiality of interactions: mean = 4.2, SD = 0.8. This is very important because the concerns over data privacy and confidentiality are identified as a serious barrier to the application of AI in healthcare and, accordingly, mental health (Huang, 2023; Suran & Hswen, 2024). It may be that ensuring safe and confidential interactions can improve trust in AI-powered interventions for mental health and result in a higher level of usage and better user experience.

The likelihood of recommending the AI-based intervention to peers was very high, with a mean of 4.5 and a standard deviation of 0.6, further strengthening these general satisfaction results with the tool. This would indicate that an AI-powered support tool could be one alternative for university students who seek emotional support, given that students seem willing to promote its use within their communities.

Emotional and Psychological Impact

Emotional and Psychological Impact refers to the degree in which the AI tool influences the emotional responses and mental wellbeing of students. Participants rated the comfort level with the AI intervention for emotional support as relatively high (mean = 4.2, SD = 0.8), suggesting that they felt the AI was an acceptable platform for expressing and processing emotional concerns. Similarly, the perception that the AI understood their emotional needs scored highly (mean = 4.3, SD = 0.7), which suggests that participants believed the tool was able to offer relevant and empathetic support. These findings are consistent with research on AI chatbots, which have been shown to effectively simulate empathetic responses and offer emotional support in other contexts (Cage et al., 2021; Vowels et al., 2024).

The responses also reflect a positive emotional experience with the AI tool. A mean score of 4.1 (SD = 0.8) for feeling more supported after using the AI compared to other methods of seeking help suggests that students felt the AI was an effective source of emotional support. This may be because AI support is immediate and on-demand, which could be especially beneficial during times of emotional distress (Eden et al., 2024). Additionally, the perception that the AI intervention helped develop new coping strategies was rated as good (mean = 4.0, SD = 0.9), which may indicate that the

students valued the advice and recommendations from the AI tool—a clear strength of AI in mental health applications noted in the literature (Liu et al., 2022; Chen et al., 2024).

Not all aspects were rated that highly. The question, if the AI could handle all subjects for the user effectively, demonstrated (mean = 2.9, SD = 1.2) that in some respects, this device was unable to fulfill fully the emotional needs concerning every issue of a person. This shows the lack in the capability of existing AI to fully comprehend and treat complex emotional challenges (Dergaa et al., 2024). These limitations may be because AI tools, advanced as they have become, still lack the depth of emotional understanding and nuances of response that human therapists can offer (Kalam et al., 2024).

Effectiveness of AI-powered Emotional Support

The third key category was that of the effectiveness of the AI tool in meeting its intended goals. The participants reported high levels of perceived effectiveness across various measures. For example, the AI tool was rated as able to address emotional issues at a mean of 4.0 (SD = 0.8), and the rating for its ability to give practical advice on managing the emotional challenges was quite similar mean = 4.1, SD = 0.8. The results suggest that the students felt the AI tool had provided them with emotional support for which they had a great need. The study investigated both students' expectations versus performance of the AI. In this question, responses were generally positive towards the extent to which the AI met user expectations regarding emotional support. The tool was found to be helpful and provided emotional support almost like other traditional methods such as speaking with a counsellor or other self-help strategies. These findings are in line with research demonstrating that AI-powered tools could offer significant mental health support, especially within educational contexts where access to conventional mental health services might be restricted (Li et al., 2023; Ravilovich et al., 2023).

However, the effectiveness ratings for some aspects, particularly addressing all issues and offering personalized interventions by the AI, were not perfect. As mentioned earlier, the participants did raise concerns that the AI would not be able to handle all emotional topics—mean 2.9, SD 1.2—pointing out that there might be certain emotional challenges that are beyond the scope of the capabilities of AI tools. This is supported by other studies, which have identified that, although AI can be of great help, it is not yet fully capable of giving the nuanced and personalized care that human mental health professionals can offer (Dergaa et al., 2024; Kalam et al., 2024).

The experience with this AI-powered emotional support

The open-ended responses of students indicate several areas for improvement and allow a look into the future development of AI-powered emotional support tools. The overarching theme in many of the responses was personalization. While students generally felt that the AI tool was helpful, it did not meet their own unique emotional needs. This finding suggests that future iterations of AI tools should incorporate more adaptive algorithms that can learn from user interactions and provide more tailored support. For instance, tools that track mood changes over time could allow the AI to

adjust its responses based on previous conversations or emotional patterns, providing a more individualized experience (Cage et al., 2021; Pontes et al., 2021).

Furthermore, complex emotional issues were also identified as a key concern for many respondents. Students indicated that while an AI tool could be effective for everyday emotional concerns, it was ill-equipped to handle deeper issues such as trauma or severe mental health conditions. These concerns point to the importance of human-AI collaboration in mental health interventions. Allowing AI to be able to identify when a user is in crisis and to be automatically referred to either a mental health professional or helpline will increase its efficiency and allow users to receive the appropriate care on time. Indeed, such work by Dergaa et al. (2024) and Li et al. (2023) supports that view.

Another important insight from the responses is the need for more transparency and ethical considerations when it comes to AI-powered mental health tools. In particular, students raised their concerns about the security of their personal data and how ethical it is to engage with AI. This response therefore points to the importance of privacy and data protection at both the design and implementation phases of AI-based mental health tools. Developers must ensure that users feel confident in the confidentiality of their interactions, as trust is vital in encouraging the use of digital mental health services (Huang, 2023; Suran & Hswen, 2024).

Students also highlighted the empathy of AI communications. Many of the respondents reported that the AI, although functional, felt mechanical and lacked warmth in most interactions, as is typically expected from human interactions. Empathy has been shown in the literature to be a necessary ingredient in effective mental health support, and an AI tool that can better simulate empathy would go a long way in improving user experience and satisfaction (Boucher et al., 2021). In the future, AI should be designed to enhance their levels of empathy by using language that is more supportive, comforting phrases, and imitating human emotional intelligence.

Last but not least, some students wished for interactive tools that would go beyond emotional support. Guided meditation, relaxation exercises, or even CBT techniques—these features would equip students with very practical approaches to deal with stress and improve their mental well-being. This also aligns with growing recognition of the fact that digital mental health tools should provide not only emotional support, but also strategies for users to enhance their mental resilience and coping skills (Casu et al., 2024; Li et al., 2023).

The present results are significant in at least when talking about the real-world applicability of high recall and low precision, it's crucial to consider the trade-offs. It's not worth sacrificing precision when high recall is achieved in situations were missing out on any potential cases (i.e., missing someone who can be helped) would have dire consequences. For example, with a mental intervention, favorable recall would involve that as many of these problematic users as are caught up by the system, including even those users whose emotional situation may not be yet obvious. This is perhaps especially important in the initial stages of recognizing psychological distress, or where the users themselves would not so readily opt for aid. For the university student case, where a large majority of students may silently struggle with stress or anxiety, ensuring

that the system is able to cast a broad net might mean increased intervention opportunities and perhaps avoiding greater issues down the line.

The drawback to high recall with low precision, however, is that the system will also produce many false positives. This means that numerous users can be identified as needing help even when they do not. In practice, this can lead to an overabundance of unwanted interventions, rendering the system less efficient. It can also negatively affect user experience because students can get frustrated by being given responses or help that are not aligned with their actual emotional needs. Also, this would place an additional burden on mental health professionals or care systems that have to address these false positives, which would be wasteful.

In practice, recall and accuracy in AI-driven emotional support systems should be balanced. A system with high recall but possibly low precision might be utilized in early screening or monitoring, but further filtering or refinement levels (e.g., incorporating user feedback or more sophisticated diagnostic methods) would be required to achieve increased accuracy. This would function to restrict the likelihood of false interventions while not denying valid assistance to those users who need it.

CONCLUSIONS

The aim of this study was to assess the effectiveness of a self-help ChatGPT intervention designed to provide emotional and psychological support to university students. The results suggest that AI-powered tools like ChatGPT have significant potential in offering emotional support, with high levels of user satisfaction, perceived effectiveness, and positive emotional impacts. These findings indicate that such tools could serve as a valuable complement to traditional mental health services, providing students with an accessible and efficient means of support.

However, the study also highlighted areas for improvement, particularly in the AI's ability to address more complex emotional concerns. While students found the intervention beneficial, open-ended responses pointed to the need for more personalized, empathetic, and transparent interactions. Additionally, there was a desire for the AI to be better equipped to handle nuanced emotional issues and offer access to further mental health resources when needed. These challenges underscore the importance of continuing development and research to enhance the capabilities of AI-powered tools.

Despite these limitations, the results of this study suggest that AI-based interventions could play an important role in supporting student mental health, particularly given the growing emotional challenges faced by university students. While these tools are not a perfect replacement for traditional mental health support, they offer a promising solution to the increasing demand for immediate, confidential, and accessible emotional support services.

To improve these tools, future development should focus on refining the AI's ability to handle more complex emotional topics and increasing the personalization of interventions to better meet the unique needs of students. Further research is also necessary to evaluate the long-term effectiveness of AI-powered mental health

interventions and to explore potential ethical concerns in their use within sensitive areas like mental health. Additionally, integrating human support alongside AI could lead to more effective, hybrid models that combine the strengths of both human professionals and AI tools, providing a more comprehensive approach to student mental health care.

Further, provision of accessibility and inclusivity to students of different backgrounds will be essential to widening the reach of AI support systems. Crisis management functions in real-time need to be created to offer appropriate interventions for instant emotional crises. Finally, determining the cost-effectiveness and resource implications of AI-based interventions will be essential for universities that want to implement scalable, effective mental health interventions. These research directions will be used to optimize AI-based emotional support systems to make them more effective, accessible, and beneficial for university students.

AUTHOR CONTRIBUTIONS

The author confirms his responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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