

## CHATGPT AS A CONSULTANT: WHAT HAPPENS WHEN CHATGPT PROVIDES COUNSELING AND EMOTIONAL SUPPORT FOR STUDENTS?

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### Abstract

Recently, a widespread popularity has been obtained by a highly advanced Artificial intelligence based model called ChatGPT. This advanced model has several uses such as language translation, content generation, personal assistance, career guidance and so on. Additionally, it can also provide emotional support and counseling for the students in an educational setting. A valuable insight can be acquired from the implementation of ChatGPT in the educational environment particularly in the expanding need for mental health services. The study aims to compare and analyze the mental health outcomes of two different groups of students who received emotional support, with one group receiving support from ChatGPT and the other from human counselors. To collect quantitative data the study conducted an online Randomized Controlled Trial and deployed mixed-effects regression models to compare the effectiveness. The study used standard questionnaires such as GAD-7 and PHQ-9 for assessing anxiety and depression. Around 512 students took part in the survey, in which 94.33% of students provided valid responses. Among the two groups, the students who obtained counseling from ChatGPT demonstrated better mental states than the students who relied on counseling of humans. As a result, this study provides broader support for the mental health professionals like psychologists and counselors to address personalized and comprehensive care for the students who have poor mental health or need mental support. Despite these contributions the study has a limitation to provide accurate analysis of human emotions. This challenging limitation can be considered as a research gap in future.

**Keywords:** Chatgpt, counseling, emotional support, mental health, educational environment, Randomized Controlled Trial.

### I. INTRODUCTION

ChatGPT is a noteworthy example of powerful AI-based models that have emerged in the twenty-first century (Abedi et al., 2023). Language translation, content development, personal help, career advising, and emotional support are all part of this strategy (Atlas, 2023). Mental health awareness has grown, particularly in school contexts (Rudolph et al., 2023). Institutions across the world recognise the need of providing excellent mental health assistance to students overcoming academic, personal, and social obstacles (Bin-Nashwan et al., 2023). ChatGPT is meant to interpret and generate natural language, allowing it to engage in human-like text-based discussions (Abdullah et al., 2022; Pinzolit, 2023). ChatGPT, like a real consultant, provides knowledge and help to students as a consultant (Kamaruddin, 2023). Counseling is a therapeutic procedure in which a trained professional provides persons suffering with emotional, psychological, or personal issues with direction, support, and help (Javaid et al.,

2023). Emotional support is offering comfort, empathy, and understanding to people who are facing emotional pain (Zheng et al., 2023). The purpose of this project is to investigate the effects of AI-driven emotional support and counseling, with a particular focus on ChatGPT's efficacy in improving students' mental health outcomes. The incorporation of AI into educational contexts has the potential to broaden access to mental health treatments, underscoring the relevance of AI in mental health care (Shahsavari & Choudhury, 2023).

The purpose of this research is to investigate the influence of AI-driven emotional support on students' mental health outcomes at educational institutions. Because of the growing frequency of mental health issues among students, creative and scalable treatments are required. The emergence of powerful AI models such as ChatGPT opens up new avenues for offering effective and easily accessible emotional assistance. The study's goal is to see if AI-powered assistance can supplement the work of human counselors by offering personalized and comprehensive mental health treatment. The project intends to give insights into the potential of AI to bridge the gap in mental health care by comparing the outcomes of students receiving emotional support via ChatGPT and those engaging with human counselors. The major goal of the project is to improve mental health treatment in the school setting. The research focuses on the effect of ChatGPT on students' mental health outcomes. 512 students were polled using an online Randomised Controlled Trial. The results revealed that students who received counseling and emotional support from ChatGPT had better mental health than those who received human counseling. The study's capacity to analyze complicated human emotions, however, may be restricted. The study advises that educators take a more educated approach to offering emotional support and counseling services.

The study gathers quantitative data using an online Randomised Controlled Trial, which employs standardized anxiety and depression assessment instruments such as the GAD-7 and PHQ-9. The study found that students who got ChatGPT counseling had improved mental states, implying that AI-based emotional support may be tailored to individual requirements. The findings also help mental health practitioners provide personalized care to students who have poor mental health or who want emotional assistance. The study recognises a research vacuum in the field of AI-based mental health care, and it encourages more research to increase the accuracy of emotional assessment by AI systems. The study's novelty develops from its groundbreaking exploration of AI-based emotional support for students, quantitative approach, including direct comparison with human counseling. It contributes to the junction of AI and mental health in educational settings by providing insights into the potential of AI to deliver personalized care and identifying future research possibilities.

## **II. LITERATURE REVIEW**

For the reason of the rising frequency of mental diseases and the considerable treatment gap, mental health in children and adolescents is a global public health priority. AI has shown potential in healthcare, particularly in poor and middle-income nations. Chatbots trained on internet text data, such as ChatGPT, have the potential to revolutionize child and adolescent mental healthcare. However, attention is required in the future to ensure their safe and responsible use. Overall, AI-based alternatives offer potential possibilities for closing the treatment gap in mental health (Imran et al., 2023). Sartorão et al., (2020) conducted during

the COVID-19 pandemic found that anxiety and depression problems were prevalent among medical students. The study involved 340 students, with a GAD-7 average of 9.18 and a PHQ-9 average of 12.72. The findings showed a link between GAD-7 scores and females, and social alienation's influence on money. The study also found a link between PHQ-9 scores and gender, and social alienation's impact on money. The study highlights the higher frequency of anxiety and depression symptoms among medical students. ChatGPT, an AI-powered chatbot, has the potential to transform education while also supporting sustainable development goals (Ajlouni et al., 2023). According to Ajlouni et al., (2023) conducted at the University of Jordan, 81.9% of respondents viewed ChatGPT as a useful learning tool for counseling and mental health education. They thought it aided in the development of fundamental counseling skills and therapeutic conditions such as contemplation, empathy, boundary setting, openness to feedback, congruence, and nonverbal abilities. Students, on the other hand, encountered mild difficulties and worries when utilizing ChatGPT. The study advises that instructors take student concerns regarding ChatGPT into account, as should decision-makers at the University of Jordan. According to the findings, ChatGPT can be a great tool for improving counseling as well as education about mental health (Ajlouni et al., 2023).

Elyoseph & Levkovich, (2023) attempted to evaluate ChatGPT's analyses of mental health parameters with assessments made by mental health experts in a hypothetical case study focusing on suicide risk assessment. ChatGPT significantly evaluated the risk of suicide attempts lower than mental health specialists in all situations, and it also evaluated psychological resilience lower than the norms in most conditions. The results of this study showed that persons, such as intermediaries, individuals, or professionals in mental health, who relied on ChatGPT to measure suicidal risk may have gotten incorrect evaluations that was considered the real suicide risk. Kalla & Smith, (2023) explored ChatGPT's origins, functionality, and impact on various fields, including academics, cybersecurity, customer support, software development, jobs, and information technology. It also discussed its advantages, disadvantages, limitations, and potential applications for researchers and scholars. In human-machine contact, dialogue safety is a big concern, and conventional taxonomies may not be sufficient for mental health treatment. Qiu et al., (2023) proposed to construct a benchmark corpus and a grounded taxonomy that prioritized the beneficial effect of help-seekers. The dataset is analyzed using commonly used models, however the fine-tuned model is discovered to be more appropriate. This information can be used to advance studies on conversation safety in mental health care.

Benoit, (2023) included creating 10 new sets of sequences for prevalent children diseases, rewriting 15 old pediatric sequences at various medical literacy phases, and recreating sequences as a parent, doctor, and grade 8 literacy level. The primary objective indicators evaluated whether ChatGPT regularly adhered to a scene production instructions, accurately listed appropriate signs, and utilized existing signs sets without using additional symptoms. The findings revealed that ChatGPT could generate a variety of settings and symptom profiles, but it overused several key illness symptoms. When presented with 45 instances, it diagnosed diseases with 75.6% first-pass diagnosis accuracy and 57.8% triage accuracy. However, it must be used with caution and must be monitored. Shahsavari & Choudhury, (2023) looked at the elements that influence users' perceptions of decision-making processes and their decision to

employ ChatGPT for self-diagnosis. A cross-sectional study of 607 participants discovered that the majority of those surveyed were eager to utilize ChatGPT for self-diagnosis, with increased performance anticipation and favorable risk-reward evaluations favorably influencing users' opinions about decision-making results. The findings showed that by comprehending the mechanisms driving this development, the safe and successful integration of AI chatbots into healthcare systems may be enhanced.

Dana & Gavril, (2023) discovered that ten psychology students while chatbots might give ease and efficiency, they can also cause annoyance and unhappiness when they fail to match user demands. Participants were also concerned about data privacy and the possibility of chatbots replacing human connection. These findings have significance for the design and deployment of chatbots. Limna et al., (2023) investigated instructors' and students' perspectives on the usage of ChatGPT in education within the age of technology. The study included qualitative approaches, incorporating detailed interviews, and discovered that instructors and students typically choose ChatGPT because it gives immediate advice, answers inquiries, and helps students. However, worries have been made concerning the authenticity of information, the possible loss of human interaction, and the protection of privacy and data. According to Elyoseph et al., (2023) ChatGPT performed much better than the general population on all LEAS measures and improved significantly over the course of time. ChatGPT may be employed in cognitive conditioning for patients with EA deficiencies to improve emotional language, which has conceptual as well as practical consequences. Levkovich & Elyoseph, (2023) compared the assessments of depressive episodes as well as therapy regimens produced by ChatGPT-3 and ChatGPT-4 to the doctor's standard guidelines. The results indicated that ChatGPT-3.5 and ChatGPT-4 advised psychological treatment in 95.0% and 97.5% of instances for moderate depressive disorder, correspondingly, whereas doctors with primary care expertise offered treatment in 4.3% of cases. ChatGPT recommended a combination strategy for severe cases, with 74% and 68% of pharmaceutical advice containing depression drugs, respectively, as opposed to 67.4% of the doctor's primary care prescriptions.

#### ***A. Research gap***

This study investigates the application of AI-based emotional assistance for students, showing its limits in appropriately analyzing complex human emotions. According to the study gap, AI-based emotional assistance may not be able to entirely replace the deep knowledge and empathy provided by human counselors. To solve this, future research should concentrate on improving the emotional intelligence and understanding of AI models, such as creating natural language processing and sentiment analysis algorithms. Human-AI collaboration requires ethical issues and norms as well. Future studies will look into whether the short-term advantages of AI-based emotional support are retained over time, as well as any unintended repercussions. More study is required to understand the various demands of different pupils and to measure user satisfaction.

#### ***B. Research questions***

**RQ1:** What is the effectiveness of emotional support provided to students by ChatGPT compared to human counselors?

**RQ2:** What are the differences in depression and anxiety levels before and after receiving emotional support?

The study explores the impact of AI-based emotional support on mental health in educational settings, comparing it to traditional counseling methods. It considers anxiety and depression dimensions for mental health professionals and identifies areas for future research.

### **III.METHODOLOGY**

The study randomly assigns two groups of students to measure mental health outcomes. After collecting the quantitative data the study deploys mixed-effects regression models to compare the effectiveness of ChatGPT-based counseling with human counseling over time (before counseling and after counseling). The study used a Randomized Controlled Trial (RCT) to evaluate the impact of ChatGPT's emotional support on students' mental health. The study involved 512 participants, who were randomly assigned to two groups: one receiving emotional support from ChatGPT and the other receiving support from human counselors. Standardized questionnaires were used to assess anxiety and depression levels in both groups. A multi-effects regression model was used to analyze the data. The results showed that students who received emotional support from ChatGPT experienced significant reductions in anxiety and depression levels, indicating that ChatGPT's emotional support was effective in improving students' mental health. This RCT design provides valuable insights into its potential benefits in an educational context.

#### ***A. Research design***

A Randomised Controlled Trial (RCT) strategy was used in the study to examine the effectiveness of emotional support and counseling delivered by ChatGPT and human counselors across the two student groups. The study assessed their level of strategies using standardized mental health assessment questionnaires, which included the Generalized Anxiety Disorder 7 (GAD-7) to assess levels of anxiety and the Patient Health Questionnaire-9 (PHQ-9) to determine depression levels before and after emotional support.

#### ***B. Data collection***

The data collection procedure was conducted in the month of August within a particular time to confirm consistency in responses and experiences of the participants. The study included participants from several educational institutions, such as high schools and universities, who received emotional support along with counseling, guaranteeing an extensive representation across different educational levels and perspectives.

#### ***C. Procedure***

Participants were randomly allocated to one of two groups: ChatGPT, which provided emotional support as well as counseling, and Human Counsellor, which provided help from professional human counselors. Mixed-effects regression models were used to examine changes in anxiety and depression levels across time and compare emotional effects between two groups.

#### ***D. Demographic details***

A total of 512 students consented to take part in the study. A substantial percentage of respondents of 94.33% was obtained, yielding a large dataset. The study excluded 29 participants due to invalid responses (incomplete questionnaires, underaged students and ) Ethical concerns were thoroughly considered. All participants provided informed consent, and the study's objectives and data utilization were disclosed openly. The study's demographic details are presented in table 1. This table provides a comprehensive overview of the study's participants' demographics, providing insights into their diversity and mental health outcomes.

**Table 1.** Demographic details of the participants

<b>Category</b>	<b>Sub-category</b>	<b>Frequenc y</b>	<b>Percentag e</b>
Gender	Male	251	51.97
	Female	232	48.03
Age	18 - 20 years	241	49.90
	20 - 22 years	218	45.13
	Above 22 years	24	4.97
Education	High school	238	49.28
	Undergraduate	122	25.26
	Postgraduate	123	25.47
Students who got emotional support	ChatGPT	242	50.10
	Human Counselor	241	49.90

The majority of participants were male (51.97%), with 232 (48.03%) being female. The majority were aged 18-20 years, with 49.90% falling in this age group. The largest educational group was high school (238 participants), followed by undergraduate (25.26%) and postgraduate (25.47%). Emotional support was provided by ChatGPT (50.10%) and human counselors (40.90%).

#### ***E. Data analysis***

To assure quality, data was preprocessed, and descriptive statistics were computed to offer an overview of mental health scores before and after counseling. Mixed-effects regression modeling was used to measure and compare changes in anxiety and depression levels across time. Separate mixed-effects regression models integrating fixed and random factors were developed for anxiety and depression. The mixed-effects models were used to assess the effectiveness of emotional support offered by ChatGPT and human counselors, analyzing and contrasting changes in anxiety and depression levels within each group. Table 2 presents a comprehensive overview of mental health measures for students who received emotional support from ChatGPT and human counselors. The measures include items from the GAD-7 and PHQ-9 questionnaires, which assess anxiety and depression, respectively.

**Table 2.** Descriptive statistics

Measures	Students who got emotional support									
	ChatGPT					Human counselors				
	Mean	SD	Max	Min	N	Mean	SD	Max	Min	N
<b>GAD-7</b>										
Nervousness	27.5	1.073	41	14	242	168	3.65	208	128	241
Uncontrollable worry	17	1.125	27	7	242	182.5	2.925	227	138	241
Excessive worries	23	1.095	38	8	242	197	2.2	233	161	241
Difficulty in relaxing	17.5	1.123	22	13	242	184	2.85	231	137	241
Restless	22	1.100	32	12	242	171	3.5	193	149	241
Easily annoyed or irritable	19	1.115	26	12	242	194.5	2.325	220	169	241
Sense of impending doom	30	1.060	45	15	242	200	2.05	233	167	241
<b>PHQ-9</b>										
Loss of interest	18	1.12	26	10	242	162	3.95	224	100	241
Feeling Down	16.5	1.127	24	9	242	170	3.55	203	137	241
Issues due to sleep patterns	17.5	1.122	21	14	242	158.5	4.125	213	104	241
Fatigue	19	1.115	26	12	242	178	3.15	236	120	241
Changes in appetite	24.5	1.087	32	17	242	165	3.8	205	125	241
Feelings of worthlessness	26.5	1.077	35	18	242	174	3.35	226	122	241
Trouble in Concentrating	21	1.105	31	11	242	181	3	220	142	241
Psychomotor agitation	22	1.1	32	12	242	169.5	3.575	211	128	241
Suicidal ideation	17	1.125	20	14	242	170.5	3.525	235	106	241

Table 2 presents the means, standard deviations, maximum (Max), minimum (Min) values, and the number of respondents for each specific measure. The GAD-7 measures for anxiety included nervousness, uncontrollable worry, excessive worries, difficulty in relaxing,

restlessness, easily annoyed or irritable, and a sense of impending doom. The PHQ-9 measures for depression included loss of interest, feeling down, sleep patterns issues, fatigue, changes in appetite, feelings of worthlessness, trouble in concentration, psychomotor agitation, and suicidal ideation. The data provides a comprehensive view of the mental health profiles for students who received emotional support from ChatGPT and human counselors, with a focus on anxiety and depression levels. Table 3 shows the validity and reliability analysis of the questionnaire measures for anxiety and depression levels in study participants.

**Table 3.** Validity and reliability analysis

Measures	Variables	No. of questions	Cronbach's alpha factor	Composite Reliability	Average variance extracted
<b>GAD-7</b>	Nervousness	3	0.806	0.815	0.649
	Uncontrollable worry	2	0.861	0.807	0.634
	Excessive worries	3	0.884	0.866	0.643
	Difficulty in relaxing	1	0.947	0.854	0.624
	Restless	2	0.843	0.842	0.65
	Easily annoyed or irritable	3	0.808	0.81	0.625
	Sense of impending doom	3	0.887	0.812	0.643
<b>PHQ-9</b>	Loss of interest	1	0.906	0.839	0.629
	Feeling Down	2	0.881	0.844	0.619
	Issues due to sleep patterns	1	0.823	0.812	0.611
	Fatigue	1	0.808	0.872	0.65
	Changes in appetite	2	0.804	0.871	0.609
	Feelings of worthlessness	3	0.867	0.829	0.619
	Trouble in Concentrating	2	0.828	0.838	0.6
	Psychomotor agitation	1	0.931	0.84	0.647
	Suicidal ideation	2	0.92	0.866	0.644

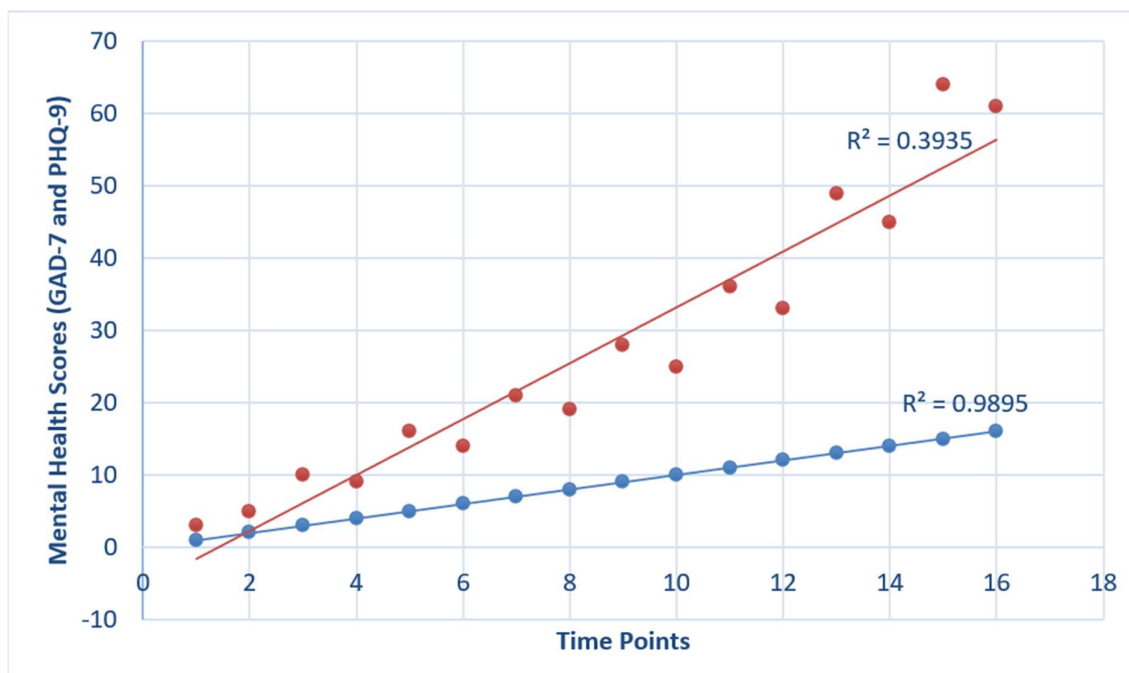
With a Cronbach's alpha rating greater than 0.8, the GAD-7 measures of uneasiness, uncontrollable concern, excessive worry, trouble relaxing, restlessness, easily angered or irritable, and sense of impending doom show excellent reliability. The PHQ-9 measures of anxiety, depression, sleep patterns, fatigue, changes in appetite, feelings of worthlessness,



difficulty concentrating, psychomotor agitation, and suicidal thoughts are likewise highly reliable, with a Cronbach's alpha greater than 0.8.

#### IV. RESULTS AND DISCUSSION

The responses provided valuable insights into the participants' emotional well-being and were crucial for assessing the impact of emotional support on students in the study. The questionnaires provided valuable insights into the participants' emotional well-being and were essential for assessing the impact of emotional support on students. A multi-effects regression model was employed in the study to investigate the influence of emotional support on students, especially those who got it through ChatGPT.



**Figure 1.** Multi-effects Regression Model Showing the Impact of Emotional Support

According to figure 1, the model identified two unique regression lines reflecting ChatGPT students who got emotional support. The first line revealed a moderate connection, indicating that ChatGPT's emotional support considerably lowered depression and anxiety levels in a large number of pupils. The second line, with a substantially larger correlation, demonstrated a significant drop in sadness and anxiety levels among a different group of students, showing the usefulness of ChatGPT in treating their emotional issues. The findings highlight the significance of ChatGPT as a tool for improving students' mental health. While some students reported a slight improvement in despair and anxiety, others reported a near-complete relief of their emotional difficulties. These findings demonstrate ChatGPT's ability to address a wide spectrum of emotional needs in children, making it an important resource for enhancing mental well-being in educational contexts.

##### *A. Effectiveness of emotional support on students by ChatGPT*

The study also discovered that students who sought emotional support from ChatGPT had a significant decrease in anxiety symptoms, indicating a decreased degree of anxiety. This shows the potential of advanced AI models, such as ChatGPT, to effectively aid students in managing their mental health difficulties, as well as the significance of adopting such tools in educational settings to provide complete emotional support. Accessibility, stigma reduction, consistency, resource efficiency, anonymity, and educational help are all advantages of ChatGPT (Amber & Hashmi, 2023). For students who may feel emotional discomfort at any time, accessibility is critical. ChatGPT provides a private, non-judgmental space for students to express their feelings, therefore removing the stigma associated with seeking emotional help. Consistency guarantees that students receive the same level of care each time they seek out, which helps to improve their emotional well-being (Larsson & Eriksson, 2023). ChatGPT, on the other hand, may confront obstacles such as poor emotional comprehension, a lack of human touch, privacy issues, technological constraints, depersonalization, and ethical implications (Elyoseph et al., 2023). To successfully incorporate ChatGPT into educational settings, it is critical to solve these issues while capitalizing on its beneficial effects to improve students' well-being.

### ***B. Depression and anxiety levels before and after receiving emotional support***

According to the findings, students who got emotional support from ChatGPT showed a substantial decrease in both sadness and anxiety levels. Students had various degrees of depression and anxiety prior to ChatGPT, as indicated by the PHQ-9 and GAD-7 questionnaires (Janssen et al., 2023). These symptoms were typical of the mental health issues that students faced. However, the data revealed a significant increase in their mental health after getting emotional assistance. According to the PHQ-9 questionnaire, students reported symptoms such as lack of interest, feelings of worthlessness, and difficulty focusing. These symptoms, however, considerably diminished following persistent involvement with ChatGPT, showing an overall improvement in their mental health. The GAD-7 questionnaire also revealed a substantial decrease in anxiety symptoms such as anxiousness, uncontrolled concern, and excessive worry. This shows that ChatGPT's emotional support capabilities benefit students' mental health by alleviating symptoms of despair and anxiety while improving overall emotional well-being. This demonstrates the value of sophisticated AI models like ChatGPT in addressing mental health difficulties, as well as the relevance of bringing such technologies into educational contexts. According to the findings of the study, students who got emotional support and counseling using ChatGPT had better mental health outcomes than those who received counseling from human counselors. Because they are accessible, scalable, and constant in their availability, sophisticated AI models like ChatGPT have the potential to provide effective emotional support and counseling in educational settings, according to the study (Shahsavari & Choudhury, 2023). However, one of the study's shortcomings is the difficulty in precisely analyzing human emotions, which opens up an interesting route for further research. Despite these limitations, the findings of the study show that ChatGPT plays an important role in addressing students' mental health issues, offering help that is at least as effective as traditional human counseling. AI-based emotional support can supplement mental health practitioners' efforts by providing personalized and comprehensive treatment to patients (Hamdoun et al., 2023; Sallam, 2023).

## V. CONCLUSION

This study investigates ChatGPT's potential for offering emotional support and counseling to students in educational contexts. A Randomised Controlled Trial (RCT) was done with 512 individuals to assess anxiety and depression levels using standardized questionnaires, GAD-7 and PHQ-9. ChatGPT dramatically lowered depression and anxiety levels in a considerable number of students, whereas another set of students had a significant drop in despair and anxiety. Students who got emotional support using ChatGPT saw a substantial reduction in anxiety symptoms, demonstrating that sophisticated AI models can help students manage their mental health difficulties. The study does, however, identify limitations such as possible challenges with emotional understanding, privacy concerns, technology limits, depersonalization, and ethical consequences. Considering these constraints, the study emphasizes ChatGPT's important role in treating students' mental health difficulties, as well as the promise of AI-based emotional support to supplement the work of mental health experts. It offers emotionally supportive services that are easily accessible, scalable, consistent, and stigma-free. Finally, ChatGPT's emotional support capabilities provide significant advantages to students by successfully reducing symptoms of sadness and anxiety and improving general emotional well-being. The incorporation of powerful AI models into educational settings has the potential to transform emotional support and counseling, meeting the critical demand for integrated mental health care.

### *A. Limitations and future scope*

The study looks into the influence of ChatGPT on offering emotional support to students, however it does have certain drawbacks. It admits that ChatGPT may not completely comprehend complicated human emotions, and that future study should concentrate on enhancing its emotional intelligence and empathy. Because ChatGPT gathers and analyzes personal data, privacy concerns should be addressed. Its usefulness may be hampered by technological limits, and depersonalization may ensue. The ethical issues should be examined, as well as the long-term impact of AI-based emotional support on students' mental health. The paper also recommends broadening research to include different student demographics, doing comparative studies, incorporating AI-based emotional support systems into current educational systems, experimenting with hybrid approaches, and combining quantitative data with ethnographic and qualitative investigations.

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