

## PAPER

# The Intensity of Using ChatGPT in Relation to Academic Stress: A Cross-Sectional Study

Aseel Ajlouni<sup>1</sup> ,  
Asmaa AlOmary<sup>2</sup> ,  
Fatima Abd-Alkareem  
Wahba<sup>3</sup> ,  
Huda Al-Kubaisi<sup>4</sup> ,  
Amal Ibrahim<sup>1</sup> 

<sup>1</sup>The University of Jordan,  
Amman, Jordan

<sup>2</sup>Al-Ahliyya Amman University,  
Amman, Jordan

<sup>3</sup>Middle East University,  
Amman, Jordan

<sup>4</sup>Qatar University, Doha, Qatar

[a.ajlouni@ju.edu.jo](mailto:a.ajlouni@ju.edu.jo)

## ABSTRACT

As the digital world grows rapidly, artificial intelligence (AI) tools such as ChatGPT are transforming how students learn, seek support, and manage academic demands. This study aims to fill a gap in the literature regarding ChatGPT's role in students' mental health by exploring the relationship between the intensity of using ChatGPT and academic stress among undergraduate students. A quantitative, cross-sectional correlational design was adopted. Data were collected using an online questionnaire that included the Intensity of Using ChatGPT Scale (IUCS) and the Academic Stress Scale (AAS). The sample consisted of 666 undergraduate students. Descriptive results showed that students use ChatGPT at a moderate level ( $M = 2.94$ ), while their academic stress levels were low ( $M = 2.25$ ). Pearson correlation analysis revealed a statistically significant negative relationship between the intensity of using ChatGPT and academic stress ( $r = -0.637$ ,  $p < 0.01$ ). Furthermore, regression analysis confirmed that ChatGPT use significantly predicted academic stress levels ( $\beta = -0.637$ ,  $R^2 = 0.405$ ), with higher use contributing to lower stress. These findings suggest that ChatGPT may serve as a supportive digital tool in reducing academic stress and promoting student well-being in higher education.

## KEYWORDS

ChatGPT, academic stress, artificial intelligence (AI), intensity of using, higher education

## 1 INTRODUCTION

Innovative technologies are considered one of the pivotal pillars in achieving high educational quality. Digital technologies, particularly those based on artificial intelligence (AI), have transformed knowledge delivery and instructional methodologies [1]. In this context, generative AI applications such as DeepSeek and ChatGPT have become essential learning and instructional tools that support educational leaders, instructors, and students [2–5]. Consequently, the use of AI tools in education has increased incrementally and attracted the attention of psychological and educational researchers, leading to several studies exploring the benefits and limitations of these tools in various disciplines and academic levels [6–10]. These studies

Ajlouni, A., AlOmary, A., Wahba, F. A.-A., Al-Kubaisi, H., Ibrahim, A. (2025). The Intensity of Using ChatGPT in Relation to Academic Stress: A Cross-Sectional Study. *International Journal of Interactive Mobile Technologies (IJIM)*, 19(17), pp. 81–100. <https://doi.org/10.3991/ijim.v19i17.56495>

Article submitted 2025-05-27. Revision uploaded 2025-06-29. Final acceptance 2025-07-04.

© 2025 by the authors of this article. Published under CC-BY.

have provided evidence of their pedagogical benefits and potential to support learning processes. However, while many studies have focused on the educational advantages of AI tools, few have investigated their impact on individual mental health, and no study has yet examined their consequences on academic stress.

Academic stress is widely recognized as a serious concern faced by students across all levels of education [11], and it has been linked to negative outcomes in mental health, academic performance, and overall well-being [12]. Despite the negative consequences of academic stress on undergraduate students, who represent a crucial segment of the workforce and economic development, there remains a gap in the educational literature on the relationship between the intensity of using AI and academic stress.

This issue is relevant today, as digital education continues to grow and AI tools such as ChatGPT are increasingly used by individuals and students to manage academic demands. However, there is limited understanding of how such usage may influence students' psychological experiences, particularly academic stress. Recent studies [6], [7], [13–16] have begun exploring the potential of ChatGPT to reduce anxiety, improve academic performance, support sustainable practice in primary education, and enhance well-being, but research on its direct link to academic stress remains limited. This raises an important debate about whether AI helps reduce academic stress by providing innovative learning support tools [6, 13] or increases it due to limitations such as over-reliance, digital incompetence, or ethical concerns [17–21]. This debate is crucial because it directly affects how AI should be integrated into education to maximize benefits while minimizing potential drawbacks. Therefore, this study addresses a timely research gap by exploring how the intensity of using ChatGPT relates to academic stress among undergraduates in a digitally driven learning environment. The findings will determine whether AI tools reduce or increase academic stress.

The importance of the study lies in its alignment with the sustainable development goals (SDGs), particularly the fourth SDG, “Quality Education” [22], by emphasizing the role of technology such as ChatGPT in expanding learning opportunities for all. It also supports the third SDG, “Good Health and Well-Being,” by focusing on reducing academic stress levels that affect students' overall health and well-being. Additionally, it relates to the ninth SDG, “Industry, Innovation and Infrastructure,” by exploring the potential of integrating AI into educational environments to reshape educational policies and systems. Furthermore, it supports the 10th SDG, “Reduced Inequalities,” by demonstrating how AI technologies can provide equitable educational opportunities for all students. This study adds to the existing body of knowledge on AI integration in education and can assist educational institutions and policymakers in developing more resilient, efficient, and stress-reducing digital learning infrastructures. Consequently, the study seeks to answer the following research questions:

- SQ1: What is the level of the intensity of using ChatGPT and academic stress among undergraduates?
- SQ2: Is there a statistically significant correlation between the intensity of using ChatGPT and academic stress among undergraduates?
- SQ3: To what extent can intensive use of ChatGPT predict academic stress among university students?

## 1.1 ChatGPT integration in mobile learning and higher education

The past few years have witnessed massive technological transformations led by AI and chatbots, most notably ChatGPT. It reached one million users in its first week

due to its human-like responses [23]. With its ability to generate diverse and extensive content, it has gained popularity in various fields, including education [24]. It is adaptable to all educational levels and can be effectively integrated across academic settings from school to university [25]. More importantly, ChatGPT's accessibility through mobile devices such as smartphones and tablets allows students to access it anywhere and anytime, which develops its relevance in mobile learning environments. ChatGPT has created a major shift in education by providing many benefits and features. It provides personalized and interactive learning paths based on individual student needs, enhances active engagement with immediate feedback, supports language learning, reduces administrative burdens, accelerates access to learning resources, and considerably impacts scientific research [26–29]. Also, several studies have reported challenges and ethical concerns related to its use, including issues of bias, privacy, information security, accuracy, reliability, and potential negative effects on students' social development [19–21]. Despite these concerns, a review of the literature confirms multiple benefits and a positive impact of using ChatGPT in higher education, particularly in enhancing student productivity, competencies, and performance [6, 13], [30–31]. Findings also show that university students widely use ChatGPT in academic settings. As confirmed by [32], 51% of students regularly use ChatGPT to complete academic tasks efficiently.

Recent international studies also showed the educational benefits of AI and social robots beyond higher education, especially in areas such as personalized learning, motivation, and student engagement in primary and early education settings [4, 10]. In higher education Lavidas et al. [5] found that students' intention to use AI tools depends on their level of technological self-efficacy and their view of the tool's usefulness. This highlights the need to understand student behavior toward AI tools such as ChatGPT.

Furthermore, a related study [33] found that ChatGPT has become a routine academic tool for university students, with 87.8% using it weekly. From another perspective, the use of ChatGPT in academic settings has shown a significant impact on academic well-being and contributes to reducing academic stress. Similarly, [14] proved the effectiveness of chatbots in alleviating symptoms of depression and anxiety among students by using various techniques. In the same vein, [34] confirmed the efficiency of ChatGPT in improving students' writing quality, enhancing confidence, and reducing stress, which leads to a greater sense of academic satisfaction. Consistent with these findings, a study by [15] showed a significant positive relationship between the use of ChatGPT and academic well-being and emotional regulation among students. These findings emphasize the potential of ChatGPT as a valuable tool for mobile learning by supporting students' needs.

## 1.2 Academic stress

Academic stress is regarded as a major challenge faced by students during their university education due to the requirements and expectations placed on them. As defined by [35], academic stress is a type of stress caused by emotional and physical strain experienced by students because of academic demands. [36] described it as a mental disorder resulting from frustration associated with academic failure. This stress affects students' psychological state, which can contribute to various health issues [37]. In the same context, [38] confirmed that several factors lead to academic stress, often related to academic requirements such as assignments, deadlines, tests, social pressures, financial challenges, time management, and fear of failure.

Conflict, frustration, coercion, and change are also contributing factors [39–40]. A study by [12] confirmed the many negative effects of academic stress on university students, showing it reduces academic achievement and increases dropout rates. Moreover, [41] indicated a significant negative relationship between academic stress and mental health, along with its association with health problems such as physical pain and sadness. This underscores the importance of implementing effective stress management strategies, such as incorporating physical activity to enhance both well-being and academic achievement [42].

Additionally, prior studies have confirmed the key role of AI in addressing academic stress. In the context of students' mental health, a related study by [43] found that AI can help alleviate loneliness and isolation while improving overall well-being. Regarding the significance of artificial intelligence, [44] emphasized the importance of using AI applications in mental health and raising awareness about preventing psychological anxiety. A study by [45] also showed that AI applications can provide personalized support to manage academic stress through proactive interventions and individual assistance. Consistent with previous findings, studies [46, 47] showed the effective role of AI in supporting university students' mental health and addressing academic stress and related psychological issues.

### 1.3 Stress and coping theory

Stress and coping theory (SCT), developed by Lazarus and Folkman [48] provides a valuable framework for understanding how individuals perceive, interpret, and respond to stress. This theory emphasizes that stress is not merely a stimulus or response but a transactional process that arises from the interaction between an individual and their environment [49]. It highlights the role of cognitive judgment in determining whether a situation is perceived as threatening, challenging, or benign. Moreover, the theory differentiates between problem-focused coping, which aims to address the stressor, and emotion-focused coping that aim to regulate emotional responses to stress [50].

In the context of academic stress, SCT offers insights into how students assess academic demands and mobilize coping strategies. Integrating this theory into the present study helps to show how AI tools such as ChatGPT might influence students' coping processes. For example, ChatGPT could serve as a problem-focused coping resource that can provide academic support or can act as an emotion-focused tool that reduces anxiety through immediate feedback and guidance. Therefore, this theory enriches the analysis by linking the use of AI tools to students' stress experiences and coping mechanisms in higher education.

### 1.4 ChatGPT and stress in the context of education

The applications of AI in general and ChatGPT in particular offer promising opportunities while also facing some challenges in educational contexts. Although ChatGPT has proven effective in improving students' academic performance by providing personalized lessons, supporting self-learning, and improving academic well-being, it raises concerns about ethical and psychological issues [51–53]. According to [54], ChatGPT can enhance students' academic well-being by promoting independent learning, increasing motivation, improving problem-solving skills, offering educational, research, and programming assistance, generating ideas, and delivering general knowledge, thereby creating an engaging learning environment [55–56].

From a psychological perspective, a study conducted in China among 387 higher education students [57] showed that ChatGPT helped reduce anxiety levels when learning a foreign language, leading to improved academic outcomes. Furthermore, [58] confirmed ChatGPT's significant role in reducing student stress and identified a strong relationship between stress and anxiety, noting that increased stress often drives students to seek technological solutions such as ChatGPT to complete academic tasks more easily.

Further, [50] conducted an experiment with 160 university students using control and experimental groups. The findings revealed that using ChatGPT decreased students' test anxiety and negative academic emotions, while also fostering more positive academic feelings and improved academic achievements. A study by [59] conducted among 300 university students showed that low academic self-efficacy leads to increased academic stress and performance expectations, which in turn raises students' dependence on AI. Similarly, [60] confirmed an increase in AI dependence among adolescents, rising from 17.14% to 24.19%, and found that mental health issues may contribute to this increased dependence. Additionally, [61] showed a positive relationship between trust in ChatGPT, users' perceptions of it, and their self-esteem and psychological well-being. A study by [13] also confirmed a significant positive correlation between the use of chatbot-powered AI and students' academic well-being, noting a moderate level of usage among undergraduates at the University of Jordan.

According to [62], adopting ChatGPT enhances feelings of happiness and reduces stress levels in higher education. A study by [63] showed the potential of innovative technologies such as ChatGPT to help students overcome challenges related to academic writing and stress management. The study by [64] showed that AI-generated responses reduce academic anxiety by providing clear, personalized, and timely support. A systematic review by [17] examining the impact of AI on university students' mental health showed that while some AI systems offer personal support beneficial to learning and well-being, they may also contribute to stress and anxiety due to information overload and a lack of meaningful human interaction. The study by [65] confirmed that ChatGPT offers a positive experience in supporting mental health, demonstrating AI's capabilities in emotional intervention and emotion regulation, though it also noted concerns about mental health support in work and educational settings. In contrast, a study by [66] in Thailand found that using ChatGPT increased stress levels. Similarly, [18] reported that compulsive use of ChatGPT heightened feelings of loneliness and social distance, leading to psychological distress that negatively affected student satisfaction and academic performance. The study also explained that technological stress enhances the negative effects of psychological distress.

## 2 STUDY METHODOLOGY

### 2.1 Study design, participant and procedures

A quantitative methodology was adopted in this study with a cross-sectional correlational (CSC) design to explore the relationship between the intensity of using ChatGPT and academic stress among undergraduate students. CSC is commonly used to analyze and interpret psychological data such as stress at a given point in time, which is efficient and cost-effective for exploring psychological constructs such as stress [67–68]. However, it does not allow for causal conclusions or tracking changes over time [68]. The study followed the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist to ensure transparency and

accuracy in reporting the study's methodology and findings. An online questionnaire was used to collect data during the first and second weeks of the second semester of the 2024–2025 academic year. Participants consist of undergraduate students from AAU, the first private university in Jordan, which ranks first among Jordanian private universities in the QS Arab 2025.

The sampling method was simple random sampling. The study population consists of all undergraduate students at AAU who were registered in the second semester of the 2024–2025 academic year, including 387 students from humanities schools and 279 from scientific schools. The study sample was randomly selected from this population. The final sample size was determined using Thompson's formula [69], which ensured adequate statistical power and representation. Sample characteristics are presented in Table 1.

**Table 1.** Background information of study participants

No	Characteristics	F	P
1	GPA	Excellent	26.4
		Very good	41.3
		Good	26.1
		Less than good	6.2
2	School Year	First	20.4
		Second	23.5
		Third	29.1
		Fourth	26.8
3	Schools	Scientific	41.9
		Humanities	58.1
4	Digital Skills	Beginner	40.7
		Advance	50.3
		Experts	9.0

Ethical approval to conduct the study was obtained from the research committees at AAU under consent number A.B.A-S-R-J-390. In addition, the study adhered to international ethical standards, including the principles outlined in the Declaration of Helsinki. Participants electronically signed a consent form before participating in the study. They were also briefed on the study's purpose and informed of their right to withdraw at any point. To assess the validity and reliability of the research instruments, a pilot sample of 45 undergraduate students was randomly selected from the study population; these participants were intentionally excluded from the main study sample.

## 2.2 Study instruments

An online questionnaire was used to collect the study data. It consisted of three parts: the first section collected demographic details from participants. The second and third sections included measures of the intensity of using ChatGPT and academic stress. Both scales were translated from their original English versions into

Arabic, and the translations were verified by a specialized language expert to ensure content validity. The translation process followed standard back-translation procedures to ensure linguistic and conceptual equivalence. They were also applied in a pilot study to confirm their validity and reliability.

**The academic stress scale.** The academic stress scale (ASS) developed by Bedewy and Gabriele [70] was used in the study to assess academic stress among undergraduate students. The ASS consists of 18 items, with respondents rating their perceptions of academic stress statements on a 5-point Likert scale ranging from “1: strongly disagree to 5: strongly agree”. A higher total score indicates a higher level of academic stress experienced by the participant.

The scale is specifically designed to measure academic stress among university students and comprises three core dimensions: “stresses related to academic expectations, stresses related to faculty work and examinations, and stresses related to students’ academic self-perceptions.” These dimensions reflect the multifaceted nature of academic stress in higher education contexts. The ASS was used in its original standardized form without any change. It was translated from English to Arabic. A language expert checked the translation through a back translation process to make sure the meaning stayed the same. ASS was used before in many published studies and showed clear validity and reliability. Further, ASS was administered to the pilot sample to ensure its reliability and validity. The researcher calculated the Pearson correlation coefficients between each ASS item and the total score, which ranged from 0.321 to 0.567. Additionally, Cronbach’s alpha was computed at 0.81. These findings indicate that the ASS is a valid and reliable measure for conducting this study.

**The academic intensity of using ChatGPT scale.** The intensity of using the ChatGPT scale (IUCS) was adopted from “*The Academic Intensity Use of Chatbot-Based AI Scale*” developed by Ajlouni, Abu-Shawish, Silim, and Ibrahim [13]. The IUCS was used to measure the intensity of using ChatGPT among undergraduate students. It consists of nine items and uses a 5-point Likert scale ranging from “1: strongly disagree to 5: strongly agree,” with higher total scores indicating greater intensity of ChatGPT use. The original scale, which was designed to assess level of intensity according to students’ academic use of chatbot-based AI tools, was modified—after obtaining formal permission from the original authors—to focus specifically on ChatGPT as the target application in this study. Accordingly, the items of the scale were adapted by replacing “chatbot-based AI tools” with “ChatGPT” to align with the study context. The adapted version was then translated into Arabic using a back-translation procedure and reviewed by bilingual experts to ensure conceptual and cultural equivalence. Moreover, the adapted version of the IUCS was evaluated by a panel of eight experts specialized in measurement and evaluation, educational psychology, counseling and mental health, and educational technology to ensure content validity. Their feedback was used to refine the wording, clarity, and relevance of each item. Further, the researcher administered the adapted IUCS to the pilot sample and calculated the Pearson correlation coefficients between each item and the total score, which ranged from 0.439 to 0.748—all statistically significant at  $p < .05$  and within an appropriate range [71]. Additionally, the researcher computed Cronbach’s alpha, which reached 0.91. These statistics indicate that the scale is both valid and reliable.

### 2.3 Data analysis

The study data were analyzed using SPSS software, applying descriptive statistics techniques, including means and standard deviations, to assess the levels of

the intensity of using ChatGPT and academic stress among undergraduate students at AAU. Pearson correlation analysis was conducted to examine the relationship between the study variables (i.e., the intensity of using ChatGPT and academic stress). Finally, regression analysis was performed to evaluate the impact of the intensity of using ChatGPT on academic stress. The researcher ensured that all essential statistical prerequisites were met.

### 3 RESULTS AND DISCUSSION

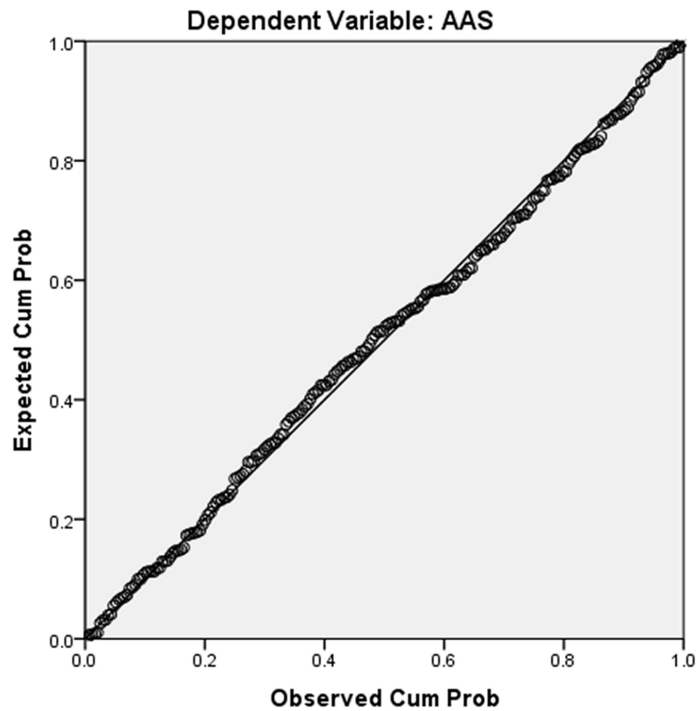
#### 3.1 Preliminary analysis

A preliminary analysis was conducted before starting the main study analysis to ensure the data met the necessary conditions for regression analysis. The researcher examined whether the predictor variable was too closely related to others, which could affect the regression results. The variance inflation factor (VIF) was 1.000, and the Tolerance was also 1.000, as presented in Table 2. Both values are within acceptable limits, indicating no issues of multicollinearity.

**Table 2.** Multicollinearity indicators for the independent variables

Variable	VIF	Tolerance
IUCS	1.000	1.000

Additionally, a Q-Q plot was employed to evaluate whether the residuals—defined as the differences between observed and predicted values—conformed to a normal distribution. The plot, presented in Figure 1, showed that the residuals are normally distributed.



**Fig. 1.** Normal Q-Q plot of residuals

Figure 2 displays a scatterplot of standardized residuals against predicted values, generated to assess linearity and homoscedasticity. The random dispersion of residuals around the horizontal axis suggests that both assumptions were satisfied.

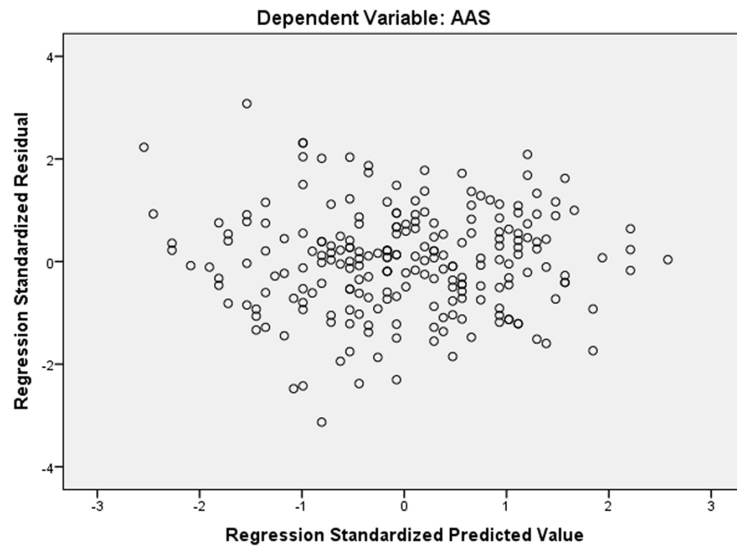


Fig. 2. Scatterplot displaying standardized residuals against predicted values

These preliminary checks confirm that the data is suitable for regression analysis.

To address the first study question, “SQ1: What is the level of the use of intensity ChatGPT and academic stress among AAU’s undergraduates?” the researcher extracted descriptive statistics, including M and SD, for the study measures (AAS and IUCS).

### 3.2 The intensity of using ChatGPT among AAU's undergraduates

The findings in Table 3 showed that the overall mean score for IUCS was 2.94 with a standard deviation of 1.14, which falls within the moderate level. This indicates that undergraduate students at AAU moderately use ChatGPT in their learning process. Students reported the highest mean score for item 1, “I use chatbot-based AI applications (i.e., ChatGPT) for educational purposes” ( $M = 3.37$ ,  $SD = 1.21$ ), suggesting that they most frequently use ChatGPT for general academic tasks. In contrast, the lowest mean score was reported for item 2, “I feel a loss of connection if I cannot use chatbot-based AI applications for a short period of time” ( $M = 2.47$ ,  $SD = 1.33$ ), indicating that students do not exhibit strong dependence or emotional attachment to the ChatGPT application.

Overall, students showed moderate agreement across all nine IUCS items, indicating that they use ChatGPT in their learning processes but have not yet fully integrated it as a daily or essential academic tool. This reflects a balanced approach to using ChatGPT, without showing signs of overreliance. This level of use suggests that students are maintaining a degree of autonomy in their study habits.

These findings are consistent with a study that revealed ChatGPT is becoming an academic routine for many students [33] and is regularly used [32]. The current results support the idea that students engage with ChatGPT primarily as a functional academic tool rather than forming an emotional dependence on it. Moreover, the reported moderate usage aligns with findings by [13], which showed

that undergraduates at the University of Jordan reported a moderate level of chatbot-based AI usage in their academic process.

**Table 3.** Descriptive statistics for AAU'S undergraduates' responses on study's IUCS measure

Item	SD	M	Level
1	1.21	3.37	Moderate
2	1.33	2.47	Moderate
3	1.35	2.79	Moderate
4	1.37	2.76	Moderate
5	1.27	3.20	Moderate
6	1.27	3.23	Moderate
7	1.31	2.97	Moderate
8	1.35	2.86	Moderate
9	1.35	2.82	Moderate
Total	1.14	2.94	Moderate

Note: M: mean, SD: standard deviation.

### 3.3 Academic stress among AAU's undergraduates

The results in Table 4 showed that the overall mean score on the AAS was 2.25 (SD = 0.66), indicating that undergraduates experience low academic stress. This suggests that undergraduate students at AAU generally do not feel significant academic pressure in their learning environments. Students reported the highest mean scores on reverse-coded items, such as item 1, "I am confident that I will be a successful student" (M = 4.19), and item 3, "I can make academic decisions easily" (M = 4.26). These high scores reflect positive academic self-perception, which contributes to reduced stress levels. In contrast, items measuring academic workload—such as item 10, "The size of the curriculum (workload) is excessive," and item 11, "I believe that the amount of work assigned is too much"—had lower mean scores (around 2.1–2.3), indicating that students do not perceive their academic tasks as overwhelming. While these findings suggest a generally positive academic environment at AAU, they should be interpreted with caution. The results are based on self-reported perceptions, which may be subject to individual bias or social desirability.

The low stress levels observed in this study may reflect effective academic support systems and personal coping strategies adopted by students at AAU. Moreover, several studies have emphasized that AI applications can provide personalized support to manage academic stress through proactive interventions and individual assistance [45]. Additionally, the study by [46] demonstrates the effective role of AI in supporting the mental health of university students and in addressing academic stress and related psychological issues.

The results also showed that items reflecting external pressures—such as item 13, "The unrealistic expectations of my parents stress me out," and item 14, "Competition with my peers for grades is quite intense" received moderate scores, indicating that social and emotional sources of academic stress still exist, though not at alarming levels. These moderate scores are consistent with the findings of [36–38], who noted that stress can arise from multiple sources beyond academic workload, including interpersonal and social demands.

Overall, the results indicate that AAU undergraduates experience relatively low academic stress, likely due to a combination of positive academic attitudes, manageable workloads, and a lack of excessive emotional or social pressure. Moreover, the mobile accessibility of ChatGPT offers a practical avenue for stress justification during students' daily academic routines. Since students can access ChatGPT anytime and anywhere through their smartphones or tablets, the tool supports mobile learning practices, which allow students to manage academic demands on the go. This flexibility may enhance emotional coping, reduce time-related pressure, and contribute to the observed low levels of academic stress among undergraduates in this study. However, as noted in studies such as [12], even low or moderate stress should not be ignored, as it may still affect academic performance and well-being. Therefore, universities should continue to promote psychological support, self-regulation strategies, and adaptive learning environments to maintain or further reduce stress levels. This study underscores the potential role of structured academic environments when supported by digital tools such as ChatGPT in being associated with lower levels of academic stress in higher education.

**Table 4.** Descriptive statistics for AAU undergraduates' responses on study's ASS measure

Item	SD	M	Level
1 (R)	1.31	4.19	High
2 (R)	1.26	4.26	High
3 (R)	0.80	4.26	High
4 (R)	0.96	4.01	High
5 (R)	1.14	3.82	High
6	1.76	2.81	Moderate
7	1.61	2.64	Moderate
8	1.77	2.76	Moderate
9	1.52	2.37	Moderate
10	1.40	2.20	Low
11	1.36	2.09	Low
12	1.41	2.31	Low
13	1.58	2.40	Moderate
14	1.48	2.45	Moderate
15	1.29	2.08	Low
16	1.44	2.13	Low
17	1.47	2.38	Moderate
18	1.52	2.44	Moderate
Total	0.66	2.25	Low

Note: R: reverse statements.

### 3.4 Relationships between the intensity of using ChatGPT and academic stress

The researcher addressed the second study question, "Is there a statistically significant correlation between the intensity of using ChatGPT and academic stress

among undergraduates?” by conducting a Pearson correlation analysis between the study variables (intensity of using ChatGPT and academic stress). The analysis indicated a statistically significant negative correlation, with  $r = -0.637$  and  $p = 0.01$ . This shows a moderate-strength relationship [72] between the two variables. This means that students who reported higher use of ChatGPT also reported lower levels of academic stress. While this association is meaningful, it is important to note that correlation does not imply causation [72]. ChatGPT usage may be part of a broader set of academic behaviors or support systems that contribute to reduced stress, rather than the sole cause.

This finding aligns with studies highlighting the role of ChatGPT in supporting students’ academic well-being and reducing stress. Studies such as [13, 15, 34] confirm that chatbot technologies—including ChatGPT—can help lower symptoms of anxiety and enhance emotional stability among students.

This negative relationship shows that ChatGPT may serve as a supportive learning tool that helps ease academic pressure. Students who regularly use ChatGPT may find it easier to understand challenging material, organize academic tasks, and receive instant support or feedback—all of which contribute to reduced stress. This aligns with findings by [62] and [57], which revealed that using ChatGPT enhances feelings of happiness and reduces stress levels and anxiety. Similarly, prior research [6, 13] reported that students perceive ChatGPT as a helpful academic resource that supports learning and correlates positively with academic well-being. These factors directly contribute to lowering academic stress. Also, this result can be explained through Lazarus and Folkman’s Stress and Coping Theory [84], which says that people deal with stress using different coping methods. In this case students use ChatGPT as a problem-focused coping method where they look for digital tools to handle academic pressure and lower stress.

However, some scholars caution that over-reliance on AI tools may impair students’ independent problem-solving and critical thinking skills over time [17, 21]. Although such risks were not evident in this sample. This study contributes to literature by linking AI integration with mental health outcomes in education. It shows a consistent pattern between ChatGPT usage and reduced academic stress; the results underscore the potential of generative AI tools to function not only as cognitive aids but also as emotional support mechanisms in digitally mediated learning environments. Further, these results support the broader body of literature suggesting that thoughtful integration of AI tools such as ChatGPT into academic routines can promote mental well-being [61–62] and reduce levels of academic anxiety [64]. Furthermore, this finding could be interpreted through the SCT [48], where the use of ChatGPT may function as a problem-focused coping resource by offering immediate academic support or as an emotion-focused tool by reducing anxiety and enhancing confidence. This theoretical perspective shows how AI tools might support students’ stress management processes in higher education.

### 3.5 The intensity of using ChatGPT as a predictor of academic stress

To address the fourth study question, “To what extent can the intensity of using ChatGPT predict academic stress among university students?” the researchers conducted a simple linear regression analysis. In this model, the predictor variable was the intensity of using ChatGPT, and the outcome variable was academic stress. As presented in Table 5, the results revealed a statistically significant negative relationship between ChatGPT use and academic stress ( $\beta = -0.637$ ,  $t = -21.271$ ,  $p < 0.01$ ).

The R-squared value ( $R^2 = 0.405$ ) indicates that 40.5% of the variation in academic stress levels could be explained by the extent of ChatGPT use among undergraduates. These results align with prior studies emphasizing the role of ChatGPT in promoting academic well-being and reducing stress. For example, [14] and [34] confirm that ChatGPT use contributes to lowering anxiety and improving students' confidence, ultimately reducing stress in academic settings. This also aligns with [15], which revealed positive associations between ChatGPT use, academic well-being, and emotional regulation among students. However, while the predictive value of ChatGPT use is statistically significant, it does not imply a direct causal relationship. Other factors not captured in the model may also influence students' stress levels.

**Table 5.** Model summary

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error Estimate
1	0.637	0.405	0.404	0.50964

The ANOVA results presented in Table 6 confirmed that the overall regression model was significant, with  $F(1, 664) = 452.469$ ,  $p < 0.001$ . This indicates that the model significantly predicts academic stress levels based on the intensity of using ChatGPT.

**Table 6.** ANOVA results

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	117.523	1	117.523	452.469	.000
Residual	172.465	664	0.260		
Total	289.988	665			

As presented in Table 7, the unstandardized coefficient for the intensity of using ChatGPT was  $B = -0.368$ , and this result was statistically significant ( $p < 0.001$ ). This means that for every one-unit increase in intensity of using ChatGPT, the level of academic stress tends to decrease by 0.368 units on average. This finding aligns with the results of [55] and [47], which showed that students experiencing academic stress or anxiety are more likely to turn to AI tools such as ChatGPT to manage tasks efficiently, reduce pressure, and improve academic emotions.

**Table 7.** Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Beta	Beta ( $\beta$ )		
(Constant)	3.335	0.055		61.048	0.000
IUCS	-0.368	0.017	-0.637	-21.271	0.000

Based on these unstandardized coefficients, a predictive equation (Formula 1) was developed to estimate academic stress from the intense use of ChatGPT, where  $y$  represents academic stress and  $x$  represents the intensity of using ChatGPT:

$$y = 3.335 - 0.368 * x$$

This equation demonstrates that higher ChatGPT usage is associated with lower academic stress among university students. This supports the theoretical framework suggesting that AI tools, when thoughtfully integrated, can function as academic and emotional support mechanisms. However, as noted in studies by [17] and [18], over-use or compulsive reliance on AI tools may also lead to negative effects such as digital fatigue, reduced satisfaction, and social detachment. Compulsive use of ChatGPT can increase feelings of loneliness and social distance, leading to psychological distress among students [18]. Therefore, while the current study confirms the potential of ChatGPT to reduce academic stress, balanced and mindful use remains essential. Students and institutions should aim for a balanced and purposeful integration of such tools into academic life.

This finding can be interpreted based on Lazarus and Folkman's Stress and Coping Theory [48], where ChatGPT use may represent a problem-focused coping mechanism in which students actively seek academic support to reduce stress. Where students can use ChatGPT to find explanations, organize academic content, and manage coursework, students are engaging in behaviors that help them to address the source of stress directly as a problem-focused coping strategy. It provides them with resources to address academic challenges directly, which helps lower their perceived stress levels. The strong predictive relationship supports this theoretical interpretation, where effective coping tools reduce stress by offering control over stressful situations.

## 4 ETHICAL AND PRACTICAL IMPLICATIONS

This study highlights the use of ChatGPT as an AI-powered educational tool, particularly in supporting students' mental health and reducing academic stress. However, ethical considerations must be carefully addressed. First, privacy and data protection are crucial, as AI tools often process sensitive student information. Also, the risk of misinformation must be considered. It may sometimes generate inaccurate or biased information that could mislead students [73]. Therefore, universities should establish guidelines to help students critically evaluate AI-generated content and verify information with credible academic sources. Finally, while ChatGPT offers promising support for learning and stress management, over-reliance on AI tools could have consequences, including an impact on decision-making [74]. Educators should encourage a balanced use of AI, integrating it as a complement rather than a replacement for human interaction.

To implement these recommendations effectively, universities can adopt clear strategies. For instance, they can integrate ChatGPT into academic support services or helpdesks, develop advisory platforms compatible with mobile devices, and offer targeted training programs on ethical and effective AI use. These efforts may include workshops, orientation sessions, or digital materials that help students approach generative AI tools in a responsible and informed manner. This structured approach can ensure the use of ChatGPT aligns with best practices in digital education, supports students' mental well-being, and maintains transparency, safety, and academic integrity.

## 5 CONCLUSIONS

As AI becomes increasingly embedded in higher education, understanding its impact on students' academic experiences is essential. This study contributes to that

understanding by revealing a statistically significant negative relationship between the intensity of using ChatGPT and academic stress among undergraduate students. In other words, students who reported higher use of ChatGPT also reported lower levels of academic stress. While this does not prove that ChatGPT directly reduces stress, it suggests a possible association that warrants further exploration. However, the findings are based on self-reported data, which may be influenced by response bias or individual perception.

This study has certain limitations. The sample was drawn from a single private university in Jordan, which may affect the generalizability of the results. Furthermore, the cross-sectional nature of the study restricts the ability to infer causal relationships. Additionally, the use of self-report instruments may limit the objectivity of the findings. Also, this study did not include control variables (i.e., age, gender, or GPA), which may influence the relationship between ChatGPT use and academic stress. Moreover, the cultural and technological context of the study may limit the applicability of the findings to other settings with different levels of digital literacy or attitudes toward AI. Future research should consider these variables to improve model accuracy and employ longitudinal or experimental designs and explore specific ways students use AI tools in relation to their well-being and academic outcomes. Researchers are also encouraged to investigate the role of other AI tools in different academic contexts and to include diverse student populations across institutions and cultural settings to enhance generalizability.

## 6 REFERENCES

- [1] S. Papadakis, Ed., *IoT, AI and ICT for Educational Applications: Technologies to Enable Education for All*. Cham: Springer Nature, 2024. <https://doi.org/10.1007/978-3-031-50139-5>
- [2] A. A. Q. Mohammed, B. A. Mudhsh, W. R. A. Bin-Hady, and A. S. Al-Tamimi, "DeepSeek and Grok in the spotlight after ChatGPT in English education: A review study," *J. English Stud. Arabia Felix*, vol. 4, no. 1, pp. 13–22, 2025. <https://doi.org/10.56540/jesaf.v4i1.114>
- [3] I. J. Akpan, Y. M. Kobara, J. Owolabi, A. A. Akpan, and O. F. Offodile, "Conversational and generative artificial intelligence and human–chatbot interaction in education and research," *Int. Trans. Oper. Res.*, vol. 32, no. 3, pp. 1251–1281, 2025. <https://doi.org/10.1111/itor.13522>
- [4] G. Lampropoulos and S. Papadakis, "The educational value of artificial intelligence and social robots," in *Social Robots in Education, Studies in Computational Intelligence*, G. Lampropoulos and S. Papadakis, Eds., Springer, Cham, vol. 1194, 2025, pp. 3–15. [https://doi.org/10.1007/978-3-031-82915-4\\_1](https://doi.org/10.1007/978-3-031-82915-4_1)
- [5] K. Lavidas *et al.*, "Determinants of humanities and social sciences students' intentions to use artificial intelligence applications for academic purposes," *Information*, vol. 15, no. 6, p. 314, 2024. <https://doi.org/10.3390/info15060314>
- [6] A. Ajlouni, A. Almahaireh, and F. Whaba, "Students' perception of using ChatGPT in counseling and mental health education: The benefits and challenges," *Int. J. Emerg. Technol. Learn. (ijET)*, vol. 18, no. 20, pp. 199–218, 2023. <https://doi.org/10.3991/ijet.v18i20.42075>
- [7] Z. H. Sain, R. Serban, N. B. Abdullah, and C. C. Thelma, "Benefits and drawbacks of leveraging ChatGPT to enhance writing skills in secondary education," *At-Tadzkir: Islamic Education Journal*, vol. 4, no. 1, pp. 40–52, 2025. <https://doi.org/10.59373/attadzkir.v4i1.79>
- [8] J. A. Tangsrivimol *et al.*, "Benefits, limits and risks of ChatGPT in medicine," *Front. Artif. Intell.*, vol. 8, 2025. <https://doi.org/10.3389/frai.2025.1518049>

- [9] Z. H. İpek, A. I. C. Gözüml, S. Papadakis, and M. Kallogiannakis, "Educational applications of the ChatGPT AI system: A systematic review research," *Educational Process: International Journal*, vol. 12, no. 3, pp. 26–55, 2023. <https://doi.org/10.22521/edupij.2023.123.2>
- [10] S. Aravantinos, K. Lavidas, I. Voulgari, S. Papadakis, T. Karalis, and V. Komis, "Educational approaches with AI in primary school settings: A systematic review of the literature available in Scopus," *Education Sciences*, vol. 14, no. 7, p. 744, 2024. <https://doi.org/10.3390/educsci14070744>
- [11] P. Harahap, "Peran Konselor dalam Membantu Siswa Mengatasi Stres Akademik: Pendekatan Bimbingan Konseling," *Religion, Education and Social Laa Roiba Journal (RESLAJ)*, vol. 6, no. 10, pp. 4615–4619, 2024. <https://doi.org/10.47467/reslaj.v6i10.3001>
- [12] G. A. Gobena, "Effects of academic stress on students' academic achievements and its implications for their future lives," *International Journal of Instruction*, vol. 9, no. 1, pp. 113–130, 2024. <https://doi.org/10.29333/aje.2024.918a>
- [13] A. O. Ajlouni, R. K. Abu-Shawish, D. M. Silim, and A. H. Ibrahim, "The academic intensity use of Chatbot-based artificial intelligence and its relation to academic well-being: A correlational study at the university of Jordan," *Int. J. Eng. Pedagogy (ijEP)*, vol. 14, no. 8, pp. 72–87, 2024. <https://doi.org/10.3991/ijep.v14i8.50339>
- [14] X. Fu and Y. Liu, "A review of chatbots application on supporting international students' mental health," *Dean & Francis*, vol. 1, no. 9, 2024. <https://doi.org/10.61173/g27kbp22>
- [15] A. Rezai, A. Soyooof, and B. L. Reynolds, "Disclosing the correlation between using ChatGPT and well-being in EFL learners: Considering the mediating role of emotion regulation," *European Journal of Education*, vol. 59, no. 4, 2024. <https://doi.org/10.1111/ejed.12752>
- [16] H. Uğraş, M. Uğraş, S. Papadakis, and M. Kalogiannakis, "ChatGPT-supported education in primary schools: The potential of ChatGPT for sustainable practices," *Sustainability*, vol. 16, no. 22, p. 9855, 2024. <https://doi.org/10.3390/su16229855>
- [17] D. Velastegui, M. L. R. Pérez, and L. F. S. Garcés, "Impact of artificial intelligence on learning behaviors and psychological well-being of college students," *Salud, Ciencia y Tecnología-Serie de Conferencias*, vol. 2, p. 582, 2023. <https://doi.org/10.56294/sctconf2023582>
- [18] C. D. Duong, T. N. Vu, T. V. N. Ngo, N. D. Do, and N. M. Tran, "Reduced student life satisfaction and academic performance: Unraveling the dark side of ChatGPT in the higher education context," *Int. J. Hum. – Comput. Interact.*, vol. 41, no. 8, pp. 4948–4963, 2024. <https://doi.org/10.1080/10447318.2024.2356361>
- [19] N. Aghaee, J. Vrågård, and F. Brorsson, "Generative AI in higher education: Educators' perspectives on academic learning and integrity," *European Conference on E-Learning*, vol. 23, no. 1, pp. 406–414, 2024. <https://doi.org/10.34190/ecel.23.1.3090>
- [20] H. van Rensburg and N. Reedy, "ChatGPT in higher education: A comprehensive study of the literature. Friend or Foe?" *European Conference on E-Learning*, vol. 23, no. 1, pp. 381–386, 2024. <https://doi.org/10.34190/ecel.23.1.3126>
- [21] L. Zhou, "ChatGPT empowers higher education middle school students' intelligent adaptation learning problems and path research," *Journal of Education, Humanities and Social Sciences*, vol. 40, pp. 20–26, 2024. <https://doi.org/10.54097/0wv8en95>
- [22] United Nations, "The 17 Goals," 2024. <https://sdgs.un.org/goals>
- [23] M. P. Lungren, E. K. Fishman, L. C. Chu, R. C. Rizk, and S. P. Rowe, "More is different: Large language models in health care," *Journal of the American College of Radiology*, vol. 21, no. 7, pp. 1151–1154, 2024. <https://doi.org/10.1016/j.jacr.2023.11.021>
- [24] M. Javaid, A. Haleem, and R. P. Singh, "ChatGPT for healthcare services: An emerging stage for an innovative perspective," *BenchCouncil Transactions on Benchmarks, Standards and Evaluations*, vol. 3, no. 1, p. 100105, 2023. <https://doi.org/10.1016/j.tbench.2023.100105>
- [25] M. U. Hadi et al., "Large language models: A comprehensive survey of its applications, challenges, limitations and future prospects," *TechRxiv*, 2025. <https://doi.org/10.36227/techrxiv.23589741.v6>

- [26] Z. He, T. Ye, and J. Wang, "Study of the effect of ChatGPT on the development of research capacity of higher education students," *Journal of Education, Humanities and Social Sciences*, vol. 38, pp. 187–192, 2024. <https://doi.org/10.54097/fqgmt421>
- [27] I. Isiaku, A. S. Muhammad, H. I. Kefas, and F. C. Ukaegbu, "Enhancing technological sustainability in academia: Leveraging ChatGPT for teaching, learning and evaluation," *Quality Education for All*, vol. 1, no. 1, pp. 385–416, 2024. <https://doi.org/10.1108/QEA-07-2024-0055>
- [28] J. H. Mamani, J. H. T. Paucar, J. E. M. Gamarra, D. Y. Pariapaza, and H. N. Caverro-Aybar, "ChatGPT and scientific research in university higher education," *Universidad, Ciencia y Tecnología*, vol. 28, no. 125, pp. 17–24, 2024. <https://doi.org/10.47460/uct.v28i125.851>
- [29] I. Pujiani and F. A. Alijoyo, "Economic efficiency in higher education through ChatGPT integration: Case study of Budi Utomo National Institute," *Jurnal Ekonomi, Teknologi Dan Bisnis*, vol. 3, no. 10, pp. 1765–1771, 2024. <https://doi.org/10.57185/jetbis.v3i10.150>
- [30] F. Wahba, A. O. Ajlouni, and M. A. Abumosa, "The impact of ChatGPT-based learning statistics on undergraduates' statistical reasoning and attitudes toward statistics," *Eurasia Journal of Mathematics, Science and Technology Education*, vol. 20, no. 7, p. em2468, 2024. <https://doi.org/10.29333/ejmste/14726>
- [31] A. Shrivastava, "Transformative landscape of ChatGPT in higher education: Unveiling the academic discourse," *Global Knowledge, Memory and Communication*, 2024. <https://doi.org/10.1108/GKMC-02-2024-0068>
- [32] S. Zafar, F. Shaheen, and J. Rehan, "Use of ChatGPT and generative AI in higher education: Opportunities, obstacles and impact on student performance," *IRASD Journal of Educational Research*, vol. 5, no. 1, pp. 1–12, 2024. <https://doi.org/10.52131/jer.2024.v5i1.2463>
- [33] M. B. Ada, "It helps with crap lecturers and their low effort: Investigating computer science students' perceptions of using ChatGPT for learning," *Education Sciences*, vol. 14, no. 10, p. 1106, 2024. <https://doi.org/10.3390/educsci14101106>
- [34] R. K. Herda *et al.*, "Opportunities of using ChatGPT in academic writing: Perceptions of the Philippines and Indonesian students," *Jurnal Wahana Pendidikan*, 2024. <https://doi.org/10.25157/jwp.v11i2.14922>
- [35] H. Sailo and D. Varghese, "Academic Stress, Its Sources, Effects and Coping Mechanisms Among College Students," *International Journal of Science and Healthcare Research*, vol. 9, no. 3, pp. 124–132, 2024. <https://doi.org/10.52403/ijshr.20240316>
- [36] O. R. Ogunwale, O. O. Omolayo, F. K. Olawumi, and F. D. Ojo, "The relationship between academic stress and core life skills among students with special needs," *International Journal of Special Education and Information Technologies*, vol. 9, no. 1, pp. 19–26, 2023. <https://doi.org/10.18844/jeset.v9i1.9186>
- [37] D. R. Amalina, F. Annisa, N. Nurhabibah, P. V. Evelin, and S. Hestari, "Descriptive study of academic stress in UNP psychology students," *Deleted Journal*, vol. 1, no. 3, pp. 109–113, 2024. [Online]. Available: <https://doi.org/10.62260/intrend.v1i3.176>
- [38] C. Khadka, "Academic stress among college students," *Dristikon: A Multidisciplinary Journal*, vol. 14, no. 1, pp. 45–57, 2024. <https://doi.org/10.3126/dristikon.v14i1.66001>
- [39] N. A. Ahmad Fuad *et al.*, "Stress factors among university students: A case study at Universiti Kebangsaan Malaysia," *International Journal of Academic Research in Business & Social Sciences*, vol. 14, no. 11, pp. 1694–1707, 2024. <https://doi.org/10.6007/IJARBSS/v14-i11/21956>
- [40] Y. H. Aprilia, M. Ishar, and T. A. Syah, "Stress Academic Dalam Mengerjakan Tugas Akhir Pada Mahasiswa Perantau: Adakah Pengaruh Self Efficacy Terhadap Stress academic?" *Jurnal Ilmiah Psyche*, vol. 18, no. 1, pp. 25–46, 2024. <https://doi.org/10.33557/jpsyche.v18i1.3190>

- [41] R. Y. S. Subardjo, "Hubungan antara Stres Akademik dan Kesehatan Mental pada Mahasiswa," *EduInovasi*, vol. 4, no. 3, pp. 2041–2054, 2024. <https://doi.org/10.47467/edu.v4i3.5635>
- [42] M. Ochoa-Andrade and F. Saldarriaga-Mera, "Academic stress in health sciences university students and its influence on academic performance," *Salud, Ciencia y Tecnología*, vol. 4, p. 593, 2024. <https://doi.org/10.56294/saludcyt2024.593>
- [43] F. Saad, S. Fathi, and G. Ramadan, "The role of artificial intelligence in psychological and social crises," *Al-Manara Journal*, Special Issue, pp. 695–716, 2024. [https://www.researchgate.net/publication/386414778\\_dwr\\_aldhka\\_alastnay\\_fy\\_alazmat\\_alnfsyt\\_walajtmayt](https://www.researchgate.net/publication/386414778_dwr_aldhka_alastnay_fy_alazmat_alnfsyt_walajtmayt)
- [44] S. El-Khouli, "The relationship between artificial intelligence and the level of psychological anxiety," *Journal of Educational Technology and Digital Learning*, vol. 4, no. 12, pp. 28–49, 2023. [https://jetdl.journals.ekb.eg/article\\_330628\\_fc2ce08b7f4b47589c5e91bc4a5d82cf.pdf](https://jetdl.journals.ekb.eg/article_330628_fc2ce08b7f4b47589c5e91bc4a5d82cf.pdf)
- [45] A. Khan and M. A. Siddiqui, "Evaluation of emotional intelligence for academic stress analysis," in *2024 8th International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud)(I-SMAC)*, 2024, pp. 997–1002. <https://doi.org/10.1109/I-SMAC61858.2024.10714777>
- [46] Y. Gao, "The impact and application of artificial intelligence technology on mental health counseling services for college students," *Journal of Computational Methods in Sciences and Engineering*, vol. 25, no. 2, pp. 1686–1701, 2024. <https://doi.org/10.1177/14727978241302641>
- [47] S. Gao, "Can artificial intelligence give a hand to open and distributed learning? A probe into the state of undergraduate students' academic emotions and test anxiety in learning via ChatGPT," *The International Review of Research in Open and Distributed Learning*, vol. 25, no. 3, pp. 199–218, 2024. <https://doi.org/10.19173/irrodl.v25i3.7742>
- [48] R. Lazarus and S. Folkman, *Stress, Appraisal and Coping*. New York, NY: Springer, 1984.
- [49] H. Ben-Zur, "Transactional model of stress and coping," in *Encyclopedia of Personality and Individual Differences*, V. Zeigler-Hill and T. Shackelford, Eds., Springer, Cham, 2019. [https://doi.org/10.1007/978-3-319-28099-8\\_2128-1](https://doi.org/10.1007/978-3-319-28099-8_2128-1)
- [50] A. DeLongis and S. Newth, "12-Coping with stress," in *Assessment and Therapy*, 2001, pp. 139–149. <https://doi.org/10.1016/B978-012267806-6/50046-9>
- [51] S. Murtiningsih, A. Sujito, and K. Soe, "Challenges of using ChatGPT in education: A digital pedagogy analysis," *International Journal of Evaluation and Research in Education*, vol. 13, no. 5, pp. 3466–3473, 2024. <https://doi.org/10.11591/ijere.v13i5.29467>
- [52] J. Rane, Ö. Kaya, S. K. Mallick, and N. Rane, "Artificial intelligence in education: A SWOT analysis of ChatGPT and its implications for practice and research," in *Generative Artificial Intelligence in Agriculture, Education, and Business*, 2024, pp. 142–161. [https://doi.org/10.70593/978-81-981271-7-4\\_4](https://doi.org/10.70593/978-81-981271-7-4_4)
- [53] M. Xu, "The opportunities and challenges of ChatGPT for ideological and political education of college students," *Journal of Education, Humanities and Social Sciences*, vol. 38, pp. 162–167, 2024. <https://doi.org/10.54097/7rhpqh41>
- [54] I. Labaran, A. S. Muhammad, H. I. Kefas, and F. C. Ukaegbu, "Enhancing technological sustainability in academia: Leveraging ChatGPT for teaching, learning and evaluation," *Quality Education for All*, vol. 1, no. 1, pp. 385–416, 2024. <https://doi.org/10.1108/QEA-07-2024-0055>
- [55] S. Abdulla, S. S. Ismail, Y. M. Fawzy, and A. Elhag, "Using ChatGPT in teaching computer programming and studying its impact on students performance," *Electronic Journal of E-Learning*, vol. 22, no. 6, pp. 66–81, 2024. <https://doi.org/10.34190/ejel.22.6.3380>
- [56] T. H. Baek and K. Yi, "A qualitative investigation into students' learning experience with ChatGPT," in *Proceedings of the Association for Library and Information Science Education Annual Conference*, 2024. <https://doi.org/10.21900/j.alise.2024.1761>

- [57] Y. Chen, "Exploring the impact of ChatGPT on Chinese students' foreign language anxiety in Macau's EMI higher education," *Journal of Education, Humanities and Social Sciences*, vol. 39, pp. 346–355, 2024. <https://doi.org/10.54097/psy0yy79>
- [58] N. Saif *et al.*, "Chat-GPT; validating technology acceptance model (TAM) in education sector via ubiquitous learning mechanism," *Computers in Human Behavior*, vol. 154, p. 108097, 2023. <https://doi.org/10.1016/j.chb.2023.108097>
- [59] S. Zhang, X. Zhao, and J. H. Kim, "Do you have AI dependency? The roles of academic self-efficacy, academic stress and performance expectations on problematic AI usage behavior," *Int. J. Educ. Technol. High. Educ.*, vol. 21, pp. 1–14, 2024. <https://doi.org/10.1186/s41239-024-00467-0>
- [60] X. Lai *et al.*, "AI Technology panic—is AI dependence bad for mental health? A cross-lagged panel model and the mediating roles of motivations for AI use among adolescents," *Psychol. Res. Behav. Manag.*, vol. 17, pp. 1087–1102, 2024. <https://doi.org/10.2147/PRBM.S440889>
- [61] M. Salah, H. Alhalbusi, M. M. Ismail, and F. Abdelfattah, "Chatting with ChatGPT: Decoding the mind of chatbot users and unveiling the intricate connections between user perception, trust and stereotype perception on self-esteem and psychological well-being," *Curr. Psychol.*, vol. 43, pp. 7843–7858, 2023. <https://doi.org/10.1007/s12144-023-04989-0>
- [62] J. Cambra-Fierro, M. Fuentes Blasco, M.-E. López-Pérez, and A. Trifu, "ChatGPT adoption and its influence on faculty well-being: An empirical research in higher education," *Educ. Inf. Technol.*, vol. 30, pp. 1517–1538, 2024. <https://doi.org/10.1007/s10639-024-12871-0>
- [63] U. S. Tuanany and T. Nurdianto, "Analysis of the using ChatGPT as coping stress," *Al-Hikmah Int. J. Islam. Stud. Hum. Sci.*, vol. 7, no. 2, pp. 1–17, 2024.
- [64] A. Khalil, "Exploring the role of AI-driven feedback in influencing students' anxiety and stress during academic assessments," *J. Interdiscip. Educ. Stud.*, vol. 4, no. 2, pp. 39–53, 2024. <http://jies.pk/ojs/index.php/1/article/view/153/64>
- [65] L. Andrade-Arenas and C. Yactayo-Arias, "Chatbot with ChatGPT technology for mental wellbeing and emotional management," *IAES Int. J. Artif. Intell.*, vol. 13, no. 3, pp. 2635–2644, 2024. <https://doi.org/10.11591/ijai.v13.i3.pp2635-2644>
- [66] A. Khanthavit and S. Khanthavit, "ChatGPT and stress," *ABAC J.*, vol. 43, no. 3, pp. 213–224, 2023. <https://doi.org/10.59865/abacj.2023.39>
- [67] E. L. Hamaker, "The curious case of the cross-sectional correlation," *Multivariate Behavioral Research*, vol. 59, no. 6, pp. 1111–1122, 2024. <https://doi.org/10.1080/00273171.2022.2155930>
- [68] U. S. Kesmodel, "Cross-sectional studies – what are they good for?" *Acta Obstet. Gynecol. Scand.*, vol. 97, no. 4, pp. 388–393, 2018. <https://doi.org/10.1111/aogs.13331>
- [69] S. K. Thompson, *Sampling*. New York, NY: Wiley, 2013. <https://doi.org/10.1002/9781118162934>
- [70] D. Bedewy and A. Gabriel, "Examining perceptions of academic stress and its sources among university students: The Perception of Academic Stress Scale," *Health Psychol. Open*, vol. 2, no. 2, pp. 1–9, 2015. <https://doi.org/10.1177/2055102915596714>
- [71] R. F. DeVellis, *Scale Development: Theory and Applications, 4th ed.* Thousand Oaks, CA, USA: SAGE Publications, 2016.
- [72] H. Akoglu, "User's guide to correlation coefficients," *Turkish Journal of Emergency Medicine*, vol. 18, no. 3, pp. 91–93, 2018. <https://doi.org/10.1016/j.tjem.2018.08.001>
- [73] K. Walczak and W. Cellary, "Navigating risks: Inaccuracies, bias, disinformation and privacy in educational AI," in *Teaching and Learning in the Age of Generative AI*, Routledge, 2025, pp. 163–194. <https://doi.org/10.4324/9781032688602-11>
- [74] A. Naseer, N. R. Ahmad, and M. A. Chishti, "Psychological impacts of AI dependence: Assessing the cognitive and emotional costs of intelligent systems in daily life," *Review of Applied Management and Social Sciences*, vol. 8, no. 1, pp. 291–307, 2025. <https://doi.org/10.47067/ramss.v8i1.458>

## 7 AUTHORS

**Aseel Ajlouni** is an Assistant Dean for Development, Academic Advising & Community Service, Faculty of Archaeology & Tourism, The University of Jordan. She does research on technology-enhanced learning and online pedagogy, publishing widely on AI in education. She is part of the “Elevating Competencies in Counseling and Special Education” research group (E-mail: [a.ajlouni@ju.edu.jo](mailto:a.ajlouni@ju.edu.jo)).

**Asmaa AlOmary** is an Associate Professor in educational studies majoring. She is currently working at Al-Ahliyya Amman University, College of Arts and Sciences, Department of Allied Sciences. Her research interests include educational studies and e-learning.

**Fatima Abd-Alkareem Wahba** is an Assistant Professor of Educational Technology at Middle East University, Jordan. Her research interests include instructional design, e-learning environments, and educator professional development in the Arab world.

**Huda Al-Kubaisi** is an Associate Professor in education finance, College of Education, Qatar University, Doha, Qatar. Her research focuses on educational finance, education management and business, educational policy, and quality assurance in higher education across the GCC.

**Amal Ibrahim** is an Associate Professor, Department of Counseling and Mental Health, The University of Jordan, Amman, Jordan. She is part of the “Elevating Competencies in Counseling and Special Education” research group.