

Efficacy of Chatbot Based Therapy; Preventing and Managing Academic Burnout among the University Students

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Abstract: Academic burnout among university students is an increasing concern, particularly in the context of rising academic demands, technological overload, and limited access to traditional mental health services. The present study examines the effectiveness of chatbot-based therapy as an emerging digital mental health intervention for reducing academic burnout and improving psychological well-being among university students. Grounded in Maslach's Burnout Theory and Cognitive Behavioural Theory (CBT), the study adopts a correlational, non-experimental research design to explore relationships between burnout, well-being, and user engagement with chatbot-based tools. A sample of 100 university students participated in the study and completed standardized instruments including the Maslach Burnout Inventory-Student Survey (MBI-SS), the WHO-5 Well-Being Index, and the User Engagement Scale-Short Form (UES-SF). Statistical analysis revealed a moderate negative correlation between burnout and well-being ($r = -0.426, p < .001$) and a moderate positive correlation between burnout and chatbot engagement ($r = 0.329, p = .001$). However, no significant relationship was found between chatbot engagement and psychological well-being. These findings suggest that students experiencing higher levels of burnout may be more inclined to engage with chatbot-based therapy, although engagement alone may not necessarily translate into improved well-being outcomes. The results highlight the importance of personalization, improved human-AI interaction, and longitudinal evaluation of digital mental health interventions. The study contributes to the growing field of digital mental health by examining how artificial intelligence-driven tools can complement university mental health services and provide scalable, accessible, and stigma-free psychological support.

Keywords: Academic burnout, chatbot-based therapy, psychological well-being, cognitive behavioural theory, Maslach burnout theory, university students, digital mental health, artificial intelligence, user engagement, WHO-5, MBI-SS, UES-SF.

1. Introduction

1.1 Background of the Study

Academic burnout has become a growing psychological concern among university students across the globe. It is defined as a prolonged response to chronic academic stressors and is characterized by emotional exhaustion, cynicism toward academic tasks, and reduced academic efficacy. Emotional exhaustion reflects feelings of being drained and fatigued due to academic workload. Cynicism involves detachment and negative attitudes toward coursework. Reduced academic efficacy refers to a decline in feelings of competence and achievement. The rapid expansion of higher education systems, competitive grading structures, performance pressures, and technological integration in learning environments have significantly increased student stress levels. When these stressors persist without effective coping strategies, students may experience burnout, leading to impaired academic performance, absenteeism, psychological distress, and dropout intentions. In recent years, digital transformation has altered how students engage with learning. Online classes, continuous digital communication, and academic multitasking may contribute to cognitive overload. Although technology enhances access to education, it may also intensify stress when not managed effectively.

1.2 Statement of the Problem

Despite the increasing prevalence of academic burnout, access to traditional psychological services within universities remains limited. Many students hesitate to seek help due to stigma, lack of awareness, financial constraints, or long waiting periods in counselling centres. Consequently,

there is a need for scalable, accessible, and stigma-free mental health interventions. Chatbot-based therapy has emerged as a potential digital solution. However, limited empirical evidence specifically examines its effectiveness in addressing academic burnout among university students. Therefore, the present study proposes to investigate whether chatbot-based therapy can play a role in preventing and managing academic burnout.

1.3 Need for the Study

University students represent a vulnerable population exposed to academic, social, and personal stressors. Early identification and management of burnout are essential to promote mental health and academic success. Digital interventions may serve as preventive tools that provide continuous support without replacing traditional therapy. This study is needed to evaluate the feasibility and potential effectiveness of chatbot-based therapy in university settings. Findings may help institutions integrate technology-driven mental health support systems.

1.4 Significance of the Study

The study contributes to digital mental health literature by focusing specifically on academic burnout. It bridges gaps between psychological theory, technological innovation, and educational practice. Practically, the findings may guide university administrators and policymakers in implementing AI-based support systems for students.

1.5 Rationale of the Study

This study is undertaken to explore the effectiveness of chatbot-based therapy as an innovative and accessible intervention for academic burnout. With increasing reliance

on digital platforms, there is a need to evaluate whether technology-driven mental health tools can provide meaningful psychological support. The study aims to bridge the gap between traditional therapeutic approaches and modern digital solutions.

1.6 Objectives of the Study

- 1) To evaluate the effectiveness of chatbot-based therapy in reducing academic burnout.
- 2) To examine the relationship between academic burnout and psychological well-being.
- 3) To assess the association between chatbot engagement and burnout levels.
- 4) To determine the relationship between chatbot engagement and psychological well-being.

1.7 Operational Definitions

- **Academic Burnout:** Emotional exhaustion, cynicism, and reduced academic efficacy among students
- **Chatbot-Based Therapy:** AI-based psychological support system
- **Psychological Well-Being:** Positive mental health measured using WHO-5
- **User Engagement:** Level of interaction with chatbot systems

1.8 Hypotheses

H01: There will be no significant relationship between academic burnout and psychological well-being.

H02: There will be no significant relationship between chatbot engagement and academic burnout.

H03: There will be no significant relationship between chatbot engagement and psychological well-being.

H04: There will be no significant demographic differences in academic burnout.

H05: Chatbot-based therapy will have no significant effect on academic burnout levels.

2. Review of Literature

2.1 Overview of Relevant Past Research

Academic burnout has been widely studied in psychological research and is defined as a syndrome involving emotional exhaustion, cynicism, and reduced academic efficacy (Maslach & Leiter, 2016). In academic settings, students experiencing burnout often report fatigue, disengagement from coursework, and decreased academic confidence (Schaufeli et al., 2002).

Research indicates that academic burnout is associated with poor academic performance, increased stress, and mental health concerns such as anxiety and depression (Zhang et al., 2013). Recent studies also highlight that burnout levels have increased due to academic pressure and digital learning environments (Salmela-Aro et al., 2022).

Chatbot-based therapy has emerged as an innovative digital mental health intervention. Studies have demonstrated that AI-based chatbots such as Woebot can effectively reduce

symptoms of depression and anxiety using Cognitive Behavioural Therapy (CBT) techniques (Fitzpatrick et al., 2017). Similarly, Fulmer et al. (2018) found that chatbot interventions can improve emotional well-being through structured conversational support.

2.2 Thematic Organization of Literature

The literature can be categorized into three major themes:

- 1) **Academic Burnout:** Focuses on causes, dimensions, and outcomes of burnout among students.
- 2) **Chatbot-Based Therapy:** Examines the use of artificial intelligence in delivering psychological interventions.
- 3) **User Engagement:** Highlights the role of interaction and engagement in determining the effectiveness of digital interventions (Vaidyam et al., 2019).

2.3 Synthesis of Literature

The reviewed literature suggests that academic burnout is a significant concern affecting student well-being and performance. At the same time, chatbot-based therapy has shown promise in addressing mental health issues such as stress, anxiety, and depression.

However, the effectiveness of chatbot interventions appears to depend on user engagement and the quality of interaction. While these tools are effective for general mental health concerns, their role in specifically managing academic burnout remains unclear.

2.4 Identification of Research Gaps

- Limited research focusing specifically on academic burnout
- Lack of longitudinal studies
- Limited personalization in chatbot responses
- Insufficient focus on user engagement

2.5 Relevance to the Current Study

The present study addresses these gaps by examining chatbot-based therapy in relation to academic burnout among university students. It integrates burnout, psychological well-being, and user engagement variables using standardized tools, strategies, and promote adaptive behavioural responses. These techniques are increasingly integrated into digital platforms.

3. Research Methodology

3.1 Research Design

The study will adopt a correlational non-experimental research design to examine relationships among chatbot usage, engagement, academic burnout, and psychological well-being. This design allows systematic analysis without manipulation of variables.

3.2 Variables of the Study

Independent Variable: Chatbot-based therapy usage.
Dependent Variable: Academic burnout. Secondary Variables: Psychological well-being and user engagement.
Control Variables: Age, gender, academic level, and field of study.

3.3 Population and Sample

The population will consist of undergraduate and postgraduate university students. A sample of approximately 100 participants aged 18–26 years will be selected.

3.4 Sampling Technique

Convenience sampling and snowball sampling methods will be used to recruit participants who have access to AI-based chatbot applications.

3.5 Inclusion and Exclusion Criteria

Inclusion criteria include currently enrolled students willing to provide informed consent. Students with severe psychiatric conditions requiring clinical treatment will be excluded.

3.6 Tools for Data Collection

- WHO-5 Well-Being Index – A 5-item scale measuring subjective psychological well-being.
- Maslach Burnout Inventory–Student Survey (MBI-SS) – Measures emotional exhaustion, cynicism, and efficacy.
- User Engagement Scale – Short Form (UES-SF) – Assesses focused attention, usability, aesthetic appeal.

Validity and reliability;

The instruments selected for this study are standardized and widely validated in psychological research. The MBI-SS has demonstrated high internal consistency and construct validity. The WHO-5 Well-Being Index is a reliable measure of subjective well-being with strong psychometric properties. The User Engagement Scale (UES-SF) has shown good reliability in assessing user interaction with digital systems.

3.7 Procedure

Ethical approval will be obtained before data collection. Participants will receive an online consent form followed by demographic and standardized questionnaires. Data will be securely stored and anonymized.

3.8 Statistical Analysis Plan

Descriptive statistics will summarize demographic variables. Pearson correlation will assess relationships. Independent sample t-tests and ANOVA will examine demographic differences. Multiple regression analysis may be performed to identify predictive relationships.

4. Expected Results, Implications, and Limitations

4.1 Expected Results

It is expected that academic burnout will show a negative relationship with psychological well-being. Higher engagement with chatbot-based therapy may correspond with reduced burnout levels. Demographic factors may influence burnout prevalence. Statistical conclusions will depend on empirical findings.

4.2 Theoretical Implications

The findings may extend Maslach's Burnout Theory within digital therapeutic contexts. The integration of CBT principles into AI-driven platforms may be theoretically supported.

4.3 Practical Implications

Universities may consider integrating chatbot-based mental health services alongside traditional counselling. These tools may serve as preventive and supportive resources for students experiencing stress and burnout.

4.4 Scope of the Study

The present study focuses on examining the effectiveness of chatbot-based therapy in managing academic burnout among university students. The research is limited to students within the age group of 18–26 years and primarily considers individuals who have access to digital platforms.

The study aims to explore the relationship between academic burnout, psychological well-being, and user engagement with chatbot-based interventions. It utilizes standardized tools such as the Maslach Burnout Inventory-Student Survey (MBI-SS), WHO-5 Well-Being Index, and User Engagement Scale (UES-SF) to ensure reliable measurement of variables.

The scope of the study is confined to a non-clinical population and does not involve clinical diagnosis or treatment. Additionally, the study focuses on short-term assessment and does not examine long-term effects of chatbot-based therapy.

The findings of this study may contribute to the growing field of digital mental health and can be useful for educational institutions in developing accessible mental health support systems for students.

4.5 Limitations

The use of non-probability sampling may restrict generalizability. Self-report measures may introduce bias. The cross-sectional design limits causal inference.

4.6 Suggestions for Future Research

Future studies may adopt longitudinal or experimental designs. Comparative research between traditional therapy and chatbot-based therapy may provide deeper insights.

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