Mobile Application-Based ACT Counseling Model for Overcoming Student Academic Burnout and Academic FoMO

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https://doi.org/10.17977/2549-7774.005959

Article history
Submitted: 23 July 2026
Revised: 5 September 2026
Accepted: 6 September 2026
Published: 8 September 2026

Keywords
Academic burnout
Academic FoMO
Acceptance and commitment therapy
Guidance and counseling
Mobile application

Abstract
The prevalence of academic burnout and academic Fear of Missing Out (FoMO) among university students presents a significant challenge in higher education due to high academic pressure and digital connectivity. This study developed and evaluated a mobile application-based Acceptance and Commitment Therapy (ACT) counseling model. Utilizing a Research and Development (R&D) framework based on the ADDIE model, the procedure encompassed analysis, design, development, implementation, and evaluation phases. Following expert validation, a randomized controlled trial was conducted with 60 undergraduate students (N=60) randomly assigned into an experimental group (n=30, receiving the 4-week mobile ACT application) and a control group (n=30, engaging in conventional self-directed career guidance). Data were collected using validated scales and analyzed using both paired and independent sample t-tests. Between-group post-test comparisons revealed that the experimental group achieved a statistically significant reduction in both academic burnout (t=12.45, p<0.001; Cohen's d=1.85) and academic FoMO (t=11.80, p<0.001; Cohen's d=1.72) compared to the control group. In conclusion, integrating ACT principles into digital counseling platforms provides an effective and scalable intervention to reduce student academic burnout and academic FoMO.

1. Introduction

Academic burnout and academic Fear of Missing Out (FoMO) have become increasingly prominent issues among undergraduate students within modern higher education environments (W. Liu et al., 2024). In Indonesia, rapid technological adaptation and intensive exposure to peer achievements through digital media frequently heighten students' psychological strain, leading to diminished learning motivation and prolonged academic anxiety (Andrade, 2023). Conventional guidance and counseling interventions relying on face-to-face sessions often face scalability constraints due to counselor-to-student ratios and schedule limitations (Plys et al., 2023). While recent studies have explored digital mental health solutions, many existing mobile tools merely digitize static psychoeducational materials without incorporating evidence-based therapeutic frameworks targeting both academic burnout and academic FoMO simultaneously (Z. Liu et al., 2023). Acceptance and Commitment Therapy (ACT) has shown efficacy in face-to-face contexts by promoting psychological acceptance and committed action; however, empirical evidence regarding its structured delivery via self-directed mobile applications for academic distress remains limited (Ren et al., 2025).

The Acceptance and Commitment Therapy (ACT) approach offers a cutting-edge solutive framework by enhancing psychological flexibility among students to accept the realities of academic pressure. Integrating ACT principles into a programmed mobile application enables the delivery of self-directed, adaptive, and measurably successful guidance and counseling services (Sharma et al., 2025). This study is designed to develop and test the effectiveness of a mobile application-based ACT synthesis counseling model in reducing academic burnout and academic FoMO levels among university students. The outcomes of this study are projected to contribute theoretical novelty to the field of guidance and counseling technopedagogy and provide practical intervention guidelines for higher education institutions.

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2. Method

This study employed a Research and Development (R&D) framework adapting the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) integrated with a Randomized Controlled Trial (RCT) pretest-posttest control group design to evaluate intervention efficacy (Jing et al., 2024). The target population comprised active undergraduate students at a state university in East Java exhibiting moderate-to-high baseline academic stress. Using a random number generator, 60 eligible participants meeting the inclusion criteria were randomly assigned in a 1:1 ratio into an experimental group (n=30, receiving 4-week mobile application-based ACT counseling) and a control group (n=30, engaging in conventional self-directed career guidance). The study protocol was approved by the Institutional Ethics Committee of Universitas Negeri Malang (Ethical Clearance No. 124/UN32.14/EC/2024).

Data were collected using two primary digital instruments: the Maslach Burnout Inventory-Student Survey (MBI-SS; adaptated for academic burnout) and the Academic FoMO Scale (Pranata, 2024). Content validity was established via expert judgment (two counseling experts, one educational media expert) using Aiken's V formula, yielding high content validity coefficients (V=0.85-0.91). Construct reliability was confirmed through internal consistency testing, yielding Cronbach's alpha coefficients of α=0.88 for the MBI-SS and α=0.86 for the Academic FoMO Scale, indicating strong internal reliability. The operational framework of this study is summarized in Figure 1. The evaluation phase analyzed the overall impact of the intervention. The operational framework of this study is summarized in Figure 1.

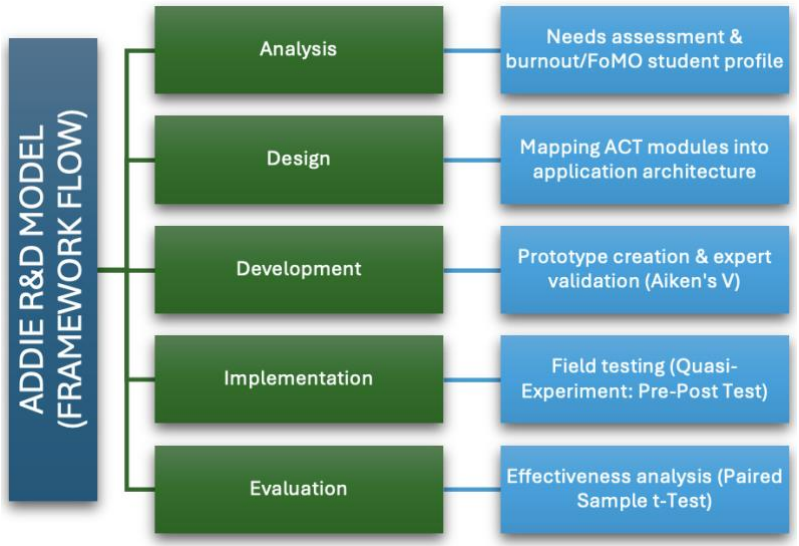


Figure 1. Square Tree Diagram of Mobile Application-Based ACT Counseling Model Development Flow

The research population encompassed all active undergraduate students at a state university in East Java indicated to be experiencing academic stress. Purposive sampling was used to determine the sample based on inclusion criteria, specifically students with baseline academic burnout and academic FoMO scores in the moderate to high categories (Mudjisusatyo & Darwin, 2025). A total sample size of 60 students was established, randomly assigned into an experimental group (n=30) and a control group (n=30). The experimental group received the mobile application-based ACT counseling intervention for four weeks, while the control group engaged in conventional self-directed career guidance. All participants signed an informed consent form, and data confidentiality was strictly guaranteed in accordance with the ethical codes of mental health and educational research.

Data collection was conducted using two main instruments distributed digitally. The Maslach Burnout Inventory-Student Survey (MBI-SS) was adapted to measure academic burnout levels (Li & Sun, 2024), whereas the Academic FoMO scale was developed based on indicators measuring the fear of falling behind peers' academic achievements. Content validity testing of the instruments was conducted by two guidance and counseling experts and one educational media expert using Aiken's V formula. The testing results demonstrated that all instrument items and application components met high validity criteria (Zou et al., 2024). Table 1 presents a summary of the expert validation results for the developed product and instruments.

Quantitative data analysis utilized descriptive and inferential statistics to evaluate intervention effectiveness (Ballance, 2024). Assumption testing included data normality tests using Shapiro-Wilk and homogeneity of variance tests. Hypothesis testing for effectiveness was conducted using Paired Sample t-Tests to observe significant mean score differences before (pre-test) and after (post-test) treatment within each group. Independent Sample t-Tests or MANOVA were utilized to compare final score reduction differences

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between the experimental and control groups. All statistical calculations were executed using SPSS software at a significance level of α=0.05.

3. Results and Discussion

The product testing phase yielded a mobile application-based Acceptance and Commitment Therapy (ACT) counseling program meeting practicality and effectiveness criteria. Practicality evaluation by students yielded a media feasibility percentage of 88.5%, falling into the highly practical category. Initial baseline measurements (pre-test) recorded that all research subjects across both experimental and control groups possessed high average scores for academic burnout and academic FoMO (Palmer et al., 2023). The experimental group registered pre-test mean scores of 84.20 for academic burnout and 78.50 for academic FoMO, whereas the control group registered initial mean scores of 83.90 and 77.80. respectively. The testing results demonstrated that all instrument items and application components met high validity criteria (Arday et al., 2021). Table 1 presents a summary of the expert validation results for the developed product and instruments.

Table 1. Summary of Expert Validation Results for Developed Product and Instruments

Evaluation Indicator	Aiken's V Coefficient	Validity Category	Methodological Decision
Content Feasibility & ACT Theory	0.89	Highly Valid	Suitable for use without revision
Mobile Interface Design (UI/UX)	0.85	Highly Valid	Suitable with minor layout revisions
Academic Burnout Instrument (MBI-SS)	0.91	Highly Valid	Items are valid and usable
Academic FoMO Instrument	0.88	Highly Valid	Items are valid and usable

Quantitative data analysis techniques use descriptive and inferential statistics to evaluate the effectiveness of interventions. Prerequisite tests for the analysis included a test of data normality using the Shapiro-Wilk test and a test of homogeneity of variances (Waluyanti et al., 2022). Hypothesis testing for effectiveness was conducted using the Paired Sample t-test to determine whether there were significant differences in the mean scores before (pre-test) and after (post-test) the treatment in each group (Meremikwu et al., 2026). The Independent Sample t-test or MANOVA was used to compare the differences in the reduction of final scores between the experimental and control groups (Carr et al., 2024). All statistical calculations were performed using SPSS software at a significance level of α = 0.05.

The four-week treatment implementation demonstrated significant variable score changes within the experimental group. Final post-test measurements recorded a reduction in the mean academic burnout score for the experimental group to 52.10 and the academic FoMO score to 46.30. The control group, which did not receive the application intervention, experienced only marginal reductions, reaching 81.40 for academic burnout and 75.20 for academic FoMO. Figure 2 displays a visual comparison of pre-test and post-test mean score reductions between research groups.

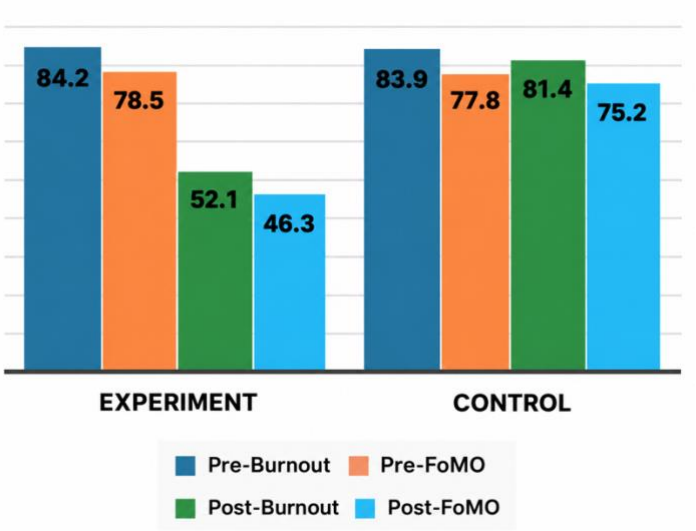


Figure 2. Bar Chart Comparing Pre-test and Post-test Mean Scores between Experimental and Control Groups.

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Statistical assumption testing confirmed that all data were normally distributed based on Shapiro-Wilk tests ($p>0.05$) and possessed homogeneous variances ($p>0.05$). Hypothesis testing using Paired Sample t-Tests on the experimental group yielded values of $t=12.45$ ($p<0.001$) for academic burnout and $t=11.80$ ($p<0.001$) for academic FoMO. Significance values smaller than 0.05 confirm a statistically significant score reduction following the mobile-based ACT counseling intervention. A summary of the statistical effectiveness testing results is presented in Table 2.

Table 2. Paired Sample t-Test Results for Intervention Effectiveness in the Experimental Group

Variable & Measurement	Mean	Standard Deviation	t-value	Significance (p)
Academic Burnout				
Pre-test	84.20	6.12	12.45	0.000
Post-test	52.10	5.45		
Academic FoMO				
Pre-test	78.50	5.88	11.80	0.000
Post-test	46.30	4.92		

Between-group comparison testing using Independent Sample t-Tests on post-test data yielded $p=0.000$ ($p<0.05$) for both dependent variables. Effect size calculation using Cohen's d formula yielded values of 1.85 for academic burnout and 1.72 for academic FoMO. These effect size values fall into the extremely high category ($d>0.80$), confirming that utilizing the ACT counseling application contributed significantly to reducing academic burnout levels and academic fear of missing out among undergraduate students (Lavelle, 2022).

The significant reduction in academic burnout and academic FoMO levels confirms that cognitive restructuring through Acceptance and Commitment Therapy (ACT) effectively increases students' psychological flexibility. From a theoretical perspective, the observed reductions in academic burnout and academic FoMO may be interpreted through the conceptual lens of Acceptance and Commitment Therapy (ACT). Conceptually, ACT techniques embedded within the mobile platform such as mindfulness exercises and value-committed actions are designed to foster psychological flexibility and cognitive defusion, allowing students to unhook from compulsive peer comparisons and academic self-judgments (Fan, 2024). However, as psychological flexibility and cognitive defusion were not directly measured as mediating variables in this study, these mechanisms remain theoretical hypotheses requiring empirical mediation analysis in future trials. Utilizing mobile application media reinforces this process by providing flexible, self-directed mindfulness modules accessible at any time. Figure 3 illustrates the synthesis profile of psychological indicators between research groups.

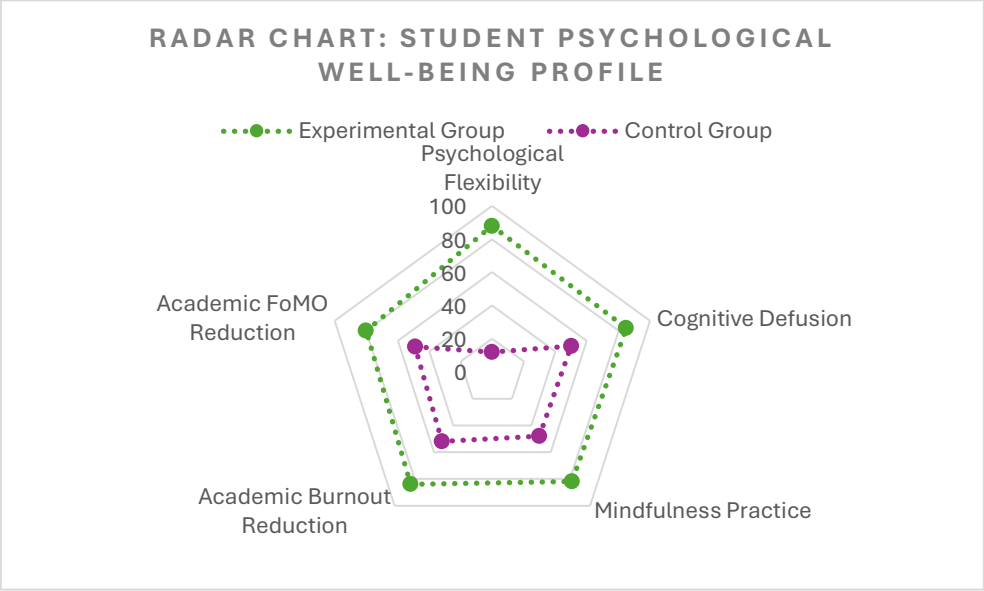


Figure 3. Radar Chart Profile of Psychological Well-Being Indicators Post-Intervention

These findings align with core ACT theory, which posits that psychological suffering stems from experiential avoidance and cognitive fusion. The results of this trial reinforce previous research findings demonstrating the effectiveness of ACT-based interventions in reducing academic anxiety among digital generations (Ito et al., 2023). The fundamental difference in this study lies in integrating ACT techniques into a structured mobile technopedagogical architecture. Digital application usage effectively overcomes the constraints of conventional face-to-face interventions, which are frequently hindered by social stigma and temporal accessibility limitations.

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Theoretical implications of this study expand the domain of guidance and counseling, particularly within the cyber-counseling realm (Zargar et al., 2023). Combining the ACT framework with mobile technology proves that advanced psychological interventions can be transformed into self-help formats without eliminating therapeutic depth. Practical implications provide concrete benchmarks for university counselors to adopt digital media as preventive and curative strategies for student mental health crises (Hinojosa-aguayo, 2022). Campus counseling centers can utilize this platform to reach broader student populations efficiently.

The primary limitation of this research resides in the sample scope, which was restricted to a single university, necessitating caution when generalizing results to a national population level. The post-intervention monitoring period (follow-up) was relatively brief and could not measure long-term retention of behavior change among students. Future research is recommended to extend testing timeframes and incorporate other mediating variables such as digital literacy and family social support.

4. Conclusion

The development of a mobile application-based Acceptance and Commitment Therapy (ACT) counseling model proved to be valid, practical, and effective in significantly reducing academic burnout and academic FoMO levels among university students. Field trial results confirm that integrating core ACT principles such as mindfulness, cognitive acceptance, and committed action into an adaptive digital platform enhances psychological flexibility and reduces emotional distress. This study successfully answers the primary research objective by demonstrating that third-wave psychotherapy can be transformed into a self-directed digital intervention without losing therapeutic depth, providing a scalable technopedagogical solution for higher education counseling services, while future research should incorporate long-term follow-up evaluations and broader multi-campus samples.

Author Contributions

All authors contributed equally to this paper. All authors have read and approved the final manuscript.

Funding

No funding support was received.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethics and Consent Declarations

The study protocol was approved by the Institutional Ethics Committee of Universitas Negeri Malang. Informed consent was obtained electronically from all participants prior to their inclusion in the study. Participant privacy and confidentiality were safeguarded through complete data anonymization techniques.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration on AI Use

The authors declare that no artificial intelligence (AI) or AI-assisted tools were used in the preparation of this manuscript.

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