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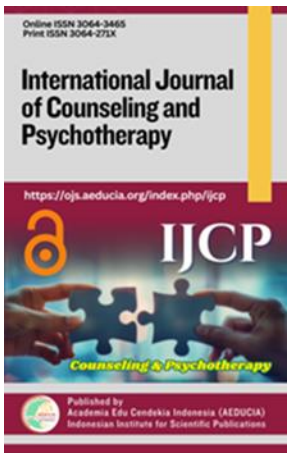

The Effect of Self-Monitoring Therapy on Academic Achievement and Behavior among College Students

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The Effect of Self-monitoring Therapy on Academic Achievement and Behavior among College Students

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ABSTRACT

Background: The increasing academic demands in higher education often lead to declines in performance and maladaptive behaviours among college students, underscoring the need for effective psychological interventions. Objective: This study aims to examine the effect of self-monitoring therapy on improving academic achievement and behaviour among college students. **Method:** An experimental one-group pretest–posttest design was employed. The participants were 10 Department of Education and Extension students selected as research subjects. Data were collected using validated academic achievement and behaviour scales, along with structured treatment guidelines. The data were analysed using the nonparametric Wilcoxon Signed Rank Test to assess differences before and after the intervention. **Result:** The findings indicate a statistically significant improvement in both academic achievement and student behaviour following the implementation of self-monitoring therapy. These findings demonstrate that self-monitoring therapy is effective in enhancing college students' academic performance and promoting positive behavioural changes. **Conclusion:** Self-monitoring therapy can be considered a practical intervention strategy in educational settings. **Contribution:** This study contributes to the development of educational and counseling psychology by providing empirical evidence on the effectiveness of intervention-based approaches to improving student outcomes.

1. INTRODUCTION

Academic achievement and behaviour are essential indicators of student success in higher education, reflecting not only the ability to attain learning outcomes but also the capacity to regulate effort, persistence, and adaptive responses in academic settings (Tannoubi et al., 2023; Fokkens-Bruinsma et al., 2020). College students are expected to demonstrate strong achievement-oriented behaviour, characterized by effective planning, sustained motivation, active engagement, and continuous selfevaluation in achieving both academic and non-academic goals (Urdan et al., 2014; Sanchez-Ruiz et al., 2016). In this context, academic performance and behaviour also encompass the ability to overcome challenges, meet high standards, and outperform prior achievements, which are critical for long-term academic development (Dweck et al., 2014).

However, in practice, many college students experience difficulties in maintaining optimal academic performance and adaptive learning behaviour (Gull et al., 2026). These challenges are often associated with low self-regulation, inconsistent monitoring of learning activities, and limited awareness of behavioural patterns that influence academic outcomes. College students may struggle to achieve their academic goals, exhibit inconsistent engagement, and engage in maladaptive behaviours that hinder their overall performance (Singh et al., 2022). This condition highlights a critical research problem: the need for effective intervention strategies to help college students regulate and improve their academic behaviour.

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One promising approach to addressing this issue is the application of cognitive-behavioural interventions, particularly self-monitoring therapy. This approach integrates cognitive and behavioural principles to help individuals systematically observe and regulate their own behaviour (Cohen et al., 2013). Self-monitoring is a structured process in which individuals track and evaluate their behaviour to determine whether targeted actions have occurred (Rispoli et al., 2017). The process typically involves specific techniques and procedures that help individuals become more aware of their behavioural patterns (Arslantas & Kurnaz, 2017). Furthermore, self-monitoring therapy is considered a form of self-management intervention that includes key components such as self-observation and self-recording (Davis et al., 2014). Its implementation involves several stages, including identifying target behaviours, setting goals, conducting functional assessments, selecting appropriate strategies, evaluating behavioural changes, and maintaining achieved outcomes (Pinkelman & Horner, 2017).

From a theoretical perspective, achievement behaviour is shaped by the interaction between individuals and their environment, with continuous development reflecting adaptive learning processes (Roebers, 2017). Behavioural change can be facilitated by modifying environmental conditions that influence individual responses (Simonovic & Peck, 2013). Therefore, learning behaviour can be understood as an active psychological process involving cognitive and affective engagement that leads to changes in knowledge, skills, and attitudes (Putri & Azhari, 2021). Within this framework, self-monitoring therapy is particularly relevant, as it emphasises active self-regulation and continuous behavioural adjustment.

Previous studies have demonstrated the effectiveness of self-monitoring therapy in improving student behaviour, particularly in increasing on-task engagement and self-regulated learning (Dinh & Phuong, 2024; Bellhäuser et al., 2023). For instance, research by Compernolle et al. (2019) found that self-monitoring interventions significantly enhanced college students' on-task behaviour. Similarly, Wills & Mason (2014) reported that self-monitoring techniques were effective in improving college students' behavioural organisation and engagement in learning activities. These findings indicate that self-monitoring therapy has strong potential as an intervention to improve learning-related behaviours in educational settings.

Despite these contributions, existing studies tend to focus primarily on specific aspects of behaviour, such as on-task engagement, without simultaneously examining broader academic achievement and behavioural improvement within a unified intervention framework. Moreover, limited research has examined the application of self-monitoring therapy in small-group experimental designs that comprehensively assess both baseline conditions and post-intervention changes. This gap underscores the need for further empirical research to evaluate the effectiveness of self-monitoring therapy in improving both academic performance and behaviour among college students.

Based on this gap, the present study aims to examine the effect of self-monitoring therapy on academic achievement and behaviour among college students. Specifically, this study seeks to measure college students' baseline academic and behavioural conditions, implement a structured self-monitoring intervention, and evaluate changes following the treatment. By doing so, this research is expected to provide empirical evidence on the effectiveness of self-monitoring therapy as a practical intervention strategy and to contribute to the development of educational and counseling psychology, particularly by supporting student academic success and behavioural regulation in higher education contexts.

The urgency of this study lies in the increasing academic demands in higher education, which are often not matched by students' self-regulation abilities, resulting in low academic achievement and the emergence of maladaptive learning behaviours. This condition highlights the need for effective, structured interventions, such as self-monitoring techniques, to help students sustainably enhance their awareness, self-control, and overall learning behaviour.

2. MATERIALS AND METHODS

2.1 Research Design

This study employed an experimental research design using a one-group pretest–posttest model. The primary objective of this design was to evaluate the effectiveness of a self-monitoring intervention on college students' academic performance and behavioural regulation. In this model, participants were measured before the intervention (pretest), received the treatment, and were measured again after the intervention (posttest). The pretest established baseline data on participants' academic performance and behavioural indicators, while the posttest measured changes following the implementation of the self-monitoring technique. The difference between pretest and posttest scores provided empirical evidence regarding the magnitude and direction of change attributable to the intervention.

This design was selected because it allows researchers to observe within-subject changes over time, making it suitable for evaluating behavioural interventions in small populations. Although it does not include a control group, careful procedural consistency and standardised intervention delivery were applied to reduce internal validity threats.

2.2 Participants

The research was conducted in 2025 and involved 10 undergraduate college students from the Department of Education and Extension at the University of Pune. Parti-

cipants were selected through purposive sampling, ensuring that only individuals who met predetermined criteria were included. Selection criteria consisted of 1) Demonstrated low academic performance; 2) Observable behavioural regulation difficulties; 3) Willingness to participate throughout the intervention period. These characteristics were identified through initial screening and pretest results. The small sample size reflects the targeted, intervention-focused nature of the study, prioritising depth of behavioural change observation over broad generalisation. Ethical considerations were upheld by informing participants about the research objectives, procedures, and confidentiality protections prior to participation.

2.3 Data Collection

Academic Performance and Behaviour Scale: This scale was designed to assess academic functioning and behavioural regulation quantitatively. It measured indicators such as task completion, attentional consistency, classroom engagement, and self-discipline. Instrument validity was established using Exploratory Factor Analysis (EFA) with the Principal Component Analysis (PCA) approach. Factor extraction confirmed the scale's dimensional structure, ensuring that each item reliably represented the intended constructs. Reliability testing was conducted to confirm internal consistency, indicating that the instrument produced stable and dependable measurements.

Self-Monitoring Technique Guide: This guide functioned as a structured intervention protocol outlining step-by-step procedures for implementing self-monitoring strategies. Components included goal setting, behaviour recording, reflection prompts, and progress evaluation. Content validity of the guide was evaluated through expert judgment by specialists in educational psychology and behavioural intervention. Feedback from experts ensured procedural clarity, theoretical alignment, and practical feasibility.

2.4 Data Analysis

Data analysis was conducted using nonparametric statistical methods, specifically the Wilcoxon Signed Rank Test, to compare paired pretest and posttest scores. This statistical technique was selected because: 1) The sample size was relatively small (n = 10); 2) Data distribution assumptions for parametric tests could not be guaranteed; 3) The test is appropriate for evaluating within-subject change. The Wilcoxon test determined whether there were statistically significant differences between baseline and post-intervention measurements, thereby assessing the effectiveness of the self-monitoring intervention.

3. RESULT AND DISCUSSION

3.1 Result

3.1.1 Normality Tests

Before conducting further statistical analysis, preliminary assumption testing was performed to ensure the data were suitable for inferential procedures. These tests included normality and linearity assessments, which are essential to determine whether the data meet the assumptions required for subsequent analyses. The normality test was conducted using the Kolmogorov–Smirnov and Shapiro–Wilk methods, while the linearity test was examined through ANOVA. The results of these assumption tests are presented in the following tables.

Table 2. Normality Test Results

Variable	Test Method	Statistic	N	Sig. (p)
Academic Performance	Kolmogorov–Smirnov	0.082	10	0.200
	Shapiro–Wilk	0.972	10	0.612
Student Behavior	Kolmogorov–Smirnov	0.076	10	0.200
	Shapiro–Wilk	0.978	10	0.741

The normality test results indicate that both academic performance and student behaviour variables meet the assumption of normality. This is evidenced by the p-values from the Kolmogorov–Smirnov and Shapiro–Wilk tests, which exceed the 0.05 threshold. These findings suggest that the data do not significantly deviate from normality, confirming that the dataset is appropriate for subsequent parametric statistical analyses. Consequently, further inferential procedures can be conducted with confidence in the validity of the statistical results.

3.1.2 Linearity Tests

A linearity test was conducted to determine whether the relationship between Self-Monitoring Technique Training and Academic Performance and Behaviour follows a linear pattern. Establishing linearity is a fundamental prerequisite for applying parametric statistical techniques, particularly linear regression, as it ensures that the relationship between variables can be appropriately modelled using a linear function.

Table 2. Linearity Test Results (ANOVA)

Source	Sum of Squares (SS)	df	Mean Square (MS)	F	Sig.
Deviation from Linearity	2.40	1	2.40	0.72	0.42
Linearity	50.60	1	50.60	15.20	0.004
Total	53.00	9	-	-	-

The linearity test was conducted using ANOVA to examine whether the relationship between Self-Monitoring Technique Training and Academic Performance and Behaviour is linear. The results show that the deviation from linearity is not significant ($F = 0.72$, $p = 0.42 > 0.05$), indicating that there is no significant deviation from a linear model. In addition, the linearity component is significant ($F = 15.20$, $p = 0.004$), suggesting that a meaningful linear relationship exists between the variables. Therefore, the assumption of linearity is met, and the data are appropriate for further analysis using linear regression techniques.

To further support the results of the linearity test, a scatterplot was generated to visually examine the relationship between Self-Monitoring Technique Training and Academic Performance and Behaviour. The scatterplot provides a graphical representation of the data distribution and confirms the presence of a linear pattern between the variables, consistent with the findings from the ANOVA-based linearity test.

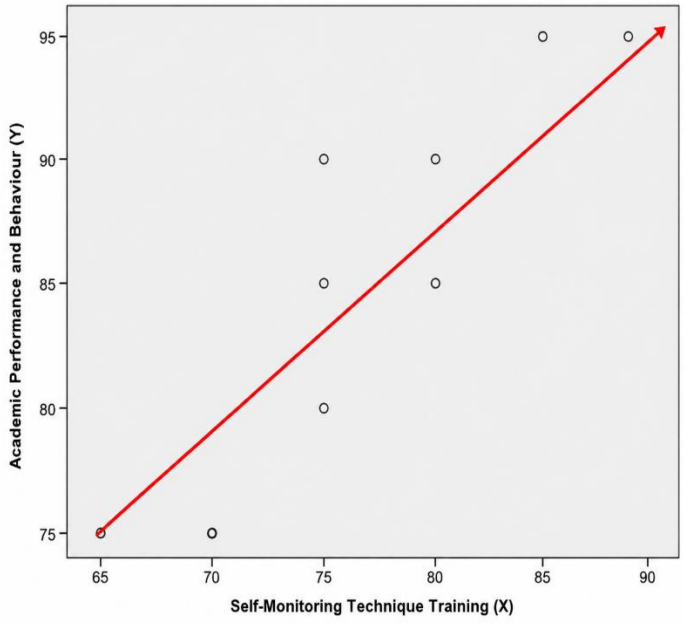


Fig. 1. Scatter Plot Showing the Linear Relationship

The scatter plot indicates a clear positive linear relationship between Self-Monitoring Technique Training and Academic Performance and Behaviour, as reflected by the upward-sloping regression line. The data points are distributed around the line with a relatively consistent spread and do not form any systematic curvature or clustering pattern, suggesting that a linear model adequately represents the relationship. Although a few observations deviate slightly from the main trend, these are randomly dispersed and do not indicate nonlinearity or model misspecification. The visual pattern confirms that the assumption of linearity is satisfied, supporting the appropriateness of using linear regression for further analysis.

3.1.3 Hypothesis Test

Hypothesis testing using the Wilcoxon signed-rank test. The decision rule for hypothesis testing is that if the p-value> 0.05, then H_0 is accepted; otherwise, if the p-value < 0.05, then H_0 is rejected. The results of the hypothesis testing are presented in Table 1.

Table 1. Wilcoxon Signed Ranks Test Results

Test Statistics[a]	
	Posttest – Pretest
Z	-2.701[b]
Asymp. Sig. (2-tailed)	.005

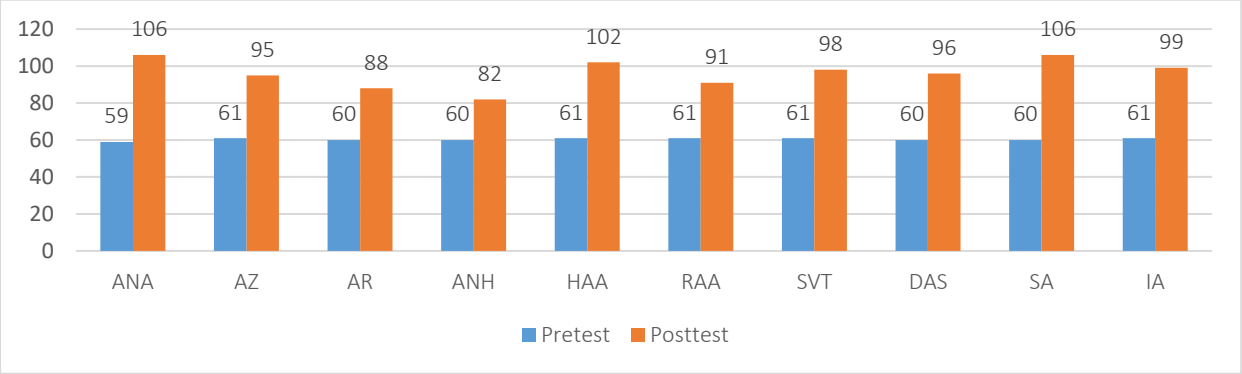
a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

The Wilcoxon signed-rank test results indicate a Z value of -2.701 and a p-value of 0.005. The calculated result shows that H0 is rejected and H1 is accepted (F count asym. Sig. (2-tailed) = 0.005 < 0.05). This means there is no improvement in college students' academic performance or behaviour after receiving self-monitoring therapy.

3.1.4 Improvement of Student Academic Performance and Behaviour

Improvement of Student Academic Performance and Behaviour: Based on the results of self-monitoring as a whole (recapitulation), the findings show that the development of college students' academic performance and behaviour has increased over time. This can be seen from the results of data analysis (analysis of data) showing the progress in subjects through their learning behaviour.

Improvement of Student Academic Performance and Behaviour (Posttest): From the posttest results, the findings indicate that academic performance and behaviour in the subject improved from low to medium and high after the self-monitoring technique was introduced. A recapitulation of the increase in student academic performance and behaviour, as measured by the academic performance and behaviour scale, is presented in the graph below.



High = 94-124; Medium = 62-93; Low = 31-61

Fig. 2. Graph of Improvements in Academic Achievement and Student Behavior

The graph above shows an increase in academic performance and behaviour across all subjects after receiving self-monitoring therapy. This means there is an improvement before and after receiving self-monitoring therapy.

Average Improvement in Student Academic Performance and Behaviour: Judging from the average increase in student academic performance and behaviour before (pretest) and after (posttest) treatment, there is an increase in student academic performance and behaviour after being given the self-monitoring technique. The results of the average increase in student academic performance and behaviour are described in the graph below.

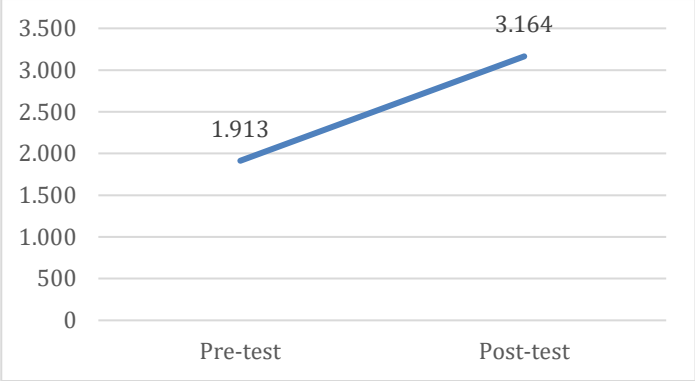


Fig. 3. Average Levels of of Academic Performance and Behavior of College students

Based on the graph of the average level of academic performance and behaviour of college students above. The results show an increase in college students' academic performance and behaviour before (pretest) and after (posttest) the use of the self-monitoring technique. Before being given the self-monitoring technique, the average significance of college students' academic performance and behaviour is 1.913; after being given the self-monitoring technique, it is 3.164. These results show that college students' academic performance and behaviour increase before and after the self-monitoring technique is introduced.

3.2. Discussion

The findings of this study indicate a significant improvement in college students' academic performance and behaviour following the implementation of self-monitoring therapy. The results demonstrate a clear progression from lower to higher categories of academic achievement and behavioural regulation, suggesting that the intervention effectively facilitates positive changes in college students' learning outcomes. This improvement reflects not only enhanced academic performance but also the development of more adaptive, structured learning behaviours, indicating that self-monitoring plays a critical role in strengthening college students' self-regulation.

The effectiveness of self-monitoring therapy can be understood through the mechanisms involved in its implementation. During the intervention, college students engaged in a series of structured processes, including response discrimination, self-recording, charting, data display, and data analysis. These processes enabled college students to identify their academic difficulties, recognize the underlying causes of maladaptive learning behaviours, and evaluate the consequences of such behaviours. In particular, self-recording and charting activities increased college students' awareness of their behavioural patterns, while data display and evaluation facilitated reflective thinking and continuous behavioural adjustment (Chung et al., 2025). This systematic engagement supports the development of metacognitive awareness, which is essential for improving both academic performance and behaviour.

From a theoretical perspective, the results of this study are consistent with the principles of self-monitoring therapy as a form of self-management intervention. Self-monitoring involves processes such as self-observation and self-recording, which allow individuals to track and evaluate their own behaviour in relation to specific goals (Kolbenschlag & Wunderlich, 2021; Masya & Kamil, 2019). Through these processes, individuals become more aware of the presence or absence of target behaviours and are better able to regulate their actions accordingly. Further-

more, self-monitoring therapy emphasizes goal setting, functional assessment, and continuous evaluation, enabling individuals to make informed decisions regarding behavioural change (Ghanizadeh, 2017). This aligns with the view that self-monitoring is a systematic procedure for evaluating behavioural targets and tracking progress throughout the intervention (Swendeman et al., 2015).

In addition, self-monitoring therapy promotes self-regulation by encouraging individuals to manage their behaviour actively through structured, measurable strategies. The use of self-observation and self-recording allows college students to develop a sense of responsibility and control over their learning processes (Morrison & Jacobsen, 2023). As suggested by Levendoski and Cartledge, self-monitoring techniques contribute to the development of self-regulatory capacities and support the emergence of independence and competence in behaviour (Bloom, 2013). Similarly, self-monitoring components, including conscious observation and systematic recording of behaviour, enable individuals to track behavioural changes over time and adjust their strategies to achieve desired out-comes (Santoso, 2017). These mechanisms explain why self-monitoring therapy is particularly effective in improving both academic performance and behavioural consistency.

The findings of this study are consistent with previous research demonstrating the effectiveness of self-monitoring interventions in educational settings. Studies by Choe et al. (2017), Sakairi et al. (2013), Patel et al. (2019), Hufstedler & Varghese (2020), and Lyons et al. (2014) have shown that self-monitoring therapy is effective in improving student engagement and learning-related behaviours. In line with these findings, the present study confirms that self-monitoring not only enhances on-task behaviour but also contributes to broader improvements in academic performance and behavioural regulation. This suggests that the effectiveness of self-monitoring therapy extends beyond specific behavioural outcomes and can influence overall academic functioning.

An important implication of this study is that self-monitoring therapy offers a practical, measurable approach to behaviour change in higher education contexts. By emphasizing continuous monitoring, recording, and evaluation, this technique enables college students to track their progress and adjust their learning strategies systematically (Rodrigues et al., 2019). The structured nature of self-monitoring enables observable, quantifiable changes in behaviour, making it a valuable tool for both college students and educators (Van Jaarsveld et al., 2025). Furthermore, the focus on self-regulation highlights the role of internal control processes in shaping academic success, reinforcing the importance of fostering independent learning skills among college students.

The findings of this study highlight the significant role of self-monitoring therapy in improving academic performance and behaviour by enhancing self-regulation, metacognitive awareness, and structured behavioural change processes. These results contribute to the growing body of literature in educational and counseling psychology by providing empirical evidence on the effectiveness of self-monitoring as an intervention strategy in higher education settings.

4. IMPLICATIONS AND CONTRIBUTIONS

4.1 Research Implications

The findings of this study suggest important practical implications for higher education and counseling practices. The demonstrated effectiveness of self-monitoring therapy indicates that structured self-regulation strategies can be systematically integrated into academic support programs, student development services, and counseling interventions. By incorporating techniques such as self-observation, self-recording, and reflective evaluation, educators and counsellors can help college students develop greater awareness and control over their learning behaviours. This approach not only supports improvements in academic performance but also fosters independent learning, responsibility, and sustained behavioural change. Furthermore, the measurable and procedural nature of self-monitoring makes it a feasible, scalable intervention that can be adapted across diverse educational contexts to address issues of low academic engagement and maladaptive learning behaviours.

4.1 Research Contributions

This study contributes to the field of educational and counseling psychology by providing empirical evidence on the effectiveness of self-monitoring therapy in simultaneously improving academic achievement and behavioural regulation among college students. Unlike prior studies that often focus on isolated behavioural outcomes, this research offers a more comprehensive perspective by integrating both academic and behavioural dimensions within a single intervention framework. Additionally, a one-group pretest–posttest design highlights within-subject changes, providing a clear understanding of the intervention's direct impact. The study also advances theoretical insights into self-regulation by demonstrating how structured self-monitoring processes facilitate measurable behavioural change. Overall, these contributions enrich the existing literature and provide a foundation for developing more targeted, evidence-based interventions in higher education settings.

5. FUTURE RESEARCH DIRECTIONS

5.1 Research Limitations

This study has several limitations that should be considered when interpreting the findings. First, the use of a

one-group pretest–posttest design without a control group limits the ability to establish strong causal inferences, as external factors may have influenced the observed improvements. Second, the relatively small sample size (n = 10) restricts the generalizability of the results to broader student populations. Third, the participants were drawn from a single academic context, which may not fully represent diverse educational settings or disciplines. Additionally, reliance on self-reported measures of academic performance and behaviour may introduce response bias, as participants may overestimate positive changes during the intervention. Finally, the study focused on short-term outcomes and, therefore, does not provide insight into the long-term sustainability of the observed behavioural and academic improvements.

5.1 Recommendation for Future Research Directions

Future studies are recommended to address these limitations and further expand the understanding of self-monitoring therapy in educational contexts. Researchers should consider employing more rigorous experimental designs, such as randomised controlled trials, to strengthen causal conclusions about the intervention's effectiveness. Increasing the sample size and involving participants from diverse academic disciplines and institutions would enhance the external validity of the findings. In addition, future research could incorporate mixed-method approaches by combining quantitative measures with qualitative data to gain deeper insights into college students' experiences during the self-monitoring process. Longitudinal studies are also needed to examine the durability of intervention effects over time and to assess whether improvements in academic performance and behaviour are sustained. Furthermore, exploring the integration of digital or technology-based self-monitoring tools may offer innovative approaches to enhancing intervention accessibility and effectiveness in modern educational environments.

6. CONCLUSION

This study demonstrates that self-monitoring therapy is an effective intervention for improving college students' academic performance and behaviour. The findings reveal a clear increase in both academic achievement and behavioural regulation following the intervention, as evidenced by the transition from lower to higher performance categories. These results indicate that structured self-monitoring processes can facilitate meaningful changes in how college students manage their learning activities and respond to academic demands.

The improvement observed in this study can be attributed to the core mechanisms of self-monitoring therapy, including self-observation, self-recording, and continuous evaluation. Through these processes, college students develop greater awareness of their learning behaviours, identify maladaptive patterns, and make informed adjustments to achieve desired outcomes. This structured approach not only enhances academic performance but also strengthens self-regulation and metacognitive skills, which are essential for long-term academic success.

This study confirms that self-monitoring therapy offers a practical, systematic, and measurable strategy for promoting positive behavioural change and academic improvement in higher education contexts. The findings contribute to the development of evidence-based interventions in educational and counseling psychology, emphasising the importance of fostering independent learning and self-regulation among college students. Future applications of this approach have the potential to support broader student populations and enhance the effectiveness of academic support programs.

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CRediT Authorship Contribution Statement

All authors discussed the results, contributed to the final manuscript, and approved the final version for publication. Megha Uplane: Conceptualization; Methodology; Validation; Writing - Original Draft, Formal analysis. Mehdi Mehri Shahabadi: Conceptualization; Writing - Review & Editing; Data Curation. Vibhawari B. Nikam: Conceptualization; Writing - Review & Editing.

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Conflict of Interest Statement

The authors declare that they have no conflicts of interest to declare. All co-authors have seen and agree with the contents of the manuscript and there is no financial interest to report.

Informed Consent Statement

The authors declare that this study was conducted in accordance with study ethics, including obtaining approval from the relevant institution. This process respects the autonomy of participants, ensures the confidentiality of their data, and prioritizes their safety and well-being, in compliance with applicable study ethics guidelines. Written and verbal informed consent, or assent for minors, was obtained from all participants involved in the study.

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