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Comparison of the Effectiveness of Stress-Based Mindfulness Training and Acceptance and Commitment Therapy on Social Anxiety and Perfectionism in Female Students

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A B S T R A C T

Objective: This study aimed to present a structural model of academic burnout based on school anxiety with the mediating role of self-directed learning among high school students.

Methods and Materials: The research was conducted using a descriptive correlational method and structural equations. The statistical population consisted of female high school students enrolled in public high schools (theoretical branch) in Babol during the 2022-2023 academic year, with a total estimated number of 3,254 students based on the Planning Office of the Babol Department of Education. The sample size was estimated at 242 individuals using Cochran's formula (Hafeznia, 2010), and the sampling was conducted using a multi-stage cluster random method. Data were collected using the Academic Burnout Questionnaire (Salmela-Aro & Näätänen, 2005), the Self-Directed Learning Questionnaire (Fisher et al., 2013), and the School Anxiety Questionnaire (Phillips, 1978). For inferential data analysis, structural equation modeling was conducted using PLS software version 4, and multiple regression analysis was performed using SPSS26 software.

Findings: The findings indicated that self-directed learning significantly mediates the relationship between school anxiety and academic burnout, with a path coefficient of 0.168. Additionally, the findings showed that among the components of school anxiety, fear of self-expression, test anxiety, and lack of self-confidence have predictive power for academic burnout.

Conclusion: It can be concluded that the structural model of academic burnout based on school anxiety with the mediating role of self-directed learning in high school students demonstrated a good fit.

Keywords: *Academic Burnout, School Anxiety, Negative Emotion Regulation Strategies, Self-Directed Learning.*

1. Introduction

Burnout is a state of mental and emotional exhaustion that results from chronic stress syndromes, such as role overload, pressure, time constraints, and lack of necessary resources to complete assigned tasks (Tang, 2024). Most of the research on burnout relates to occupational settings, where it is referred to as job burnout. However, the concept of burnout has been extended to educational contexts, where it is termed academic burnout (Ghods et al., 2023; Laketa & Côte, 2023). It can be said that educational settings serve as the workplace for learners. Although learners are not employed or holding specific jobs in these settings, from a psychological perspective, their educational and academic activities can be considered work (Wen et al., 2023). They attend classes and complete a set of tasks to succeed in exams and achieve passing grades. Based on existing research, academic burnout in educational settings is characterized by features such as fatigue resulting from study demands, a growing sense of pessimism and indifference toward academic materials, and a perceived lack of personal achievement in academic and educational endeavors (Zafarnia & Alidoosti, 2023; Zhang et al., 2023). Individuals experiencing academic burnout often display symptoms such as a lack of enthusiasm for academic content, inability to maintain consistent class attendance, lack of participation in classroom activities, a sense of meaninglessness in academic activities, and a feeling of incapability in learning academic content (Kong, 2023; Laketa & Côte, 2023).

Academic burnout has multiple consequences, including absenteeism, school dropout, declining health, and an increased risk of depression. It can be a crucial factor in understanding various student behaviors, such as academic performance during schooling. Moreover, it can affect students' relationships with their schools and teachers, potentially influencing their commitment to school and participation in academic activities both in the classroom and beyond graduation. Academic burnout can also affect students' enthusiasm for continuing their education (Tang, 2024; Wang et al., 2022; Wu et al., 2022).

The first construct examined in this model as a predictor variable is school anxiety. School anxiety is considered a psychosocial issue, manifesting as the absence of regular school attendance for at least five consecutive days, accompanied by acute anxiety symptoms and physical complaints such as nausea, headaches, and dizziness. This emotional experience is a form of neurotic fear resulting from separation anxiety from the mother, often expressed as discouragement, hopelessness, withdrawal, and depression (Khodapanahi et al., 2012). Students with school anxiety experience two types of anxiety: social anxiety and academic anxiety. School anxiety can have long-lasting negative effects throughout life, impacting mental health in childhood and adolescence. It may affect efficiency, the development of potential, personality formation, and social identity (Alesi et al., 2014; Green, 2022; Jia et al., 2021; Mansour Rusta & Shirafkan, 2022; Salsabilla et al., 2022), and gradually lead to hopelessness, discouragement, worthlessness, withdrawal, and eventually depression (Amini et al., 2013; Tezvaran et al., 2012). Johnson and Browes (2018) argue that school anxiety may occur in the presence of two conditions: 1) unresolved dependency between mother and child, and 2) the simultaneous occurrence of factors that threaten the child's security. Due to the strong mother-child dependency, staying home satisfies their needs and alleviates their anxieties (Evriani, 2024; Rafiei Bandari et al., 2023).

The second construct acting as a predictor variable in this study is negative cognitive emotion regulation strategies. Emotion regulation relies on internal and external response processes to control, monitor, evaluate, and adapt emotional interactions, particularly their transient and rapid characteristics, to achieve goals (Babaei et al., 2024; Podineh Ebrahimi et al., 2022). Emotion regulation can be conscious or unconscious, transient or sustained, and behavioral or cognitive. Behavioral emotion regulation is observable in overt behavior, unlike cognitive emotion regulation, which is unobservable and transient (dehghani et al., 2018; Seibert et al., 2017). Most research assumes that emotion regulation is equivalent to cognitive coping and is generally defined as cognitive methods of managing emotions by utilizing information triggered by emotions. Cognitive processes can help us manage or regulate emotions to control our feelings following stressful or anxiety-inducing events (Safaeinaeini et al., 2019; Tarazi et al., 2020; Viskarmi, 2018).

Garnefski and colleagues (2015) hypothesize that emotion regulation is equivalent to cognitive coping and generally assume it is related to cognitive methods of managing emotions through the use of emotional information. Cognitive processes can assist us in managing or regulating emotions or controlling emotions following stressful and anxiety-provoking events. Based on Garnefski and colleagues' theoretical model (2015), cognitive emotion regulation strategies include nine strategies, divided into positive and negative cognitive strategies for emotion

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regulation. This study focuses exclusively on the negative strategies, which include four components: self-blame, other-blame, catastrophizing, and rumination (Safaeinaeini et al., 2019).

Moreover, in this study, self-directed learning plays a mediating role. Academic self-regulation is another variable that likely mediates the relationship between academic motivation and academic burnout. Bandura's social cognitive theory provides a suitable theoretical framework for the development of self-directed learning, which suggests that contextual factors and individual behaviors provide the necessary opportunities for guiding students' learning (Li et al., 2023; Putra & Budiningsih, 2023; Yang, 2024). The importance of self-directed learning lies in enabling students to plan, control, and direct their own learning, along with the willingness to learn, evaluate, and reflect on the entire learning process (Chen et al., 2023; Li et al., 2022; Makokotlela, 2022). This can lead to reduced fatigue and decreased academic burnout. In essence, self-directed learning is a process in which an individual monitors their own behavior, evaluates it against existing standards, goals, and criteria, and adjusts their behavior accordingly (Ganzon & None Ma. Melanie, 2022; Oducado, 2021; Sahebzadeh & Mehri, 2021).

Research has shown that learners who are intrinsically motivated are more consistently and deeply engaged in tasks and achieve higher levels of progress compared to those who are extrinsically motivated to learn. Theoretically, having intrinsic motivation for effective learning is one of the most important factors for academic success. Learners with self-directed learning skills initiate and direct learning processes on their own, in terms of metacognition, motivation, and behavior. Additionally, self-directed learning skills foster motivational engagement and a sense of self-efficacy among students. In fact, students with high self-directed learning tend to achieve greater academic success and thus possess higher academic motivation (Adnan & Sayadi, 2021; Akbari, 2021; Chen et al., 2023; Einy et al., 2019; Li et al., 2023; Xiao-hong et al., 2018). In this regard, self-directed learning is associated with the level of academic burnout (Chen et al., 2023), and students with greater self-directed learning use more cognitive and metacognitive strategies. Self-directed learning has been defined as the psychological efforts to control internal states, processes, and functions in order to achieve higher goals (Emami Khotbesara et al., 2024; Hossinpanah & Kazemianmoghadam, 2021).

After three decades of working in education and awareness of the academic status, academic motivation, and annual estimates regarding academic decline and increasing academic burnout, the researcher has decided to focus on this topic for their doctoral dissertation. Based on the existing research literature and previous studies, this study aims to answer the main question: Does the structural model of academic burnout based on school anxiety and negative emotion regulation strategies with the mediating role of self-directed learning in high school students demonstrate a good fit?

2. Methods and Materials

2.1. Study Design and Participants

This research is fundamental in terms of its objective and descriptive with a correlational method for data collection. The statistical population of this study comprised all female high school students (theoretical branch) in the city of Babol during the 2022-2023 academic year. Given that this study had to include students whose level of academic burnout was at least one standard deviation below the mean, the statistical population was first screened for academic burnout across all high school students in Babol. Among the total population (1,543 female students), 632 students scored one standard deviation below the mean for academic burnout. The sample size was estimated using Krejcie and Morgan's table within the population of students with academic burnout. Accordingly, with a population size of 632 students, the sample size was estimated at 242. Based on the academic burnout scores of 632 students, these students were included in the study regardless of the type of school. Considerations such as the students' willingness to participate in the research process and their consent to participate were also taken into account. Ultimately, the exact number of selected students, broken down by school and gender.

After completing the sampling process, the necessary legal steps to obtain permission from the Mazandaran Provincial Department of Education and the Babol County Department of Education were taken. It should be noted that coordination had already been made during the screening phase. However, this time, the exact number of students with academic burnout was identified and coded. Among the selected students in each school, those with the highest academic burnout scores were asked to participate in the study until the school's quota was filled, whether individually or in groups. After providing explanations and obtaining consent, the questionnaires on academic burnout, school anxiety, emotion regulation strategies, and self-

directed learning were administered to the students, who were asked to complete them according to the instructions. The order of administration of the questionnaires was fixed, and the students completed the questionnaires in one session.

2.2. Measures

2.2.1. Academic Burnout

This questionnaire is based on the Bergen Burnout Scale and consists of 15 items covering three dimensions: emotional exhaustion, cynicism, and efficiency. The items are scored on a seven-point Likert scale ranging from "never" (0) to "always" (6). The total score is obtained by summing the scores of the 15 items, with possible scores ranging from 0 to 90. The scores for each dimension are obtained by summing the item scores for that dimension as shown in the table below. The higher the score on these dimensions, the greater the problem in that area. The reliability of the Academic Burnout Test was calculated by the test developers to be 0.70, 0.82, and 0.75 for the three dimensions, respectively. The validity of the Academic Burnout Questionnaire was calculated using confirmatory factor analysis, which reported adequate fit indices, including the Comparative Fit Index (CFI) and the Incremental Fit Index (IFI), as well as the Root Mean Square Error of Approximation (RMSEA). The validity of the Academic Burnout Questionnaire was also calculated by correlating it with the Student Stressors Questionnaire, with reliability coefficients of 0.38, 0.42, and 0.45, which were significant at P<0.001. Salmela-Aro, Leskinen, and Nurmi (2009) studied the validity and reliability of this questionnaire. They reported that the three-factor model (emotional exhaustion, cynicism, and inefficiency) had better fit compared to one-factor and two-factor models. This standardized questionnaire was translated by Badri Gargari and colleagues (2012), who reported an overall questionnaire reliability of 0.86, with subscale reliabilities of 0.77 for emotional exhaustion, 0.78 for cynicism, and 0.84 for inefficiency (Ghods et al., 2023; Zafarnia & Alidoosti, 2023).

2.2.2. Cognitive Emotion Regulation

This questionnaire consists of 36 items and aims to measure subscales of cognitive emotion regulation. It was developed by Garnefski and colleagues (2001) to assess cognitive strategies used by individuals after experiencing threatening events or life stressors. The response format is a Likert scale. This questionnaire includes nine subscales, each evaluating a specific cognitive strategy. The subscales are: self-blame, other-blame, acceptance of the event, refocusing on planning, positive refocusing on pleasant matters instead of the actual event, rumination, positive reappraisal, getting a perspective (thoughts on the relativity of the event compared to other events), and catastrophizing. Among these strategies, self-blame, other-blame, rumination, and catastrophizing are negative emotion regulation strategies, while acceptance, refocusing on planning, positive refocusing, positive reappraisal, and getting a perspective are positive emotion regulation strategies. The score for each strategy is obtained by summing the scores of the items forming that strategy, and can range from 4 to 20, with total scores ranging from 36 to 180. To calculate the score for each dimension, the total scores of the relevant items are summed. In the psychometric evaluation by Garnefski and colleagues (2001), the reliability of the questionnaire was calculated using Cronbach's alpha coefficients, with values of 0.91, 0.87, and 0.93. In Iran, the validity of the test was examined by correlating the total score with the subscale scores, ranging from 0.40 to 0.68, with a mean of 0.56, all of which were significant. In 2003, the reliability of the questionnaire in the Iranian culture was reported by Yousefi using Cronbach's alpha coefficients, with a value of 0.82 for the overall cognitive scales (Tarazi et al., 2020).

2.2.3. Self-Directed Learning

To assess self-directed learning, the questionnaire by Fisher et al. (2013) was used, translated by Nadi and Sajadian (2006). This questionnaire contains 41 items and is designed on a five-point Likert scale, ranging from 1: Strongly Disagree to 5: Strongly Agree. The tool evaluates three components of self-directed learning: self-management, self-control, and motivation in learning. The results showed that three factors—self-management, desire for learning, and self-control—could be extracted from the questionnaire, accounting for 27.16% of the total variance, and Cronbach's alpha coefficients were 0.87, 0.83, 0.82, and 0.66, respectively. The validity of this scale was reported as acceptable based on construct validity and factor analysis (Murray et al., 2001). In the study by Nadi and Sajadian (2006), the reliability coefficient of 0.82 was obtained for the self-directed learning questionnaire. Fisher and colleagues (2001) reported a reliability coefficient of 0.92 for the entire questionnaire using Cronbach's alpha, with reliability

coefficients of 0.85, 0.84, and 0.83 for the subscales of self-management, desire for learning, and self-control, respectively. In the study by Behrozi et al. (2011), the reliability coefficients for the self-directed learning questionnaire were calculated using Cronbach's alpha, yielding values of 0.76 for the overall scale, 0.84 for desire for learning, 0.31 for self-control, and 0.85 for the total scores (Sahebzadeh & Mehri, 2021).

2.2.4. School Anxiety

This questionnaire was developed by Phillips in 1978 to measure the level of anxiety in students and assesses four factors: 1) fear of self-expression, 2) test anxiety, 3) uncertainty in meeting others' expectations, and 4) physiological reactions related to low stress tolerance. The scoring method assigns zero points to the "No" response and one point to the "Yes" response, with the respondent's score being the sum of their "Yes" responses. This test was translated into Persian by Riyahi and Akbari (1992), and due to cultural differences, 65 out of 74 items were ultimately selected. The items are dichotomous, with "Yes" and "No" response options. The test was studied by Akbari Jamarani and Farrokhzad between 1993 and 1998 as part of their master's thesis in clinical psychology and philosophy of education. These researchers administered the questionnaire to a sample group of 687 middle school students in Tehran and 78 female middle school students in Zanjan. The test norms were calculated using statistical indices, with T-scores having a mean of 50 and a standard deviation of 10. Phillips calculated the test's internal consistency using the Kuder-Richardson method, and test-retest reliability over time intervals of more than two years, reporting values of 0.95 and 0.50, respectively. Jamarani also reported test reliability coefficients of 0.87 for boys and 0.91 for girls using the Kuder-Richardson method, and split-half reliability of 0.92 for girls and 0.69 for boys. The content validity of this test was confirmed by experts, and due to the internal consistency of the items, it can be concluded that the test possesses construct validity (Rafiei Bandari et al., 2023).

2.3. Data analysis

Descriptive and inferential statistics were used for data analysis. In descriptive statistics, central indices such as mean and mode, and dispersion indices such as variance and range of change were used. In inferential statistics, correlation coefficients and regression tests were employed to answer the research hypotheses. Structural equation modeling (SEM) was used to assess the fit of the data with the conceptual model. Data were analyzed using SPSS26 and SMART PLS software.

3. Findings and Results

Demographic findings indicate that 82 participants (33.9%) were studying in the Mathematics discipline, 58 participants (24%) in the Experimental Sciences, 61 participants (25.2%) in the Humanities, and 41 participants (16.9%) in Islamic Studies. Additionally, 70 participants (28.9%) were in the 10th grade, 75 participants (31%) in the 11th grade, and 97 participants (40.1%) in the 12th grade. Regarding age distribution, 6 participants (2.5%) were 15 years old, 68 participants (28.1%) were 16 years old, 77 participants (31.8%) were 17 years old, 88 participants (36.4%) were 18 years old, and 3 participants (1.2%) were 19 years old.

Table 1

Mean and Standard Deviation of Research Variables

Variable	Mean	Standard Deviation	Skewness	Kurtosis
School Anxiety	17.110	1.919	-0.057	-0.453
Academic Burnout	11.269	2.322	0.026	-0.324
Self-Directed Learning	36.294	6.639	0.112	-0.875

The values in Table 2 show that there is a correlation of 0.88 between academic burnout and school anxiety, a negative correlation of -0.90 between self-directed learning and school anxiety, and a negative correlation of -0.18 between self-directed learning and academic burnout.

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Table 2

Correlation Matrix Between Research Variables

Variable	School Anxiety	Academic Burnout	Self-Directed Learning
School Anxiety	1		
Academic Burnout	0.88	1	
Self-Directed Learning	-0.906	-0.182	1

p<0.01

The results of structural equation modeling with the mediator variable using PLS software, as shown in Table 3, indicate that self-directed learning significantly mediates the relationship between school anxiety and academic burnout, with a path coefficient of 0.168. The structural modeling results obtained from the PLS test show that self-directed learning significantly mediates the relationship between school anxiety and academic burnout, with a path coefficient of 0.168.

Table 3

The Results of Direct and Indirect Path Analysis

Path	Coefficient	Standardized Coefficient	SE	t-value	p-value
School Anxiety → Academic Burnout	0.810	0.636	0.231	3.511	0.000
School Anxiety → Self-Directed Learning	-0.904	-0.896	0.021	42.083	0.000
Self-Directed Learning → Academic Burnout	-0.186	-0.183	0.090	2.069	0.039
School Anxiety → Self-Directed Learning → Academic Burnout	0.168	0.168	0.080	2.103	0.036

4. Discussion and Conclusion

These findings align with the results of prior studies (Emami Khotbesara et al., 2024; Wu et al., 2022), regarding the impact of school anxiety on academic burnout. However, no study was found that examined the mediating role of self-directed learning in the relationship between these two variables. Additionally, the findings (Alesi et al., 2014; Amini et al., 2013; Emami Khotbesara et al., 2024; Evriani, 2024; Green, 2022; Jia et al., 2021; Khodapanahi et al., 2012; Mansour Rusta & Shirafkan, 2022; Rafiei Bandari et al., 2023; Salsabilla et al., 2022; Tezvaran et al., 2012; Wu et al., 2022) regarding the role of academic apathy, test anxiety, academic achievement anxiety, academic procrastination, academic stressors, school climate, academic self-efficacy, and social support on academic burnout are consistent with the findings of this study.

Regarding the direct negative relationship between self-directed learning and academic burnout, it can be explained that there is a significant negative relationship between self-directed learning and academic burnout. It is important to note that self-directed learners, from a metacognitive, behavioral, and motivational perspective, initiate their own learning, are competent and self-efficacious, actively participate, and possess effective learning habits and study skills. They repeatedly review their performance; thus, these students can handle challenges and turn problems into challenges to be solved (Chen et al., 2023; Li et al., 2023). These individuals engage in setting realistic goals, planning better objectives and strategies, and using self-directed learning to prevent cognitive interference and negative preoccupations. Therefore, these students use mental processes, motivational beliefs, and adaptive emotions to create effective and desirable learning environments, which in turn reduces the likelihood of academic burnout.

Regarding the positive direct relationship between school anxiety and the negative indirect relationship between school anxiety and academic burnout, it is important to note that based on the research findings and theoretical foundations, it can be concluded that academic achievement anxiety and school anxiety, in general, are determining and influential factors in students' academic burnout and ultimately their academic performance. As academic achievement anxiety decreases, academic burnout also decreases, leading to improved academic performance and reduced burnout (Emami Khotbesara et al., 2024; Rafiei Bandari et al., 2023). It seems that the absence of rewards and constant reprimands from teachers, failure to achieve the expected outcomes, reduced self-esteem resulting from continuous effort without achieving desired results, and pressures from family and school can contribute to students' burnout. Since academic burnout is characterized by features such as fatigue resulting from study demands, a growing

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sense of pessimism and indifference toward academic content, and failure due to achievement anxiety may produce similar symptoms in students (Mansour Rusta & Shirafkan, 2022; Salsabilla et al., 2022; Wu et al., 2022). It is justifiable to expect that students with academic achievement anxiety may experience higher levels of academic burnout compared to non-anxious students.

5. Limitations & Suggestions

This research, due to the nature of the topic, sampling method, and the tools used, faced limitations. Academic burnout, being one of the most significant educational outcomes, originates from multiple variables, whereas this study focused on two specific variables and a single mediating variable without considering a broader range of factors. Additionally, the lack of control over certain factors influencing academic burnout, such as students' gender, socioeconomic status, and academic discipline, may have affected the relationship between the variables. Given the importance of academic burnout, this study aimed to investigate the relationship between negative cognitive emotion regulation strategies and academic burnout, considering the mediating role of self-directed learning.

Future research should explore the factors contributing to academic burnout using both quantitative and qualitative methods, while controlling for variables such as academic discipline, grade level, socioeconomic status, and cross-cultural issues. Future studies should also examine variables such as procrastination, attachment issues, self-efficacy, and academic engagement as potential mediators. During the implementation of this study, the researchers recognized the necessity of addressing internet addiction as a variable influencing academic burnout, and it is recommended that future studies explore this issue comprehensively. It is suggested that educational program designers consider achieving self-directed learning as a significant educational goal and take practical and scientific steps to reduce academic burnout. Counselors, academic advisors, and school psychologists should view the results of this study as a specialized outcome and utilize the positive and negative relationships identified during the counseling process.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

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