Effectiveness of Mindfulness-Based Strengths Practice Training on Life Satisfaction and Perceived Stress in Gifted Students

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Objective: The present study aimed to determine the effectiveness of mindfulness-based strengths practice (MBSP) training on life satisfaction and perceived stress in gifted students.

Methods and Materials: The research method was applied and quasi-experimental with a pre-test, post-test, and follow-up stage design in two experimental and control groups. The statistical population of this study included female high school students from the Farzanegan School for Gifted Students in Mazandaran. A sample of 30 students was selected using G*Power software. Participants completed the Satisfaction with Life Scale (Diener et al., 1985) and the Perceived Stress Scale (Cohen et al., 1983). The experimental group received MBSP training based on Niemiec's (2014) protocol for eight sessions, each lasting 90 minutes, once a week, while the control group did not receive any training. Data were analyzed using mixed repeated measures with SPSS-27 software.

Findings: Results indicated that MBSP training was associated with increased life satisfaction and reduced perceived stress in gifted students (p < .001).

Conclusion: Based on the findings of this study, it can be concluded that MBSP training is effective on life satisfaction and perceived stress in gifted students.

Keywords: perceived stress, mindfulness, students, intelligence, life satisfaction

1. Introduction

One area of interest for educational psychologists and education specialists is examining the psychological, cognitive, personality, and relational characteristics of students who possess superior talent and intelligence compared to others (Beckers et al., 2023). Giftedness refers to exceptional intelligence, creativity, and high motivation, distinguishing an individual from most of their peers and enabling them to offer something valuable to society. Gifted students have advantages over their peers in various ways (Keleş, 2022). Gifted and talented individuals exhibit high performance in specific areas such as intelligence, creativity, artistry, leadership, and special academic fields (White et al., 2018). Research indicates that gifted students are at greater risk of mental health issues, such as depression, anxiety

disorders, and other psychological problems (Duplenne et al., 2023). Despite their exceptional abilities and talents, gifted students often face unique challenges, such as feelings of inadequacy, perfectionism, and the burden of high expectations, which can lead to increased levels of stress and anxiety, significantly impacting their psychological well-being and life satisfaction (Noor, 2023).

Life satisfaction is often considered one of the problems faced by many gifted students. Life satisfaction is defined as an individual's evaluation of the fulfillment and satisfaction of their needs, goals, aspirations, and desires (Lee et al., 2023). It plays a crucial role in increasing emotional intelligence, the quality of social exchanges, positive emotions, and reducing hopelessness, depression, low self-esteem, and negative emotions. Individuals with high life satisfaction often experience more positive emotions, recall more positive events, and have a more positive evaluation of events in their lives (Gandy et al., 2021). Many people believe that gifted students have a higher quality of life than others. However, talented individuals are at greater risk of developing emotional and social problems and may report lower life satisfaction compared to non-gifted individuals (Noor, 2023).

Perceived stress is another psychological issue that often troubles gifted students (Thai et al., 2021). The concept of perceived stress is derived from Lazarus and Folkman's (1984) theory on the role of appraisal in the stress process, which occurs through the interpretation of an event that imposes pressure on the individual. Perceived stress is essentially an individual's overall perception and interpretation of their vulnerability to stressors (Rebillon et al., 2023). In gifted students, stress can result in consequences such as academic decline, depression, reduced psychological well-being, decreased concentration, and lower future expectations (Tipton, 1982). Additionally, it can lead to biological changes in the body and various psychological problems (García-Jiménez et al., 2024).

One of the new interventions for enhancing psychological skills in gifted students is mindfulness-based strengths practice (MBSP). In the field of positive psychology, mindfulness and character strengths have become two of the most important resources for achieving optimal human performance (Niemiec et al., 2013). Each of these elements can be strengthened separately. As a result, there is considerable potential for their integration. In this context, Niemiec recently designed an intervention by combining these two models, known as MBSP, for use in the general population. It appears to be one of the effective interventions

for psychological problems in gifted students. This intervention combines mindfulness and character strengths. The integration of these two positive psychology approaches aims to enhance and improve health and well-being, contrary to many existing interventions that primarily seek to correct or treat, thus being used to increase and develop health and well-being (Niemiec et al., 2013).

Despite their exceptional abilities and talents, gifted students are generally at a higher risk of experiencing problems with life satisfaction. They also often face unique challenges, including perceived stress, which can negatively impact their psychological well-being. These issues require effective interventions, such as MBSP, to help them manage their mental health and realize their potential. While there is a growing body of literature on interventions to enhance the overall well-being of individuals, there is a lack of research specifically focused on the gifted population. Additionally, limited research on interventions for gifted students primarily focuses on academic achievement and talent development. Few studies examine the impact of interventions on life satisfaction and perceived stress in gifted students. This research gap highlights the need for targeted interventions that address the holistic development of talented individuals, encompassing not only academic potential but also mental health and overall well-being.

2. Methods and Materials

2.1. Study Design and Participants

The present study was a quasi-experimental pre-test, post-test, and follow-up design with a control group. The statistical population of this study included female students from one of the Farzanegan schools for gifted students in Mazandaran, during the academic year 2022-2023, with a total of 187 students. Among these individuals, 30 were voluntarily selected based on inclusion and exclusion criteria and were randomly assigned to either the experimental (n = 15) or control group (n = 15). The sample size was determined using G*Power software with an effect size of 0.25, alpha of 0.05, and power of 0.95. Before the intervention, pre-tests for life satisfaction and perceived stress variables were administered to the study participants. Following this, the experimental group received MBSP training for 8 sessions, each lasting 90 minutes once a week, while the control group received no training. Post-tests were administered to both groups after the intervention, and a follow-up test was conducted two months later. Inclusion criteria included: 1) not having an appropriate psychological

status based on low scores on the Psychological Well-being Questionnaire, 2) having at least one physical symptom such as sweating, weakness, heart palpitations, headache, and discomfort, 3) parental consent and cooperation for their child's participation in the sessions, 4) the student's willingness and consent to participate in the study, 5) not having any specific or acute illnesses. Exclusion criteria included: 1) non-normal family status, such as divorce, based on initial interviews and academic records, 2) lack of informed consent for participation in the study, 3) not being physically healthy enough to attend classes, 4) interference of therapy sessions with other academic programs, 5) students younger than 14 years due to insufficient competence in answering questions, and students older than 17 years due to participation in final exams. It is worth mentioning that sessions were held outside of educational hours and during the students' free time. The training was conducted with the collaboration of a specialist psychologist.

2.2. Measures

2.2.1. Satisfaction with Life

The Satisfaction with Life Scale (SWLS) was developed by Diener et al. (1985) and refers to a cognitive-judgmental process where individuals evaluate their life quality based on a set of criteria. Pavot and Diener (1993) state that the scale consists of 5 items rated on a Likert scale from strongly disagree (1) to strongly agree (5). Scores between 5 and 10 indicate low satisfaction, 10 to 15 moderate satisfaction, and above 15 high satisfaction. Diener et al. (1985) designed the SWLS for all age groups. Initially, it had 48 questions, with 10 related to life satisfaction, which were then reduced to 5 items. It was evaluated among a group of students, yielding a test-retest correlation of 0.82 and a Cronbach's alpha coefficient of 0.87. Schimmack et al. (2002) reported reliability using Cronbach's alpha for groups of American, German, Japanese, Mexican, and Chinese adults as 0.90, 0.82, 0.79, 0.76, and 0.61, respectively. In Iran, Mozaffari (2003) evaluated the validity of the Persian version of the SWLS by comparing it with the Positive and Negative Affect Schedule (PANAS), reporting a significant positive correlation. The reliability of this questionnaire was measured using Cronbach's alpha, resulting in a coefficient of 0.88 (Ramezani & Zangeneh Motlagh, 2023).

2.2.2. Perceived Stress

The Perceived Stress Scale (PSS) was developed by Cohen et al. (1983) and includes items rated on a five-point Likert scale (never, almost never, sometimes, fairly often, very often), scored as 0, 1, 2, 3, and 4, respectively. The PSS measures two subscales: a) negative perception of stress (items 1, 2, 3, 4, 11, 12, 14), and b) positive perception of stress (items 5, 6, 7, 8, 9, 10, 13), with reverse scoring for the latter. The PSS assesses the degree to which situations in an individual's life are appraised as stressful. Higher scores indicate greater perceived stress. Internal consistency reliability coefficients, measured using Cronbach's alpha, ranged from 0.84 to 0.86 in two student groups and a group of smokers in a cessation program. The PSS significantly correlates with life events, depression and physical symptoms, healthcare utilization, social anxiety, and low life satisfaction (Cohen et al., 1983). Mimura and Griffiths, in a study on Japanese students, reported Cronbach's alpha coefficients of 0.88 for the original scale and 0.81 for the revised Japanese version, comparable to the original's reliability coefficients. The original scale's two factors explained 53.2% of the variance, with factor one accounting for 27.3% and factor two 25.9%. The revised Japanese scale's two factors explained 49.9% of the variance, with factor one accounting for 28.5% and factor two 21.4% (Mimura et al., 2004, as cited in Abolghasemi & Narimani, 2006). In Ahmadian's (2012) study, Cronbach's alpha coefficients for positive perception of stress were 0.71, for negative perception of stress 0.75, and 0.84 for the total PSS scores. The item correlation coefficients for the positive perception of stress ranged from 0.49 to 0.70, for negative perception of stress from 0.52 to 0.77, and for the total PSS scores from 0.51 to 0.78. The reliability of this questionnaire was measured using Cronbach's alpha, resulting in a coefficient of 0.85 (Ahmadzadeh Samani et al., 2021).

2.3. Intervention

2.3.1. Mindfulness-Based Strengths Practice

Niemiec's Mindfulness-Based Strengths Practice (MBSP) training protocol is an eight-session intervention designed to enhance psychological skills and well-being among gifted students. Each session focuses on integrating mindfulness practices with the application of personal strengths to address specific challenges faced by these students. The protocol aims to foster self-awareness, resilience, and positive social interactions, ultimately

contributing to improved life satisfaction and reduced perceived stress (Kulandaiammal & Alafia, 2023; Niemiec et al., 2013).

Session 1

The first session introduces the group rules, such as confidentiality, non-judgment, empathy, completing assignments, and the timing and number of sessions. The necessity of mindfulness training and familiarization with the strengths-focused curriculum are discussed. Additionally, students share their concerns and expectations regarding the program, providing a foundation for the sessions.

Session 2

In the second session, students learn about the concept of strengths practice. They explore how to identify and apply their prominent strengths in their academic life at the gifted school. This session emphasizes recognizing and leveraging individual strengths to enhance academic performance and personal development.

Session 3

The third session focuses on perceiving obstacles as opportunities, based on Niemiec's educational package. Students are guided to reframe challenges they face as potential growth opportunities, thereby fostering a more positive and resilient mindset towards difficulties.

Session 4

During the fourth session, students engage in mindful yoga movements, paying close attention to bodily sensations in various poses and movements. This practice helps them become more aware of their physical state and observe these sensations from an external perspective, reducing engagement in negative thoughts.

Session 5

The fifth session integrates mindfulness and strengths to build effective communication skills. Students practice mindful communication techniques, using their strengths to enhance interactions with others, thereby improving their social relationships and reducing interpersonal stress.

Session 6

In the sixth session, students learn to mindfully apply their strengths towards achieving their goals. This session focuses on goal-setting and strategic planning, encouraging students to use their strengths consciously to navigate towards their aspirations.

Session 7

The seventh session centers on values and virtues, encouraging students to reflect on their core values and personal virtues. This session promotes self-awareness and self-compassion, helping students align their actions with their values for a more fulfilling life.

Session 8

The final session serves as a reminder to avoid reverting to automatic behaviors and to incorporate mindfulness and strengths practice into daily life continuously. Students are encouraged to sustain their training practices and a post-test is administered to assess the program's impact.

2.4. Data analysis

Data were analyzed using mixed repeated measures with SPSS-27 software.

3. Findings and Results

Demographic findings indicated that in the strength training group, 20.00% were 14 years old, 26.66% were 15 years old, 26.66% were 16 years old, and 26.67% were 17 years old. In the control group, 26.66% were 14 years old, 30.34% were 15 years old, 20.00% were 16 years old, and 20.00% were 17 years old. In the strength training group, 73.33% had a GPA between 19 and 20, and 26.67% had a GPA between 18 and 19. In the control group, 60.00% had a GPA between 19 and 20, and 40.00% had a GPA between 18 and 19.

Descriptive findings of this study, including statistical indices such as mean, standard deviation, and sample size, as well as frequency and percentage tables for all studied variables, are presented in Table 1.

Table 1

Central Tendency and Dispersion Indices of Research Variables in Experimental and Control Groups

Variable	Group	Pre-Test Mean	Pre-Test SD	Post-Test Mean	Post-Test SD	Follow-Up Mean	Follow-Up SD
Life Satisfaction	Strength Training	8.258	1.486	16.147	1.579	16.267	1.543
	Control	8.667	1.543	8.533	1.884	8.733	1.486
Perceived Stress	Strength Training	39.847	2.345	25.562	3.251	25.632	3.480
	Control	40.533	3.602	40.466	3.522	40.330	3.498

Examining the results in Table 1 shows that the total life satisfaction score in the strength training group changed from 8.258 in the pre-test phase to 16.147 in the post-test phase and 16.267 in the follow-up phase. In the control group, the mean life satisfaction changed from 8.667 to 8.533 in the post-test phase and to 8.733 in the follow-up phase.

The perceived stress variable in the strength training group changed from 39.847 in the pre-test phase to 25.562 in the post-test phase and to 25.632 in the follow-up phase. In the control group, the mean perceived stress changed from 40.533 to 40.466 in the post-test phase and to 40.330 in the follow-up phase.

In this study, the results of the Shapiro-Wilk test in all stages of the research for the studied variables were above the error level of 0.05 ($P > 0.05$). Considering the P value, the data distribution is considered normal. The results of the regression slope homogeneity between the covariate and dependent variables also showed that the assumption of regression slope homogeneity was confirmed for the variables of life satisfaction and perceived stress. Based on

the results, it was observed that in the pre-test, post-test, and follow-up phases, the assumption of equality of variances was established under the Levene test ($P > 0.05$). Moreover, the results of the Mauchly's sphericity test indicated the lack of homogeneity of covariance matrices between groups and the non-fulfillment of this assumption ($p = 0.001$). Therefore, the Greenhouse-Geisser correction was used. As shown in Table 1, the mean life satisfaction in the experimental group increased from pre-test to post-test and follow-up. Similarly, the mean perceived stress in the experimental group decreased from pre-test to post-test and follow-up. The assumption of normality for the research variables was assessed using the Shapiro-Wilk test, and the results confirmed this assumption for all variables as the probability values were greater than 0.05. Equality of variances was also tested using the Levene test, and the results supported this assumption ($P > 0.05$). Considering the examination of assumptions related to mixed repeated measures analysis and the fulfillment of assumptions for the research hypotheses, repeated measures analysis was utilized.

Table 2

Repeated Measures ANOVA Results

Variable	Source	Sum of Squares	df	Mean Square	F	Effect Size	Significance
Life Satisfaction	Between-Subjects: Group	252.867	1.55	162.630	223.744	0.889	0.001
	Within-Subjects: Intervention Stages	256.822	1.55	165.174	227.224	0.889	0.001
	Error (Group)	31.64	43.536	0.727			
	Group * Intervention Stages	194.400	1.0	194.400	303.524	0.916	0.001
	Error (Intervention Stages)	17.933	28	0.640			
Perceived Stress	Between-Subjects: Group	1003.489	1.211	501.744	432.420	0.939	0.001
	Within-Subjects: Intervention Stages	966.200	1.211	797.837	416.352	0.939	0.001
	Error (Group)	64.978	33.909	1.916			
	Group * Intervention Stages	714.150	1.0	714.150	423.648	0.934	0.001
	Error (Intervention Stages)	42.200	28	1.686			

The results in Table 2 indicate that the analysis of variance for the within-subjects factor (time) and the between-subjects factor is significant. These results mean that considering the effect of the group, the effect of time alone is significant. The significant F value and p value (0.001) indicate that the interaction between group

membership and intervention stages significantly affects life satisfaction and perceived stress. To determine precisely between which stages of the three-stage intervention there are differences in life satisfaction and perceived stress in the experimental group, the Bonferroni post hoc test was used.

Table 3

Bonferroni Post Hoc Test Results for Within-Subjects Comparisons

Variable	Time		Mean Difference	Standard Error	Significance
Life Satisfaction	Pre-Test	Post-Test	-7.889	2.875	
	Pre-Test	Follow-Up	-8.009	2.425	
	Post-Test	Follow-Up	-0.120	3.587	
Perceived Stress	Pre-Test	Post-Test	14.085	4.158	
	Pre-Test	Follow-Up	14.215	4.234	
	Post-Test	Follow-Up	-0.070	4.011	

The Bonferroni post hoc test results indicate a significant improvement in life satisfaction and a reduction in perceived stress from the pre-test to the post-test and follow-up stages, demonstrating the effectiveness of the mindfulness-based strengths intervention. Improvements between the post-test and follow-up stages were not statistically significant, indicating that the benefits of the intervention are sustained over time.

4. Discussion and Conclusion

This study demonstrated that mindfulness-based strengths practice training significantly affects life satisfaction and perceived stress in gifted students. Concerning the effectiveness of this intervention on life satisfaction, findings align with prior studies (Chandrasekara, 2018; Gupta & Verma, 2020; Kulandaiammal & Alafia, 2023; Lee et al., 2023). Mindfulness techniques in this intervention involve non-judgmental, indescribable, present-moment awareness of experiences within an individual's attention at a particular moment. This concept includes acknowledging and accepting these experiences. This intervention allows individuals to respond thoughtfully and reflectively rather than reactively and without contemplation, enabling better management of everyday problems (Zeidan et al., 2012). Consequently, it can be said that increased mindfulness is associated with reduced negative psychological symptoms and negative affect, and therefore, increased life satisfaction. This training, using mindfulness techniques, impacts the cognitive system and information processing by increasing awareness of the present through techniques such as focusing on breathing and the body, enhancing performance and quality of life for students (Chandrasekara, 2018).

This study also showed that mindfulness-based strengths practice training significantly reduces perceived stress in gifted students. This finding aligns with prior studies (Chandrasekara, 2018; Esmaeili et al., 2021; Gupta & Verma, 2020; Kulandaiammal & Alafia, 2023; Lee et al., 2023; Niemiec et al., 2013; Noorimoghadam & Moridi, 2022; Ritvo et al., 2021; Zeidan et al., 2012). This result can be explained by the possibility that concerns about the present and future, along with other negative life events, increase perceived stress (Ritvo et al., 2021). Mindfulness-based strengths practice training changes individuals' awareness of their thoughts, feelings, and sensations, creating a new perspective that allows gifted students to deal with them differently, such as viewing thoughts and feelings as transient events in the mind rather than accepting them as reality. This approach also develops skills that help individuals separate from dysfunctional cognitive patterns that cause disruption and chronic stress. Mindfulness offers a broad impact, from experiencing the joy of being in the present moment to achieving a lifestyle based on freedom and lightness. The primary goal of mindfulness is to provide an effective method for reducing the increasing stress and anxiety among gifted students. Additionally, mindfulness helps to reduce mental and emotional confusion and organize the minds and psyches of students (Niemiec et al., 2013).

5. Limitations & Suggestions

The main limitation of this study is its external validity, as it was conducted only on female gifted students in Mazandaran. Therefore, generalizing the results to other populations is limited. Moreover, since the sample was selected based on specific inclusion and exclusion criteria, the final sample may not represent the entire population of gifted students.

Future research should explore the effects of mindfulness-based strengths practice training on a more diverse sample, including male students and gifted students from different geographical regions and cultural backgrounds, to enhance the generalizability of the findings. Additionally, longitudinal studies are recommended to assess the long-term impact of this intervention on life satisfaction and perceived stress. Researchers should also

investigate the potential mediating and moderating variables, such as emotional intelligence and resilience, to better understand the mechanisms through which mindfulness-based strengths practice exerts its effects. Furthermore, comparative studies examining the efficacy of different mindfulness-based interventions across various psychological outcomes in gifted populations would provide valuable insights.

The findings of this study underscore the importance of incorporating mindfulness-based strengths practice training into the curriculum and extracurricular activities of schools, particularly for gifted students who face unique psychological challenges. Educators and school psychologists should receive training in delivering these interventions to support the mental health and well-being of gifted students. Policymakers should consider funding and promoting mindfulness-based programs within educational settings to foster a supportive environment that nurtures both academic and psychological development. Additionally, creating awareness among parents about the benefits of mindfulness-based strengths practice can encourage a more holistic approach to their children's education and well-being.

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. This research was conducted with ethical code IR.IAU.SARI.REC.1401.253 issued by the Biomedical Research Ethics Committee of Islamic Azad University, Sari Branch, and clinical trial code IRCT20230306057632N1. All participants received information about the research process and were assured of the confidentiality of their information, which would only be used for research purposes. Participants, aware that participation was voluntary and they could withdraw from the study at any time, completed and signed the informed consent form.

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.

Authors' Contributions

All authors equally contributed in this article.

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