

Research Paper



Mitigating Anxiety and Emotional Dysregulation in Physical Education Teachers: A Growth Mindset Intervention

Ali Jalili-Shishavan^{1*}, Farahnaz Jalili-Shishavan²

1. Assistant Professor, Department of Sport Psychology, Institute of Physical Education, Allameh Tabataba'i University, Tehran, Iran.

2. Department of Educational Psychology, University of Tabriz, Tabriz, Iran.

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Abstract

Introduction and Objective: Physical education teachers encounter distinctive professional challenges—including physical demands, the management of group dynamics, and performance-related pressures—which can precipitate occupational anxiety, emotional dysregulation, and diminished mental vitality. This study aims to investigate the efficacy of an educational intervention grounded in Dweck's (2006) growth mindset theory in alleviating anxiety, enhancing emotional regulation, and fostering mental vitality among this professional cohort.

Research Methodology: This study employed a quasi-experimental design with pretest, posttest, and two-month follow-up assessments, including a control group. The sample comprised 3030 male secondary school physical education teachers in Tabriz (2023), selected through purposive sampling and assigned to experimental and control groups ($n=15$ per group; mean age = 38.2 years; mean teaching experience = 8.8 years). Instruments included the Beck Anxiety Inventory ($\alpha=0.87$), the Difficulties in Emotion Regulation Scale ($\alpha=0.89$), and the Mental Vitality Questionnaire ($\alpha=0.86$). The experimental group underwent a 6-session growth mindset training intervention. Data were analyzed using mixed multivariate analysis of variance and the Bonferroni post hoc test.

Findings: The results demonstrated that the intervention significantly reduced anxiety (from 42.86 to 19.53) and emotional dysregulation (from 114.5 to 66.60), while significantly increasing mental vitality (from 23.66 to 31.073) ($p<0.001$). Furthermore, these improvements remained stable during the follow-up period, with effect sizes (η^2) of 0.83 for anxiety, 0.69 for emotional dysregulation, and 0.43 for mental vitality.

Conclusion: These findings suggest that a growth mindset intervention represents an effective, low-cost, and sustainable strategy for mitigating burnout and enhancing mental health among physical education teachers. Therefore, integrating this program into in-service training is recommended. Such an initiative could not only elevate teaching quality by fostering more resilient and engaged educators but also indirectly contribute to a more supportive learning environment, potentially aiding in the prevention of mental health challenges for students.

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***Corresponding author:** Ali Jalili-Shishavan

Address: Department of Sport Psychology, Institute of Physical Education, Allameh Tabataba'i University, Tehran, Iran.

Tell: +989129009563

Email: jaliliali59@atu.ac.ir

Introduction

In the dynamic landscape of modern education, physical education (PE) teachers serve a pivotal role in shaping the physical and mental well-being of the next generation. This professional cohort is tasked not only with imparting motor skills, physical fitness, and sports culture but also with navigating a complex terrain of student emotions, classroom competition, parental expectations, and organizational pressures. These persistent challenges often precipitate high levels of occupational anxiety, emotional dysregulation—the impaired ability to identify, understand, and modulate emotional responses—and diminished mental vitality, characterized by a decline in psychological energy and motivation within the work environment (von Haaren-Mack et al., 2020). Empirical evidence indicates that PE teachers experience higher rates of emotional burnout and performance anxiety compared to their counterparts in other disciplines, largely because their work is inherently physical, dynamic, and defined by high-stakes, real-time interactions (Malapad, 2024; Alsalhe et al., 2021).

The central issue is a critical paradox: while PE teachers are instrumental in promoting student mental health, they often lack adequate psychological support themselves. Chronic anxiety can impair pedagogical decision-making and reduce teaching quality, potentially leading to job attrition. Similarly, emotional dysregulation may result in disproportionate reactions to student behavior, fostering classroom conflict and eroding professional self-efficacy. Ultimately, diminished mental vitality can trigger a cycle of chronic fatigue, demotivation, and performance decline, which adversely affects not only the educator but the entire educational ecosystem (Miller, 2024).

These challenges are frequently exacerbated in developing countries, where educational resources are constrained and sociocultural pressures are more pronounced (Atilola et al., 2020).

The theoretical framework of this investigation is grounded in Carol Dweck's growth mindset theory (Dweck, 2006, 2019). This theory posits that individuals who perceive their abilities as malleable—believing they can be developed through effort, learning, and perseverance (a growth mindset)—demonstrate greater resilience, experience less anxiety, and exhibit higher intrinsic motivation than those who view abilities as fixed and innate (a fixed mindset). This framework is directly pertinent to the variables under examination. Regarding anxiety, a growth mindset reframes failure as a learning opportunity rather than an indictment of identity, thereby mitigating performance pressure and significantly reducing anxiety (Thomas et al., 2019). Interventions have been shown to reduce exam and occupational anxiety by as much as 25% (Mahamud et al., 2021). In terms of emotional regulation, a growth mindset enhances emotional self-efficacy and promotes active coping strategies, enabling individuals to process negative emotions more constructively and avoid maladaptive avoidance tactics (Skymba et al., 2022; Yeager et al., 2019). Furthermore, mental vitality—a composite of psychological energy, intrinsic motivation, and a sense of purpose—is fortified by the positive feedback loop of effort, success, and satisfaction inherent in a growth mindset. Research has consistently linked a growth mindset in teachers to increased mental vitality and reduced job burnout (He et al., 2021; Jalili Shishavan, 2025a).

Despite robust evidence supporting the benefits of a growth mindset across various populations, a significant lacuna exists in the literature concerning PE teachers. The majority of studies have focused on students or educators in traditional academic disciplines, largely overlooking the unique professional context of PE teachers, which involves high-stress physical environments, management of large and energetic groups, and navigating the immediate outcomes of sports competitions (Miller, 2024). Moreover, existing interventions have seldom been specifically tailored to concurrently reduce anxiety, improve emotional regulation, and enhance mental vitality within this specialized professional group (Jiang et al., 2024; Jalili Shishavan, 2025b).

The imperative for this research is threefold. First, the mental health of PE teachers directly influences their educational efficacy and their capacity to foster well-being in students. Second, this study can inform the development of cost-effective, evidence-based in-service training programs designed to bolster teacher resilience. Third, by addressing the high rates of burnout, these findings can contribute to national educational policies aimed at retaining a high-quality teaching workforce. By filling the identified research gap, this study not only advances psychological science but also offers a practical pathway toward enhancing the mental health of the educational community. This context, therefore, leads to the primary research question:

To what extent does a tailored growth mindset-based intervention mitigate occupational anxiety and emotional dysregulation, while enhancing mental vitality, among physical education teachers?

Methodology

This study employed a quasi-experimental design featuring a pretest-posttest structure, a control group, and a two-month follow-up assessment. The target population comprised all male secondary school physical education teachers in Tabriz during 2024. From this population, a sample of 30 teachers was selected using purposive sampling.

The participants were divided equally into an experimental group ($n = 15$) and a control group ($n = 15$). The participants' mean age was 38.2 years ($SD = 8.8$), and their mean teaching experience was 10 years ($SD = 5.9$). Regarding educational background, 18 participants held a bachelor's degree, and 12 held a master's degree.

The following instruments were used:

Beck Anxiety Inventory (BAI): The BAI is a 21-item self-report scale that measures the severity of anxiety. Each item is rated on a 4-point scale ranging from 0 (“Not at all”) to 3 (“Severely, I could barely stand it”). In the current study, the Cronbach’s alpha for the BAI was 0.87. Previous research in Iran has established its reliability, with Kaviani and Mousavi (2008) reporting a Cronbach’s alpha of 0.92 and a one-week test-retest reliability of 0.75.

Difficulties in Emotion Regulation Scale (DERS): The DERS (Gratz & Roemer, 2004) is a 36-item self-report measure designed to assess difficulties in emotion regulation across multiple dimensions, including awareness, acceptance, and access to strategies. Items are rated on a 5-point Likert scale from 1 (“Almost never”) to 5 (“Almost always”). In this study, the scale demonstrated high internal consistency with a Cronbach’s alpha of 0.89, consistent with prior research by Hosseini et al. (2009), who reported an alpha of 0.92.

Subjective Vitality Scale: This 7-item scale (Ryan & Frederick, 1997) measures trait-level energy and enthusiasm for life. Items are rated on a 7-point Likert scale. The scale has been validated in Iran, with Abolghasemi (as cited in Seddiqi, 2013) reporting a Cronbach’s alpha of 0.85. The Cronbach’s alpha for this scale in the present study was 0.86.

Results

Table 1 shows the mean and standard deviation of the variables of anxiety, emotional dysregulation, and mental vitality in the participants of the control and experimental groups across the three stages: pretest, posttest, and follow-up.

Table 1. Mean and Standard Deviation of the Studied Variables for Control and Experimental Groups Across Three Stages: Pretest, Posttest, and Follow-up

Variable	Group	Pretest	SD	Posttest	SD	Follow-up	SD
Anxiety	Control	42.13	1.27	41.07	1.32	42.33	1.32
	Experimental	42.86	1.32	20.46	1.01	19.53	0.99
Emotional Dysregulation	Control	115.53	3.54	114.80	3.57	115.00	3.67
	Experimental	114.51	3.51	77.80	1.12	66.60	2.04
Mental Vitality	Control	23.60	1.30	23.97	1.31	23.93	1.44
	Experimental	23.66	1.21	34.33	1.13	31.07	0.78

Table 2 shows the Shapiro-Wilk index (significance level) for the variables of anxiety, emotional dysregulation, and mental vitality in the participants of the control and experimental groups across the three stages: pretest, posttest, and follow-up.

Table 2. Shapiro-Wilk Index for Anxiety, Emotional Dysregulation, and Mental Vitality Variables in Control and Experimental Group Participants Across Three Stages: Pretest, Posttest, and Follow-up

Variable	Group	Statistic	df	Sig. Level
Pretest Anxiety	Control	.917	15	.175
	Experimental	.934	15	.308
Pretest Emotional Dysregulation	Control	.954	15	.595
	Experimental	.954	15	.595
Pretest Mental Vitality	Control	.976	15	.931
	Experimental	.960	15	.684
Posttest Anxiety	Control	.954	15	.595
	Experimental	.935	15	.321
Posttest Emotional Dysregulation	Control	.964	15	.756
	Experimental	.936	15	.340
Posttest Mental Vitality	Control	.984	15	.990
	Experimental	.922	15	.208
Follow-up Anxiety	Control	.938	15	.361
	Experimental	.909	15	.132
Follow-up Emotional Dysregulation	Control	.959	15	.678
	Experimental	.953	15	.565
Follow-up Mental Vitality	Control	.977	15	.941
	Experimental	.923	15	.212

Table 2 summarizes the results of the Shapiro-Wilk test for the variables of anxiety, emotional dysregulation, and mental vitality in the control and experimental groups across the pretest, posttest, and two-month follow-up stages. All p-values (from 0.132 to 0.990) are greater than 0.05, confirming the hypothesis of data normality in both groups and all evaluation stages. These findings justify the use of parametric tests such as mixed multivariate ANOVA and enhance the validity of the study's inferential conclusions regarding the intervention effects.

Table 3. Levene's Test, M-Box, and Mauchly's Test for Homogeneity of Variances for Anxiety, Emotional Dysregulation, and Mental Vitality Variables

Variable	Levene's Test		M-Box		Mauchly's W	
	F	p	M	F	W	χ^2
Anxiety	2.44	0.129	56.134	8.26	0.946	1.48
Emotional Dysregulation	1.54	0.224	132.63	19.51	0.933	1.86
Mental Vitality	0.192	0.66	67.71	9.96	2.073	0.93

The contents of Table 3 and the results of Levene's test, used to examine the homogeneity of variances of the research variables, showed that the variances of anxiety, emotional dysregulation, and mental vitality were homogeneous. Therefore, the prerequisite for homogeneity of variances was met. The M-Box test and Mauchly's test of sphericity were also used to examine the homogeneity of variance-covariance matrices, and the results for all three variables—anxiety, emotional dysregulation, and mental vitality—were not significant ($p > 0.05$). Therefore, this prerequisite was also met.

The results of the mixed multivariate analysis of variance test for comparing the two groups on the variables of anxiety, emotional dysregulation, and mental vitality across the three stages—pretest-posttest and follow-up—are reported in Table 4.

Table 4. Results of Mixed Multivariate Analysis of Variance for Comparing Two Groups on Anxiety, Emotional Dysregulation, and Mental Vitality Variables Across Three Stages: Pretest-Posttest and Follow-up

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Anxiety	Time	2714.86	2	1357.43	141.81	0.001	0.83
	Group	4551.11	1	4551.11	95.58	0.001	0.77
	Time * Group	2534.42	2	1267.21	132.38	0.001	0.83
Emotional Dysregulation	Time	10119.08	2	5059.54	64.61	0.001	0.70
	Group	18232.90	1	18232.90	56.15	0.001	0.66
	Time * Group	9603.80	2	4801.90	64.17	0.001	0.69
Mental Vitality	Time	455.46	2	227.73	22.36	0.001	0.44
	Group	804.011	1	804.011	17.53	0.001	0.38
	Time * Group	441.68	2	220.84	21.69	0.001	0.43

Based on the findings obtained in Table 4, the difference between the scores of the anxiety variable across the three stages of pretest, posttest, and follow-up is significant ($p < 0.05$). Also, the difference between the scores of the emotional dysregulation variable across the three stages of pretest, posttest, and follow-up is significant ($p < 0.05$). In addition, the difference between the scores of the mental vitality variable across the three stages of pretest, posttest, and follow-up is also significant ($p < 0.05$). The results showed that 77%, 66%, and 38% of the individual differences in the variables of anxiety, emotional dysregulation, and mental vitality, respectively, are related to the difference between the experimental and control groups, and these values are significant. In addition, the interaction between the research stages and group membership is also significant in all research variables ($p < 0.05$). In other words, it can be said that the difference between the scores of the research variables across the three stages of the research in the two experimental and control groups is significant. To examine the differences between the three stages of the research more precisely in order to compare the effectiveness of the growth mindset training program, the Bonferroni post-hoc test was used, and the results are presented in Table 5.

Table 5. Pairwise Comparison of Mean Scores of Anxiety, Emotional Dysregulation, and Mental Vitality Across Three Stages of the Research

Variable	Time Comparison	Mean Difference	Std. Error	Sig. Level
Anxiety	Pretest-Posttest	11.73	0.792	0.001
	Pretest-Follow-up	11.56	0.719	0.001
	Posttest-Follow-up	-0.167	0.87	0.86
Emotional Dysregulation	Pretest-Posttest	19.23	2.43	0.001
	Pretest-Follow-up	24.73	2.29	0.001
	Posttest-Follow-up	5.50	1.94	0.025
Mental Vitality	Pretest-Posttest	-5.33	0.92	0.001
	Pretest-Follow-up	-3.86	0.75	0.001
	Posttest-Follow-up	1.46	0.78	0.24

The contents of Table 5 show the results of the Bonferroni test. In the experimental group, the mean scores of anxiety and emotional dysregulation in the posttest stage compared to the pretest stage have decreased ($p < 0.05$). Also, the mental vitality scores in the posttest stage compared to the pretest stage have increased ($p < 0.05$). In addition, comparing posttest and follow-up scores in the variables of anxiety and mental vitality shows that the

difference between posttest scores and follow-up scores in the experimental group was not significant, but in terms of emotional dysregulation, there was a greater decrease. Overall, these results confirm the effectiveness of the intervention in reducing anxiety and emotional dysregulation and increasing mental vitality.

Discussion and Conclusion

The findings of the present study, based on a rigorous quasi-experimental design with pretest, posttest, and a two-month follow-up, vividly illustrate the remarkable effectiveness of a growth mindset-based educational program in reducing occupational anxiety, improving emotional regulation through decreased emotional dysregulation, and enhancing mental vitality among male physical education teachers in the secondary schools of Tabriz. Multivariate analysis of variance (MANOVA) with highly significant levels ($p < 0.001$) for the main effects of time, group, and the time $\times$ group interaction across all three variables, along with large effect sizes ($\eta^2 = 0.83$ for anxiety, 0.69 for emotional dysregulation, and 0.43 for mental vitality), indicate that the intervention not only produced immediate changes but also ensured their sustainability in the two-month follow-up. These results, which fully align with the predictions of Carol Dweck's growth mindset theory (2006, 2019)—where shifting beliefs from "fixed and unchangeable talent" to "developable potential through effort and learning" is introduced as a key to cognitive-emotional transformation—can be explained from broader psychological perspectives such as James Gross's process model of emotion regulation (2015), Edward Deci and Richard Ryan's self-determination theory (2000), and Richard Lazarus's cognitive appraisal model of stress (1984). This theoretical integration not only deepens the results but also elucidates the underlying mechanisms and paves the way for practical applications within Iran's educational system.

At the core of this transformation lies the reduction in anxiety, where the experimental group's mean scores plummeted from 42.86 in the pretest to 20.46 in the posttest and 19.53 in the follow-up, while the control group exhibited only minor and nonsignificant fluctuations (from 42.13 to 41.66 and then 42.33). The Bonferroni post-hoc test, with significant mean differences (11.73 for pretest to posttest, $p < 0.001$; and 11.56 for pretest to follow-up, $p < 0.001$) and no difference in the follow-up ($p = 0.86$), confirms the sustainability of this reduction. From Dweck's perspective, a growth mindset reframes professional failures—such as students' setbacks in sports competitions or parental criticisms—from "identity threats" to "learning opportunities," breaking the cycle of chronic anxiety in sports teachers, whose work environment is rife with momentary and physical pressures (Lee, 2022). This reframing activates brain neuroplasticity and reconstructs neural pathways associated with fear (such as amygdala hyperactivity), as meta-analyses by Shen et al (2025) have reported a 20-30% reduction in occupational anxiety among general teachers. For deeper explanation, Lazarus's model (1984) comes into play: anxiety arises from primary appraisal of threats, where stressful events like managing energetic classes are interpreted as "uncontrollable harm." A growth mindset transforms secondary appraisal, directing individuals toward problem-focused coping—for instance, striving to improve teaching techniques rather than avoiding challenges—which, in sports teachers facing high risks of public failures, converts performance anxiety into positive excitement. Schroder (2020) demonstrated in her fMRI study that such interventions reduce amygdala activity and bring cortisol to adaptive levels, explaining the effects' persistence in the follow-up and suggesting that this program could serve as a psychological vaccine against burnout.

This anxiety reduction, in turn, overlaps with improved emotional regulation, where emotional dysregulation (measured by DERS) dropped from 114.51 to 77.80 in the posttest and 66.60 in the follow-up, with significant paired differences across all stages (19.23 for pretest to posttest, $p < 0.001$; 24.73 for pretest to follow-up, $p < 0.001$; and even 5.50 for posttest to follow-up, $p = 0.025$), indicating a gradual and ongoing learning process. Dweck (2006) attributes this to processing negative emotions as "growth signals" rather than fixed barriers, aligning with Gross's model (2015): emotion regulation is a temporal hierarchy, from selecting learning-oriented situations (such as reviewing classroom failures) to cognitive regulation (reappraisal, like viewing student anger as an opportunity for empathy). In this study's educational program, exercises such as emotion journaling and role-playing high-stress scenarios enhanced emotional awareness and steered away from avoidant strategies, which is vital for sports teachers confronting intense group emotions. Yeager et al. (2019) reported in their national experiment that growth mindset interventions increase reappraisal by 15-20%, and Lysova et al (2019) linked this to enhanced emotional self-efficacy in adolescents; however, here, cultural localization (emphasizing effort in Iranian values) created greater sustainability. Self-determination theory (SDT) by Deci and Ryan (2000) adds another layer: dysregulation often stems from violations of basic needs (autonomy, competence, relatedness); organizational pressures threaten competence, but a growth mindset renders it "developable," shifting from emotion suppression to active processing. This combination not only reduced dysregulation but also created a positive cycle that stabilized anxiety, suggesting that booster sessions could accelerate this trend.

Finally, the increase in mental vitality—from 23.66 to 34.33 in the posttest and 31.066 in the follow-up, with significant differences from pretest to posttest ($-5.33, p < 0.001$) and pretest to follow-up ($-3.86, p < 0.001$), but stability in the follow-up ($p = 0.24$)—completes this transformation. Through this process, psychological energy, intrinsic motivation, and a sense of meaning in work (measured by Ryan and Frederick's scale, 1997) were strengthened. Dweck (2019) describes this phenomenon as a progressive cycle encompassing effort, learning,

success, and satisfaction. This framework shifts attributions from being talent-based to effort-based, effectively mitigating chronic fatigue in physical education teachers (Miller, 2024). SDT (Deci & Ryan, 2000) explains that vitality arises from fulfilling needs for autonomy (choosing personal classroom strategies) and competence (a sense of progress in group management); a growth mindset prioritizes intrinsic goals (such as "professional growth") over extrinsic ones (organizational satisfaction), which Van den Broeck et al (2016) associated with an 18% increase in vitality. Blascovich and Mendes's model (2010) further adds that this mindset converts physiological responses to challenges (such as positive cortisol increases) into energy rather than exhaustion, justifying the follow-up persistence and illustrating how the intervention turns the burnout cycle into a growth cycle.

This overall sustainability of effects, evident in the two-month follow-up, speaks to the transfer of learning to real life and aligns with neuroplasticity (Dweck, 2019), although the continued decline in dysregulation suggests booster sessions. From a research gap perspective, this study is the first to examine growth mindset in Iranian sports teachers, focusing on physical and cultural stresses (such as emphasis on perseverance in Islamic-Iranian culture), unlike Western studies centered on students or theoretical teachers (Sisk et al., 2018). Localized instruments and longitudinal follow-up enhanced ecological validity, but limitations include a small sample (30 Tabrizi males), lack of mediator examination (social support), and short follow-up. Future studies are recommended with larger, gender-diverse samples, broader geographic areas, and longitudinal tools (such as EMA for daily emotions), and the intervention should be combined with organizational programs (reducing workload).

In conclusion, the growth mindset educational program, as a short-term, low-cost, and sustainable intervention, dramatically reduces anxiety and dysregulation while increasing vitality, occurring through changes in cognitive appraisals (Lazarus), emotional strategies (Gross), and need fulfillment (Deci-Ryan). These findings provide a foundation for incorporating it into in-service training, transforming professional challenges into growth opportunities, and ensuring the mental health of teachers—and ultimately the younger generation. National expansion of this approach could break the cycle of educational burnout and elevate educational psychology to a practical and transformative level.

Ethical Considerations

All ethical principles have been considered in this article.

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Conflict of Interest

The authors of this article declare that they have no conflict of interest.

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