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STUDYING THE EFFECT OF POSITIVE THINKING ON TEST ANXIETY AND PERCEPTION OF CLASSROOM ENVIRONMENT

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ABSTRACT

Test anxiety and perception of the classroom environment are related to academic performance. This study aimed to investigate the effect of positive thinking on test anxiety and perception of the classroom environment in Sarab, Iran. A randomized clinical trial was conducted on 90 individuals. The intervention group received eight 90-minute sessions of positive thinking training. A demographic questionnaire, the Sarason's Test Anxiety Questionnaire, and questionnaire of the students' perceptions of the classroom were used. Data were analysed using SPSS-v21. Test anxiety of the intervention group was 63.52 at the pre-test which reduced to 47.26 at post-test ($p < 0.001$). Also, the perception of the classroom environment increased from 97.06 to 101.04 after the intervention ($p < 0.001$). However, there were no such significant changes among the control group ($p > 0.05$). It is recommended to employ psychological and counselling services to decrease test anxiety and also promote the perception of the classroom environment.

Keywords
Positive thinking, test anxiety, perceptions of classroom environment, middle school students.

Introduction

Test anxiety is a phenomenon experienced by test-takers in all socio-economic groups around the world; it is shared mostly among females and is the most common fear in young people (Orbach et al., 2007). It disturbs between 25-30% of students comprising those with learning difficulties (e.g. McDonald, 2001; Wachelka & Katz, 1999; Zeidner, 1998). Avoiding test anxiety altogether is rarely possible (e.g. Zeidner, 1998). Students with high test anxiety perform poorly compared to others (e.g. Hembree, 1988); however, it is unclear what is the exact cause and effect of test anxiety (e.g. Cassady & Johnson, 2002; Hembree, 1988; Seipp, 1991). If test anxiety does affect poor performance, while many organizations utilize tests for different means, the result of such tests might affect the destiny of their candidates.

Nonetheless, whatever the causal relationship may be, numerous students consider anxiety an impairment to test-taking (e.g. Hong & Karstensson, 2002). "Test anxiety has been regarded ubiquitously as a continuous variable rather than a discrete diagnostic category, present or absent" (Zeidner, 1998). Hence, in that sense, it relates to high levels of anxiety.

"Functionally impairing levels of test anxiety defined as an excessive fear of poor performance and resulting negative self-evaluations before, during, and/or after test situations" (Brown et al., 2011) are very common among adults (prevalence: 20-35%) (e.g. Naveh-Benjamin et al., 1997; Zeidner, 1998) and children (prevalence: 40%) (e.g. Beidel et al., 1994; Herzer et al., 2015; McDonald, 2001). A recent study revealed that "clinical levels of performance fear can be reliably discriminated from non-clinical levels of test-anxiety" (Herzer et al., 2014).

The classroom environment has long been a common topic of discussion among academic researchers and teachers with an aim to enhance student performance (e.g. Ramli et al., 2014). Currently, more than 35 students study in every

urban classroom. In some cases, the number rises to 45-50 students in each class (Ramli et al., 2013). The growing rate of student numbers in each classroom causes inconvenience for both students and teachers. while few studies have addressed the classroom physical environment, yet, some scholars devote a section of their research to the classroom physical environment and its effect on student performance (e.g. Razak, 2006; Shoba & Karuppaya, 2007).

It is obvious that test anxiety and perception of the classroom physical environment influences the students' school performance. Some studies have emphasized on controlling test anxiety and increasing perception of the classroom physical environment (e.g. Orbach et al., 2007; Ramli et al., 2014).

Despite many studies conducted on how to reduce test anxiety and to increase perceptions of the classroom environment, no study has been carried out using positive thinking instruction.

Positive thinking is defined as a cognitive process that aids people to deal with problems more efficiently and has shown to be a valued approach in countering hardship as well as depression (e.g. Bekhet & Zauszniewski, 2013; Tod et al., 2011). Positive thinking is related to lower depression, higher quality of life, less burden, more life satisfaction, and better psychological and physical well-being (e.g. Appold, 2009; Bekhet et al., 2012; Bekhet & Zauszniewski, 2013; Dekker et al., 2009; Jung et al., 2007; Lightsey Jr & Boyraz, 2011; Zauszniewski et al., 2009). Moreover, "positive thinking was found to have mediating effects on the relationship between caregiver's depression and their children's challenging behaviors" (Bekhet, 2016).

On the one hand, the evidence suggests that students' test anxiety is high and that they have poor perceptions of the classroom environment . On the other hand, the hypothesis is that positive thinking affects test anxiety and perception of the classroom environment. Therefore, the aim of this study was to investigate the effect of positive thinking on test anxiety and perception of the classroom environment.

Method

A randomized clinical trial study was carried in Sarab city, Iran. Ethical approval was obtained from the Ethical Committee of Research Vice-Chancellor of Tabriz University of Medical Sciences [IR.IAU.TMU.REC.1396.20]. Also, this study was registered in Iranian Registry of Clinical Trials (IRCT) by the code of [IRCT20180114038367N1].

Participants

The research population included 90 female students selected through the multi-stage random cluster sampling from public and private middle schools. With respect to demographic characteristics, research samples were in the age range 16-17 years old (34.4%; n=31), among which 47.7% (n=43) of participants were in grade 12; 45.5% (n=41) studied mathematics; 52.2% (n=52) of the participants were selected from public schools with mean academic scores of 14-16 on a scale of 20 (28.8%; n=26); 62.2% (n=56) were supervised by their fathers; 25.5% (n=23) of caregivers were civil servants, and 43.3% (n=26) of the samples' mothers were housewives; 34.4% (n=31) of the samples' fathers and 34.4% (n=31) of mothers possessed college degrees; 35.5% (n=32) earned 10-20 million IRR with 58.8% (n=53) of them belonging to low-income families; 32.2% (n=29) of the participants lived in 3-people families among which 50.0% (n=45) of the families had more than two brothers and sisters, and 52.2% (n=47) worked outside of school

Measures and materials

Research samples were randomly assigned into two equal control and intervention groups (n=45). Test anxiety and perception of classroom environment were measured using Sarason's Test Anxiety Questionnaire and *the Gentry et al., (2002)* perception of classroom environment questionnaire, respectively.

Scoring the Sarason's Questionnaire is as simple as counting the total number of "True" checks, which gives you your test anxiety score. A score of 12 or lower is considered a low test anxiety range. A score between12-20 is considered a medium-range, and any score above 20 indicates a high level of test anxiety, whilst scoring 15 or greater is an indication of experiencing significant anxiety when taking tests. A high level of test anxiety score should not be taken as an alarm.

Scoring in the medium to high range signifies that acquiring stress anxiety coping strategies would be beneficial (Sarason, 1980).

The Gentry et al., questionnaire of the perception of the classroom was employed to evaluate student perceptions of interest, challenge, choice, and enjoyment, which are aspects visibly associated by different studies to both motivation and learning (e.g. Ames, 1992; Csikszentmihalyi, 1990; Deci & Ryan, 1985; Schiefele, 1991; Vygotsky, 1962). By assessing schools and classrooms from the students' viewpoints, researchers could gain insight into how students observe their classroom activities, teaching, and school curriculum. Such opinions could be addressed when attempting to enhance the sense of achievement and enthusiasm in students, and on a larger perspective, improving schools. Assessing classroom activities based on student perspectives are rarely reflected in educational studies, school improvement programs, and teaching assessments.

Validity & reliability of the questionnaires

Validity of the original version of the Sarason's Test Anxiety Questionnaire has been verified by Spada et al., (2006). The localized version has been verified using content validity by Sahebazamani and Zirak (2011). To measure perceptions of classroom environment, the Gentry et al., questionnaire of perceptions of the classroom activities was applied. The reported confirmatory factor analysis index in the original model (RMSEA=0044, GFI=0.95) demonstrated the questionnaire's validity (Gentry et al., 2002). Rashidi et al., (2015) also verified the scale validity through factor analysis method. According to factor analysis assumptions, it is revealed that KMO sampling adequacy equals 0.81.

Reliability of the test anxiety scale in Sayin (2015) was obtained 0.84 using Cronbach's alpha. Ramezani et al., (2016) reported an internal consistency reliability coefficient of 0.91 using split-half method and test-retest coefficient of 0.82 following six weeks. The Gentry et al., questionnaire of the perceptions of the classroom environment reported a Cronbach's alpha coefficient of 0.66-0.87. Alpha coefficients for interest (0.83), challenge (0.63), selection (0.70) and pleasure (0.87) subscales, as well as total scale 0.89 have been obtained by Hejazi et al., (2015).

Data collection & statistical analysis

Once both groups completed the pre-test questionnaires, the intervention group underwent eight sessions of 90-minute positive thinking instruction, while the control group received no intervention. Upon completion of the positive thinking instruction sessions, the questionnaires were redistributed to both groups. Data normality was verified and confirmed using the Kolmogorov–Smirnov test ($p>0.05$). The collected data were analyzed via analysis of covariance (ANCOVA) using SPSS-v21 software to study the effect of positive thinking skills on test anxiety and perception of classroom environment.

Results

The pre-test/post-test results of measuring test anxiety and perceptions of the classroom environment are shown in tables 1 and 2, respectively. According to the results, test anxiety of intervention group at pre-test was 63.52, which reduced to 47.26 following the treatment by positive thinking instruction. In addition, perception of classroom environment also increased from 97.06 up to 101.04 among the intervention group. In the control group, test anxiety level decreased from 49.87 to 49.10 and perception of the classroom environment also changed from 94.94 to 94.87.

Table 1: Mean and standard deviation of test anxiety and perception of the classroom environment at pre-test stage

Factor	Group	Number	Mean	Standard deviation
Test anxiety	Intervention	45	63.52	4.85
	Control	45	49.87	4.34
Perception	Interventi	45	97.0	19.58

of the classroom environment	on		6	
	Control	45	94.94	7.19

Table 2: Mean and standard deviation of test anxiety and perception of the classroom environment at post-test stage

Factor	Group	Number	Mean	Standard deviation
Test anxiety	Intervention	45	47.29	0.774
	Control	45	49.10	0.746
Perception of the classroom environment	Intervention	45	101.04	0.833
	Control	45	94.80	1.202

Results demonstrate that changes in the intervention group are larger than the control group. To study the significance of positive thinking instruction on test anxiety and perception of classroom environment, the results of ANCOVA are presented in tables 3 and 4.

Table 3: Results of the Analysis of Covariance (ANCOVA) to compare the effect of positive thinking instruction on test anxiety

Change source		Sum of squares	df	F	Effect size	Sig.
Test anxiety	Intervention	942.488	1	61.732	0.415	0.000
	Control	963.231	1	63.090	0.420	0.000

According to Table 3 and regarding the significance level (P ≤0.01), test anxiety significantly decreased in the intervention group (by positive thinking instruction) compared to the control group. Moreover, Eta also uncovered that 41% of total variance of test anxiety scores can be explained by positive thinking instruction.

Table 4: Results of the Analysis of Covariance ANCOVA to compare the effect of positive thinking instruction on the perception of the classroom environment

Change source		Sum of squares	df	F	Effect size	Sig.
Perception of the classroom environment	Intervention	3439.552	1	35.096	0.287	<0.001
	Control	13237.546	1	135.073	0.608	<0.001
Interest	Intervention	158.792	1	2.847	0.456	0.907
	Control	2578.046	1	1162.698	0.931	<0.001
Challenge	Intervention	116.705	1	41.291	0.322	<0.001
	Control	3591.524	1	1268.807	0.936	<0.001
Selection	Intervention	1239.944	1	23.289	0.211	<0.001
	Control	39.847	1	724.694	0.893	<0.001
Pleasure	Intervention	20.051	1	15.054	0.943	<0.001
	Control	1900.223	1	1426.642	0.148	<0.001

According to Table 4 and regarding the significance by P≤ 0.01, perception of the classroom environment significantly increased in the intervention group following positive thinking instruction compared to the control group. In addition, Eta square also showed that 28% of perception of classroom environment score total variance can be explained by positive thinking instruction. Further, 45% of the total variance is due to the interest component; 32% of total variance comes from the challenge component; and 21% and 94% of the total variances are attributed to the components of selection and pleasure, respectively.

Discussion

The main purpose of the present study was to investigate the effect of positive thinking instruction on test anxiety and the perception of the classroom environment among female middle school students. Research results showed that following positive thinking instruction, the mean of test anxiety score was reduced from 63.52 to 47.26 in the intervention group indicating that positive thinking instruction treatment has reduced students' test anxiety in the intervention group. Among the factors of effectiveness of metacognitive interventions on test anxiety is challenge recognition with positive and negative metacognitive beliefs related to anxiety. Most individuals suffering from test anxiety take a

negative perspective regarding the test positioning it as dangerous and unmanageable; while some adopt a positive view to the worrying thoughts as such stresses may make them ready for the examination. The results of the present research are consistent with Fallahi and Asadi (2016), Shoshani and Steinmetz (2014), as well as Eagleson et al., (2016) diminishing participants' anxiety using psychological methods. In other words, consistent with the present research's findings, negative thinking, and negative emotions are effective factors on test anxiety. Moreover, they are also consistent with this study in terms of instruction intervention (positive self-talk).

The results of ANCOVA showed that positive thinking instruction was effective and led to enhanced perception of the classroom environment. Brausch (2011), Hassanniya and Fouladchang (2015) reported a strong negative relationship between academic burnout and learning environment; however, in their study, the role of instruction was ignored. The present research referred to the contribution of positive thinking instruction to increased perception of the classroom environment, which distinguishes it from other similar studies.

Hejazi et al. (2015) investigated the relationship between perception of the classroom environment and optimism with students' positive evolution. The results of the step-wise regression analysis showed that all individual and contextual variables are significantly related to students' positive evolution. Twenty-six per cent of the variance of positive evolution can be explained by the components of perception of the classroom environment and optimism. In the present study, 28% of the total variance of perception of the classroom environment scores can be explained through positive thinking instruction. The study by Hejazi et al. (2015) was a descriptive correlational study conducted using MCA perception of classroom activities questionnaire, which varies from the present study. However, the studies are consistent with respect to their sampling method (cluster sampling method) and target group (students)

It is suggested that research findings, especially controlling the level of test anxiety and coping strategies are considered insensitive students exposed to challenging situations by the educational system. In addition, measuring various subscales of perception of the classroom environment may pave the road to screening and identifying students' weaknesses and strengths. Giving instructions to students on how to deal with test anxiety and increase the perception of the classroom environment must be included in the school curriculum so that perceptions of learning environment during education, and thus, educational performance and professional achievement may be attained. It is recommended that the Sarason's Test Anxiety Questionnaire and the Gentry et al., questionnaire of the perception of the classroom environment be implemented at other school levels and for male students. The mean scores are extracted and appropriate measures are taken to improve test anxiety reduction and increase the perception of the classroom environment.

In this study, the hypothesis was "the positive thinking psychology-based instruction has an effect on the test anxiety and perception of classroom environment among female middle school students". In this regard, the results showed a positive effect of training positive thinking on reducing test anxiety. Also in the field of perception of the classroom environment, the findings of the present study showed that by using and teaching positive thinking instructions, the situation of perception of the classroom environment can be improved. Therefore, recommending positive thinking training as an uncomplicated and applicable approach to improve the situation of test anxiety and perception of the classroom environment, two of the most influential variables on the academic performance of students, seems logical.

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Conflict of interest

All authors declare no competing interests.

Authors' contributions

MS and LFM: did the literature review. SF, MS, and LFM: design and development of study. SF

and LFM: implement intervention and data collection. MS and LFM: data analysis. SF, MS, and LFM: writing of manuscript. All authors read and approved the final manuscript.

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References

[1] Ames, C. (1992). Achievement goals and the classroom motivational climate. Student Perceptions in the Classroom, 1, 327-348.

[2] Appold, K. (2009). Overcoming challenges: The power of positive thinking. American Medical Technologists Events, 72, 108.

[3] Beidel, D. C., et al. (1994). Test anxiety and childhood anxiety disorders in African American and White school children. Journal of Anxiety Disorders, 8(2), 169-179.

[4] Bekhet, A. K. (2016). The mediating effects of positive cognitions on autism caregivers' depression and their children's challenging behaviors. Archives of Psychiatric Nursing, 30(1), 13-18.

[5] Bekhet, A. K., et al. (2012). Resilience in family members of persons with autism spectrum Disorder: A Review Of The Literature. Issues In Mental Health Nursing, 33(10), 650-656.

[6] Bekhet, A. K., & Zauszniewski, J. A. (2013). Measuring use of positive thinking skills: Psychometric testing of a new scale. Western Journal of Nursing Research, 35(8), 1074-1093.

[7] Brausch, B. D. (2011). The role of mindfulness in academic stress, self-efficacy, and achievement in college students. Eastern Illinois University.

[8] Brown, L. A., et al. (2011). A randomized controlled trial of acceptance-based behavior therapy and cognitive therapy for test anxiety: A pilot study. Behavior Modification, 35(1), 31-53.

[9] Cassady, J. C., & Johnson, R. E. (2002). Cognitive test anxiety and academic performance. Contemporary Educational Psychology, 27(2), 270-295.

[10] Csikszentmihalyi, M. (1990). Literacy and intrinsic motivation. Daedalus, 119(2), 115-140.

[11] Deci, E., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. Springer Science & Business Media.

[12] Dekker, R. L., et al. (2009). Living with depressive symptoms: Patients with heart failure. American Journal of Critical Care, 18(4), 310-318.

[13] Eagleson, C., et al. (2016). The power of positive thinking: Pathological worry is reduced by thought replacement in Generalized Anxiety Disorder. Behaviour Research and Therapy, 78, 13-18.

[14] Fallahi, M., & Asadi, E. (2016). The effectiveness of positive thinking and praying on anxiety and depression among 17-19 year olds. Knowledge & Research in Applied Psychology, 17(3), 118-125.

[15] Gentry, M., et al. (2002). Students' perceptions of classroom activities: Are there grade-level and gender differences? Journal of Educational Psychology, 94(3), 539-544.

[16] Hassanniya, S., & Fouladchang, M. (2015). The relationship between learning environment and academic burnout through mind consciousness mediation: Structural modeling. Evolutionary Psychology, 12(4), 63-71.

[17] Hejazi, E., et al. (2015). The relationship between perception of classroom environment and optimism with positive evolution among students. Journal of Psychology, 19(2), 189-198.

[18] Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. Review of Educational Research, 58(1), 47-77.

[19] Herzer, F., et al. (2014). Discriminating clinical from nonclinical manifestations of test anxiety: A validation study. Behavior Therapy, 45(2), 222-231.

[20] Herzer, F., et al. (2015). Discriminant validity of constructs derived from the self-regulative model for evaluation anxiety for predicting clinical manifestations of test anxiety. Behaviour Research and Therapy, 73, 52-57.

[21] Hong, E., & Karstensson, L. (2002). Antecedents of state test anxiety. Contemporary Educational Psychology, 27(2), 348-367.

[22] Jung, J. Y., et al. (2007). Positive-thinking and life satisfaction amongst Koreans. Yonsei Medical Journal, 48(3), 371-378.

[23] Lightsey Jr, O. R., & Boyraz, G. (2011). Do positive thinking and meaning mediate the positive affect—Life satisfaction relationship? Canadian Journal of Behavioural Science, 43(3), 203-213.

[24] McDonald, A. S. (2001). The prevalence and effects of test anxiety in school children. Educational Psychology, 21(1), 89-101.

[25] Naveh-Benjamin, M., et al. (1997). Individual differences in students' retention of knowledge and conceptual structures learned in university and high school courses: The case of test anxiety. Applied Cognitive Psychology: The Official Journal of the Society for Applied Research in Memory and Cognition, 11(6), 507-526.

[26] Orbach, G., et al. (2007). A randomised placebo-controlled trial of a self-help Internet-based intervention for test anxiety. Behaviour Research and Therapy, 45(3), 483-496.

[27] Ramezani, J., et al. (2016). Studying the relationship between test anxiety and academic performance of nursing and medical students. Bimonthly Scientific Research Journal of Academic Strategies in Medical Sciences, 9(5), 392-399.

[28] Ramli, N. H., et al. (2013). Improving the classroom physical environment: Classroom users' perception. Procedia-Social and Behavioral Sciences, 101, 221-229.

[29] Ramli, N. H., et al. (2014). Principals' perception on classroom physical environment. Procedia-Social and Behavioral Sciences, 153, 266-273.

[30] Rashidi, A., et al. (2015). Studying the relationship between perception of classroom environment with academic resilience. Quarterly Research Journal of Shahed University, 22(7), 189-198.

[31] Razak, A. Z. A. (2006). Characteristics of an effective school climate: Its implications for learning motivation. Jurnal Pendidikan Malaysia (Malaysian Journal of Education), 31, 3-19.

[32] Sahebazamani, M., & Zirak, A. (2011). Learning strategies of students of Isfahan University of Medical Sciences and their relationship with test anxiety level. Iranian Journal of Medical Sciences, 11(1), 58-68.

[33] Sarason, I. G. (1980). Test anxiety: Theory, research, and applications. L. Erlbaum Associates.

[34] Sayin, B. A. (2015). Exploring anxiety in speaking exams and how it affects students' performance. International Journal of Education and Social Science, 2(12), 112-118.

[35] Schiefele, U. (1991). Interest, learning, and motivation. Educational Psychologist, 26(3-4), 299-323.

[36] Seipp, B. (1991). Anxiety and academic performance: A meta-analysis of findings. Anxiety Research, 4(1), 27-41.

[37] Shoba, K., & Karuppaya, C. (2007). Factors influencing the deterioration of discipline among secondary school students in johor. Paper presented at the L Education (General) conference, Universiti Teknologi Malaysia. Retrieved from: http://eprints.utm.my/6216/http://eprints.utm.my/6216/1/discipline.pdf.

[38] Shoshani, A., & Steinmetz, S. (2014). Positive psychology at school: A school-based intervention to promote adolescents' mental health and well-being. Journal of Happiness Studies, 15(6), 1289-1311.

[39] Spada, M. M., et al. (2006). Metacognition as a mediator of the effect of test anxiety on a surface approach to studying. Educational Psychology, 26(5), 615-624.

[40] Tod, A., et al. (2011). A critique of positive thinking for patients with cancer. Nursing Standard, 25(39), 43-47.

[41] Vygotskiĭ, L. S. (2012). Thought and language. MIT press.

[42] Wachelka, D., & Katz, R. C. (1999). Reducing test anxiety and improving academic self-esteem in high school and college students with learning disabilities. Journal of Behavior Therapy and Experimental Psychiatry, 30(3), 191-198.

[43] Zauszniewski, J. A., et al. (2009). Effects on resilience of women family caregivers of adults with serious mental illness: The role of positive cognitions. Archives of Psychiatric Nursing, 23(6), 412-422.

[44] Zeidner, M. (1998). Test anxiety: The state of the art. Springer Science & Business Media.