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THE EFFECT OF GROUP-BASED EMOTIONAL SCHEMA THERAPY ON ANXIETY SENSITIVITY AND ANXIETY SEVERITY IN OUTPATIENT FEMALES WITH GENERALIZED ANXIETY DISORDER

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Abstract

Purpose: The aim of the present study was to examine the effectiveness of Group-Based Emotional Schema Therapy (GBEST) on anxiety sensitivity and anxiety severity decrease in females with Generalized Anxiety Disorder (GAD). Methods: This was a double-blind randomized experimental study that was carried out with three pretest, posttest, and follow-up stages within an experimental group and the control group. The participants were 50 outpatient females with GAD that they recruited by a random sampling method in each group. The Anxiety Sensitivity Index (ASI) and the Generalized Anxiety Disorder 7-Item Scale (GAD-7) were used in this study. The experimental group was imposed on the GBEST in 10 sessions which were held weekly for 90 minutes; finally, the post-test was applied to both experimental and control groups and three months later, they were followed up. Results: Findings showed that the experimental group had a significant decrease in anxiety sensitivity and anxiety severity compared with the control group during the post-test and the follow-up stages. Conclusions: The GBEST is recommended for the treatment of anxiety sensitivity and anxiety severity in females with GAD.

Keywords: Group-Based Emotional Schema Therapy; Anxiety Sensitivity; Anxiety Severity; Generalized Anxiety Disorder; Females.

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Introduction

Generalized anxiety disorder (GAD) is one of the most widespread mental disorders in the world (Bandelow et al., 2013; Liu et al., 2019). GAD is a common disorder with an estimated lifetime prevalence of 3.7 percent globally (Ruscio et al., 2017). The main characteristics of GAD include severe worries about several events or activities in most of the days at least for about 6 months, disturbances in social and occupational performances, difficulties in controlling anxiety, and having anxiety which is far more than what threaten situations would cause (American Psychiatric Association, 2013). The prevalence of GAD is higher among females (APA, 2013; Hantsoo, & Epperson, 2017). Some studies suggested that GAD is associated with the couple functioning into a marriage (Scott et al., 2010; Yoon et al., 2007). The GAD would cause severe interference in performance and without treatment, the odds of overcoming it are very low (Halgin & Whitbourne, 2003). In cognitive-behavioral terms, GAD results from cognitive distortions. People with GAD easily become overwhelmed by small problems of daily life, they tend to exaggerate their problems of daily life and are too nervous about its consequences. Their attention to the problem would be replaced by their own concerns, so their anxiety would rise. When anxiety begins with any cause, it becomes out of control, and anxieties and worries build up. The main problem here is the lack of individual confidence in their ability to control feelings, anxiety reactions, and the lack of confidence in the ability to manage life's responsibilities correctly (Mousavi, 2011). Overall; GAD has been the subject of numerous mental health studies; however, as Dugas et al. (2010) have argued, few of these studies have focused on this in terms of the importance of anxiety sensitivity (Lieb, Becker & Altamura 2005, Yang et al., 2021). Thus, the purpose of this study was to investigate the effectiveness of group-based emotional schema therapy (GBEST) on anxiety sensitivity in outpatients females with GAD.

Anxiety sensitivity (AS) is one of the concepts that have been the subject of many GAD studies (Rabian et al., 1993; Taylor, 2020). AS is defined as an individual cognitive-emotional difference in fear of bodily sensations and sometimes described as "fear of fear" (Reiss et al., 1986, Taylor, 1999). AS is the fear of feelings associated with anxiety when the person believes that such feelings would be a threat to his/her social, somatic, or psychological life. AS is an intense fear of body sensations related to arousal that producing from dysfunctional beliefs about the meaning and consequences of sensations (Taylor, 2020). Reiss (1991) proposed an expectation-based model whereby AS includes three fundamental concerns: injury, anxiety, and negative evaluation. AS reflects the fear of arousal-related sensations (Taylor, 1999; Taylor et al., 2007). AS is a risk factor for anxiety disorders and behavioral health problems, as well as a mechanism for change in their treatment (Gutner et al., 2013; McHugh, 2019; Otto et al., 2019; Reiss, 1991; Taylor, 2020). Studies have shown that AS would be the start of developing an anxiety disorder and

it is positively associated with anxiety symptoms (McHugh, 2019; Norton & Edwards, 2017; Otto et al., 2019; Olthuis, Watt, & Stewart, 2014). Taylor, Kash, and McNally (1992) showed that the scores on the anxiety sensitivity index (ASI) are related to anxiety disorders (Mantar, Yemez, & Alkin, 2011). Studies suggest that AS is a risk factor for the development of all types of anxiety disorders, and to a large extent it determines how individuals monitor and manage the physical, cognitive, and behavioral symptoms of their anxiety (McHugh, 2019; Capron, Kotov, & Schmidt, 2013; Otto et al., 2019). In agreement with the hypothesis of trans-diagnosis, Mohammadkhani et al. (2016) showed that AS can predict the generalized severity of anxiety, but its effect is due to repetitive negative thinking generating. They speculated that experiential avoidance and repetitive thinking, as transdiagnostic response factors, may explain the relationship between anxiety susceptibility and generalized anxiety. Benton and Allen (1996) demonstrated that AS can cause emotional excitement and heighten interpersonal distress in females. Farris et al. (2019) have shown that AS, particularly the fearful assessment of bodily sensations, is related to anxiety symptoms in females. Moreover, studies have shown that treatment of AS was positively associated with the change in the severity of anxiety symptoms (Hovenkamp-Hermelink et al., 2019; Ino et al., 2017; Ogawa et al., 2018; Taylor, 1999).

Alternatively, it seems that emotional schema therapy (EST) can influence emotional regulation, emotional patterns, and anxiety symptoms (Morvaridi et al., 2019). EST differs from other wave models in that emotional pattern therapy emphasizes interpretations of a person's emotions rather than simply acceptance or conscious awareness of the emotions. While these strategies are useful, the EST model tries to clarify the specific theory of the individual's emotions, modify it, and encourage more adaptive strategies for regulating emotions (Morvaridi et al., 2019). The focus is on validation, the understanding of emotion, the normalization of emotion, the expansion and differentiation of emotions, the connection between emotions and meanings, the expansion of meanings, changing beliefs about time and the lack of emotional control, and greater acceptance of shared feelings (Leahy, 2019). The EST derives from certain aspects of conventional cognitive therapy and metacognitive and acceptance models (Erfan et al., 2018; Leahy, 2019). The treatment has less emphasized how thought produces emotion and more focused on the content of thought on emotions and its resulting ineffective adversarial approaches. The emotional schema therapist uses some cognitive, provisional, and behavioral interventions to regulate and alter dysfunctional emotional patterns and emotional control strategies (Leahy, 2019, 2012). Khaleghi et al. (2017) showed that EST could be an effective therapy for changing interpretations, strategies, and emotional responses in a person with GAD. However, this study was limited because there was only one case study. Thereby, the EST is a new therapeutic model that has

provided a potential alternative for the development and continuity of emotional disorders like GAD.

The emotional schema model proposes that individuals differ in their awareness, interpretations, evaluations, and acceptance of their negative emotions (Leahy, 2002, 2015; Leahy et al., 2011). Leahy (2002) speculated that anxiety is related to superior guilt over emotion, a more simplistic view of emotion, more contemplation and rumination, viewing one's emotions as less clear, lower receipt of feelings, and looking at emotions as less manageable. Leahy (2019) conceptualised that the emotional schema theory and therapy increase the use of positive emotional schemas, and decrease the use of negative emotional schemas. Since patients with GAD are often involved in some negative emotions like excessive worry and emotional sensitivity this study suggests that the emotional schema theory and therapy work, particularly for GAD. The emotional schema model suggests that individuals with GAD are required managing of their negative emotions and the emotions experienced by others, and to learn efficient coping with negative emotions. These negative emotions are involved physical sensations, feeling and action tendencies, habitual maladaptive styles in response to the environment, and relational or interactive functions. This model can help them to modify over evaluations of these negative emotions that may result in dysfunctional coping styles such as fear, uncertainty, unpredictability and uncontrolled emotional outburst, worry and avoidance, self-blaming, sense of threat, and thought rumination.

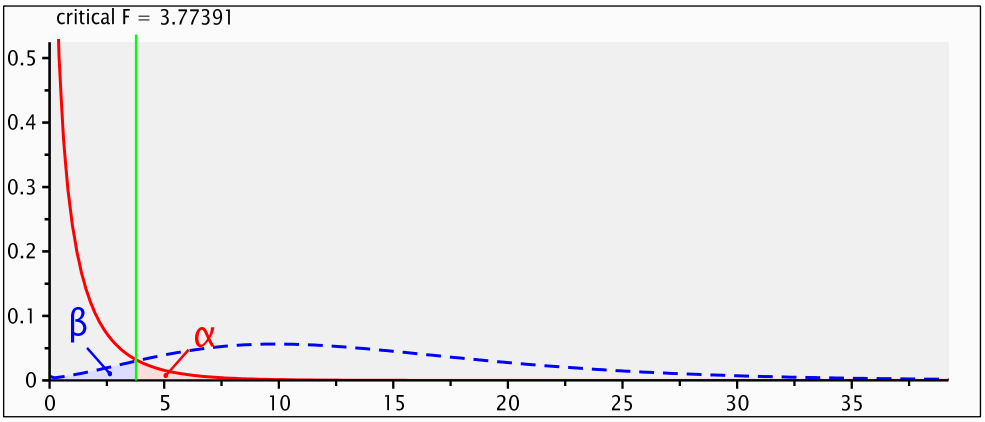
Thus, this therapy mainly focused on interpretation and assessment of emotional experiences and dealing with negative emotions with a new approach like experiential avoidance. Really, this model emphasizes how individuals conceptualize their emotional experiences, what they expect, how they evaluate their emotions, and what interpersonal and personal strategies they use to respond to their emotional experiences (Leahy, 2019, 2012; Leahy, Tirch, & Napolitano, 2011; Morvaridi et al., 2019). However, only a few studies have shown that schema therapy can decrease AS in general (Capron et al. 2012; Hawke, & Provencher, 2011; Jafari et al., 2014). But it is not clear how EST and GBEST can influence the level of AS in patients with GAD. Therefore, the objective of this study was to investigate the effectiveness of GBEST on AS decline in females with GAD. As an important issue in the field of psychotherapy; therefore, this study is essential to understanding how GBEST can influence AS and severity of anxiety symptoms in females with GAD. The main hypothesis is that GBEST would have a significant effect on anxiety sensitivity and anxiety severity decrease in outpatients females with GAD.

Methods

Participants

The sample involved 50 female outpatients with GAD from Shiraz City, Fars province, Iran.

The patients are recruited via clinics. When all subjects are identified and diagnosed they are randomly assigned with equal size into two A and B groups in this study. So, all participants were assigned by a random sampling procedure in two experimental (N=25) and the control groups (N=25). Sample size estimation using G*Power 3.1.9.2 is warranted on the basis of a predicted variance in the dependent variables among two groups in this study (Figure 1).



Note: Input parameters: effect size f(v)=0.25, β/α ratio=1, total sample size=50, number of groups=2, number of measurement=3. Type of power analysis: Compute α & power-given β/α ratio, sample size and effect size. Non-centrality parameter=9.37, Critical F= 3.77, Numerator df=1, Actual Power=.90.

Figure 1. Central and Non-central Distributions of Sample Size

This sample size is appropriate for comparison between and within groups in a double-blind randomised trial study (Rosner, 2015; Saunders, Lewis, & Thornhill, 2012). The real power analysis was .90 in this study. Since the power is typically greater than 0.80, this power is suitable for generalization of the results. The mean of age for the experimental and control groups were 32.16 (SD= 4.35) and 33.12 (3.30) respectively. The educational level ranged from high school diploma (N=12), associate (N = 18), and bachelor (N=10) in the sample. All patients were married and Muslim. The occupations in this sample comprised office employees (N=15), sales and service staff (N=15), and housewives (N=10). After informed consent was acquired, patients accomplished a demographic questionnaire and two measures through pre-test, post-test, and following-up phases.

Instruments

Anxiety Sensitivity Index (*ASI*; Reiss et al., 1986). The ASI is a self-report index that has 16 items in the form of a five-point Likert scale from very low (0) to very high (4). Each item reflects this idea that feelings of anxiety would lead to unpleasant experiences and may lead to harmful consequences. The scores range from 0 to 64. The original ASI has good psychometric properties in several samples (Peterson, & Reiss, 1992). The ASI showed a high internal consistency from .80 to .90. The ASI test-retest reliability, after 2 weeks was .75 and it was .71 for 3 years (Floyd et al., 2005). The internal consistency, test-retest, and bisection of the ASI were .93, .95, and .97 respectively. The concurrent reliability of the ASI with SCL-90 was .56 (Moradi-Manesh et al., 2007). The ASI showed an internal Cronbach's consistency reliability of .91 in this study.

Generalized Anxiety Disorder 7-Item Scale (*GAD-7;* Spitzer et al., 2006). The GAD-7 is a communal instrument of assessment for GAD and for estimating its severity in both clinical practice and inquiries. The GAD-7 score is calculated by giving scores of 0 (not at all) to 3 (nearly every day) in all questions. The total score of GAD-7 for the seven items ranges from 0 to 21. The GAD-7 has suitable reliability and validity in different cultures (Johnson et al., 2019; Lowe et al., 2008; Rutter & Brown, 2016; Zinchuk et al., 2021). The Persian version of GAD-7 showed adequate validity and reliability in numerous studies (Abasi et al., 2017; Naeinian et al., 2011; Omani-Samani et al., 2018; Veisy et al., 2021). This study indicated a Cronbach's alpha of .88 for the GAD-7.

Procedure

This is an experimental study that examined the effect of GBEST on AS in a sample of females with GAD. Based on the DSM 5 (APA, 2013), patients were diagnosed by a Structured Clinical Interview for DSM-5 (SCID-5, First et al., 2015). Within a Controlled Randomized Trial (CRT), authors randomly assigned patients to one of two groups including GBEST and a control group. The intervention assignment was finished randomly within blocks of two. The sample size is determined with regard to the logic for covariate analysis in an experimental design with two groups (Randolph, & Myers, 2013). Inclusion situations were (1) being an adult, (2) being offered for the cure by psychotherapy techniques, (3) having all criteria for GAD in DSM-5 (APA, 2013), (4) having no disease with mental symptoms, (5) have no simultaneous or comorbid clinical mental disorders, and (6) the medication for anxiety was not recently introduced or modified for them. According to a face-to-face interview by a clinical psychologist in the clinic, there were no comorbidity disorders for these patients. AS was assessed using the ASI in both groups during the pre-test, post-test, and follow-up phases. Subsequently the recruitment of all patients in both experimental and control groups by a random sampling method within an experimental design, the experimental group received the GSET (Leahy, 2019, 2015, 2012, 2011). The GBEST emphasize a variety of

emotion regulation procedures such as validation and self-validation, recognizing and distinguishing emotions, appreciation of the transience of emotions, coping with negative beliefs about emotion, focusing on accomplishment toward goals while tolerating emotion, dropping guilt over emotions, and accommodating emotions. In addition, therapy focuses on evaluating negative involuntary thoughts about emotions and boosting the use of detached mindfulness (Leahy, 2019, 2015, 2012, 2011). The GBSET is a manualized evidence-based treatment in the field of psychotherapy. Patients in the experimental treatment group received 10 sessions of GBEST once every week. The GBEST has done in 10 sessions (each session lasted for 90 minutes). A clinical psychologist with ten years of experience delivered the GBEST. The AS was the dependent variable, and the GBEST was the independent variable. Post-treatment assessments were completed at the termination of the intervention stage and at a 3-month follow-up. Females in the control group had not got any healing assistance during the study, and authors can attribute changes in AS and anxiety severity to the GBEST because placebo effects and disorder's symptomatology were controlled.

Statistical analysis

The IBM SPSS AMOS 22 software was applied for data analysis in this study (Arbuckle, 2013). The repeated measures of multivariate analysis of variances was used to examine the effect of the GBEST as an independent variable, and AS and anxiety severity as within-subjects or dependent variable in females with GAD. Then, comparisons were computed during the pre-test, post-test and following phases among groups (i.e., experimental and control groups) as between-subject factor in this study. This analysis is useful to investigate between groups and within groups differences in dependent variables during the pre-test, post-test and following periods in the present study.

Results

To examine the basic hypothesis, initially entire basic normality assumptions were calculated which shows a normal distribution for the administration of ANOVAs in this study. Kolmogorov-Smirnov and Shapiro-Wilk indicators of normality test did not show the normal distribution for ASI and the GAD-7 as dependent variables during the pre-test, post-test, and follow-up stages (Table 1). Notice that repeated ANOVAs are robust to deviations of the normal distribution of the dependent variables. Also, Box's M and Mauchly's test for the equivalence of covariances between experimental and control groups did not indicate a normal distribution of ASI and GAD-7 (Table 2). The results of the homogeneity of the variances show that Lewin Test in the ASI and GAD-7 in all stages (pre-test, post-test, and follow-up) is more than 0.05.

Table 1. Test of Normality for Anxiety Sensitivity and Anxiety Severity during Pre-Test, Post-Test and Follow-up Stages

Stages	Variables	Kolmogorov-Smirnov		Shapiro-Wilk	
		Statistic	p	Statistic	p
Pre-test	ASI	.24	.0001	.90	.0001
	GAD-7	.18	.0001	.85	.0001
Post-test	ASI	.24	.0001	.87	.0001
	GAD-7	.20	.0001	.85	.0001
Follow-up	ASI	.26	.0001	.87	.0001
	GAD-7	.24	.0001	.83	.0001

Note: ASI = Anxiety Sensitivity Index, GAD-7= Generalized Anxiety Disorder 7-Item Scale (GAD-7).

Table 2. Results of Box's M and Mauchly's Test of Dependents Variables

Variables	Box's M		Mauchly's Test	
	Statistic	p	Statistic	p
ASI	44.15	.0001	.26	.0001
GAD-7	33.10	.02	.04	.0001

Note: ASI = Anxiety Sensitivity Index, GAD-7= Generalized Anxiety Disorder 7-Item Scale (GAD-7).

Therefore, the Huynh-Feldt statistic was applied instead of Sphericity Assumed for tests of within-subjects effects in the calculation of repeated measures ANOVAs. Table 3 shows the mean and the standard deviation of AS and anxiety severity in females between the experimental and the control groups during the pre-test, post-test, and follow-up stages. Multivariate tests of repeated measures ANOVA indicated significant differences in ASI (Hotelling's Trace =20.16, $F(2, 48) = 508.12$; $p < .0001$) and the GAD-7 (Hotelling's Trace =2.05, $F(2, 48) = 30.62$; $p < .0001$).

Table 3. The Mean and the Standard Deviation of Anxiety Sensitivity and Anxiety Severity among Experimental and Control Groups during Pres-test, Post-test and Follow-up Stages

Assessments		Groups			
		Experimental		Control	
		Mean	SD	Mean	SD
ASI	Pre-test	34.97	8.16	33.44	8.60
	Post-test	14.60	7.03	34.19	7.06
	Follow-up	15.80	6.67	35.50	6.40
GAD-7	Pre-test	18.11	4.19	17.28	3.88
	Post-test	7.46	2.01	17.46	2.06
	Follow-up	7.26	1.74	17.06	1.85

Note: ASI = Anxiety Sensitivity Index, GAD-7= Generalized Anxiety Disorder 7-Item Scale (GAD-7).*(*

To investigate the main hypothesis, covariance analysis was used to determine the differences between two groups in AS and anxiety severity during the pre-test, post-test, and follow-up stages. Therefore, covariance analysis was

computed to examine the main hypothesis (table 4). This analysis showed significant differences between experimental and control groups in AS and anxiety severity during the post-test; F = 9.94, p <.01; and follow-up; F = 19.14, p <.01 stages. Figures 2 and 3 show the within x between group interaction using the repeated measures ANOVAs as the main outcome variables among experimental and control groups.

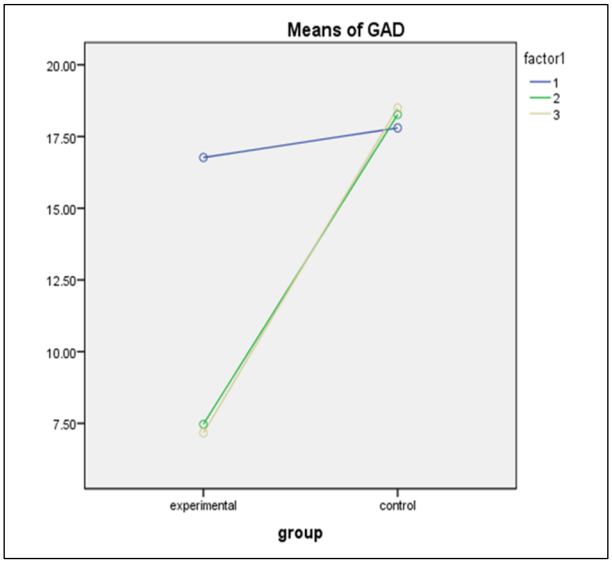


Figure 2. The within x between group interaction in GAD

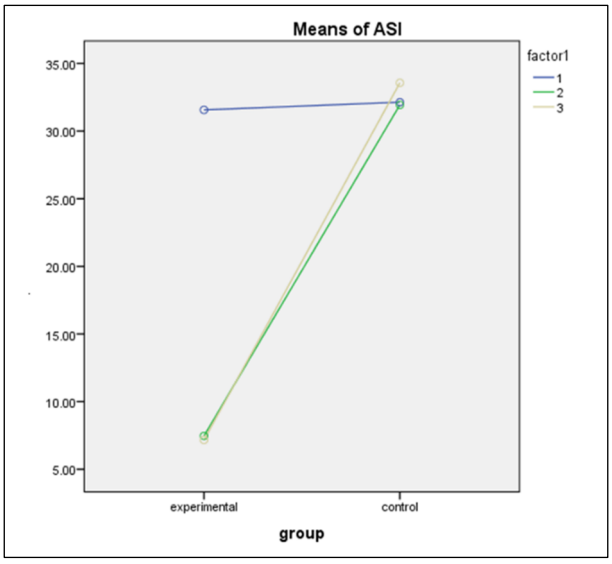


Figure 3. The within x between-group interaction in anxiety sensitivity

Finally, computation of the ANCONA affirmed the effect of GBEST in post-test and follow-up stages in the total score of ASI and GAD-7 in this study (Table 4).

Table 4. The Univariate Covariance Analysis of the Effect of GBEST on Anxiety Sensitivity and Anxiety Severity among Females with GAD

Variable	Stages	Variables	MM	df	MS	F	p	Eta	Statistical Power
ASI	Post-test	Pre-test	104.42	1	104.42	8.76	0.05	0.22	0.77
		Group	122.82	1	122.82	10.94	0.01	0.28	0.80
	Follow-up	Pre-test	120.38	1	120.38	10.91	0.05	0.26	0.85
		Group	268.02	1	268.02	19.19	0.01	0.48	0.99
GAD-7	Post-test	Pre-test	106.40	1	106.40	9.16	0.05	0.23	0.78
		Group	123.74	1	123.74	11.02	0.01	0.29	0.84
	Follow-up	Pre-test	124.13	1	124.13	11.20	0.05	0.28	0.87
		Group	285.12	1	285.12	20.16	0.01	0.58	0.99

Note: ASI = Anxiety Sensitivity Index, GAD-7= Generalized Anxiety Disorder 7-Item Scale (GAD-7).

Discussion

The results of the main hypothesis showed that GBEST significantly reduced AS and anxiety severity between females in the experimental group in comparison with the control group during the post-test and three-month follow-up stages. The results showed that the GBEST reduced the level of AS and anxiety severity from the severe range to the low level in the pre-test and the follow-up stages among females with GAD. Furthermore, because of the high-reliability change index, it can be supposed that GBEST has desired reliability for AS and anxiety severity reduction in females with GAD. These results are in congruency to the previous literature which supported the efficacy of EST in the treatment of anxiety disorders and decrease of AS in general (Capron et al. 2012; Hawke, & Provencher, 2011; Jafari et al., 2014; Khaleghi et al., 2017; Morvaridi et al., 2019; Otto et al., 2019; Taylor, 2020; Yang et al., 2021). Studies have shown that EST is effective in a wide variety of disorders such as depression, anxiety, AS, drug addiction, inefficient relationships, and personality disorders (Leahy, 2019, 2015, 2012, 2011; Leahy et al., 2011, Yang et al., 2021). In a study of two patients with chronic GAD, it was found that EST significantly reduced a wide range of anxiety severity (anxiety and worry) and that these benefits were maintained several months of follow-up (Khaleghi et al., 2017). According to GBEST, when emotion is stimulated or recalled, it is the interpretations, reactions, and emotion adjustment strategies that determine whether this emotion would go on, intensify or decline. Really, the

GBEST is founded on this assumption that people with anxiety disorder would use AS as a strategy to resist the excited and stimulated emotion. In line with the results of the present study, many studies showed that EST can modify and adjust to AS-related meta-cognitive beliefs and also reduce the use of AS as an inefficient strategy in the adjustment of emotions (Leahy, 2019, 2015; Leahy et al., 2011).

Also, these results are consistent with the conceptual and empirical evidence that affirmed the potential role of AS as an emotional risk factor in the development of anxiety disorders, particularly in GAD (Rabian et al., 1993; Gutner et al., 2013; Mantar, Yemez, & Alkin, 2011; McHugh, 2019; Norton & Edwards, 2017; Otto et al., 2019; Olthuis, Watt, & Stewart, 2014; Reiss, 1991; Reiss et al., 1986; Taylor, 2020). As Taylor (2020) and Taylor et al. (2007) noted already these finding shows that AS reflects the fear of arousal-related sensations in GAD. In agreement with the previous investigations (McHugh, 2019; Capron, Kotov, & Schmidt, 2013; Otto et al., 2019), AS influence dysfunctional interpretations of cognitive and behavioral symptoms of anxiety, in turn, and produce emotional dysregulation in patients with GAD. In line with the hypothesis of trans-diagnosis (Mohammadkhani et al., 2016), AS can influence the generalized severity of anxiety symptoms and the GBEST helps to decrease this transdiagnostic factor for susceptibility toward GAD. Particularly, this finding is congruent to the previous studies that explored the role of AS in emotional excitement, interpersonal distress and, the fearful evaluation of bodily sensations and anxiety symptoms in women (Benton & Allen, 1996; Farris et al., 2019). Furthermore, the present results are incongruent to the earlier evidence about the role of AS treatment in the decrease of anxiety symptoms (Hovenkamp-Hermelink et al., 2019; Ino et al., 2017; Ogawa et al., 2018; Taylor, 2020, 1999). This study suggests that GBEST reduce the signs and symptoms of anxiety, and AS with top-down control activation; besides that, clinicians can educate the patient to manage and adjust their emotions so that they can apply the strategies they have learned from the sessions when facing the other emotions such as anger, sadness, despair and etc. Overall, AS is a predisposition to the psychological vulnerability that is related to anxiety disorders.

In conclusion, this study adds to the present psychotherapy literature with regards to the positive influence of GBEST on the reduction of AS and anxiety severity in outpatients females with GAD. Mental health and community psychology professionals may use these findings for prevention and therapeutic goals in females. Therefore, the use of AS measures may help to screen vulnerable individuals for the development of GAD in community-based mental health programs. However, the results from this study only show a decrease in ASI and anxiety severity with an only self-rating instrument, but it is not enough to show an improvement of it in all anxiety disorders. The fact that there was only one therapist can be a limit since it is uncertain if the therapy or the therapist himself was effective. Also, this study was done in females with GAD and it is limited due to the small sample size, gender of subjects, and one follow-up period. Moreover, GAD-7 and ASI were outcomes measures in this study but future investigations may investigate the effectiveness of GBEST on

GAD by conducting a mediation analysis with anxiety sensitivity as a mediator/mechanism of change. Thus, it is recommended that future studies should be done to investigate the efficacy of GBEST on AS treatment in adults and children with GAD among females and males using multidimensional and psychophysiological measurements measures of AS in different cultural contexts.

Declarations

Funding: Funding is not available for this study.

Conflict of Interest: The authors have no conflict of interest in this study.

Ethical Approval: All procedures performed in studies involving human participants followed to the ethical standards of the institution research committee.

Informed consent: Informed consent was acquired from all individuals participated in the study.

References

Abasi, I., Mohammadkhani, P., Pourshahbaz, A., & Dolatshahi, B. (2017). The psychometric properties of Attentional Control Scale and its relationship with symptoms of anxiety and depression: A study on Iranian population. Iran Journal of Psychiatry, 12(2), 109-117.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Arlington, Va.: American Psychiatric Association.

Bandelow, B., Boerner, J. R., Kasper, S., Linden, M., Wittchen, H. U., & Moller, H. J. (2013). The diagnosis and treatment of generalized anxiety disorder. *Deutsches Ärzteblatt International, 110*(17), 300-309. https://doi.org/10.3238/arztebl.2013.0300.

Benton, F. A., & Allen, G. J. (1996). Relationships between anxiety sensitivity, emotional arousal, and interpersonal distress. Journal of Anxiety Disorders, 10(4), 267-282. doi: https://doi.org/10.1016/0887-6185(96)00011-4.

Capron, D. W., Kotov, R., & Schmidt, N. B. (2013). A cross-cultural replication of an interactive model of anxiety sensitivity relevant to suicide. *Psychiatry Research, 205*(1-2), 74-78. https://doi.org/10.1016/j.psychres.2012.08.006.

Erfan, A., Noorbala, A. A., Karbasi Amel, S., Mohammadi, A., & Adibi, P. (2018). The Effectiveness of Emotional Schema Therapy on the Emotional Schemas and Emotional Regulation in Irritable Bowel Syndrome: Single Subject Design. Advanced biomedical research, 7, 72. https://doi.org/10.4103/abr.abr_113_16.

Fardaeni Sofla, H., Karsazi, H., Emami Ezat, A., & Bakhshipour Roodsari, A. (2015). The structural relationship of anxiety sensitivity, worry and difficulty in regulating emotions with generalized anxiety disorder, social anxiety

disorder and panic disorder. *Thoughts and Behavior in Clinical Psychology, 9*(36), 77-87.

Farris, S. G., Burr, E. K., Abrantes, A. M., Thomas, J. G., Godley, F. A., Roth, J. L., Lipton, R. B., Pavlovic, J. M., & Bond, D. S. (2019). Anxiety Sensitivity as a Risk Indicator for Anxiety, Depression, and Headache Severity in Women With Migraine. Headache, 59(8), 1212–1220. https://doi.org/10.1111/head.13568.

Floyd, M., Garfield, A., & LaSota, M. (2005). Anxiety sensitivity and worry. *Personality and Individual Differences, 38*(5), 1223-1229. doi: https://doi.org/10.1016/j.paid.2004.08.005.

Gutner, C. A., Nillni, Y. I., Suvak, M., Wiltsey-Stirman, S., & Resick, P. A. (2013). Longitudinal course of anxiety sensitivity and PTSD symptoms in cognitive-behavioral therapies for PTSD. Journal of anxiety disorders, 27(7), 728–734. https://doi.org/10.1016/j.janxdis.2013.09.010.

Halgin, R. P., & Whitbourne, S. K. (2003). *Abnormal psychology: Clinical perspectives on psychological disorders*. Boston: McGraw-Hill.

Hantsoo, L., & Epperson, C. N. (2017). Anxiety Disorders Among Women: A Female Lifespan Approach. Focus (American Psychiatric Publishing), 15(2), 162–172. https://doi.org/10.1176/appi.focus.20160042.

Hawke, L. D., & Provencher, M. D. (2011). Schema theory and schema therapy in mood and anxiety disorders: A review. Journal of Cognitive Psychotherapy, 25(4), 257–276. https://doi.org/10.1891/0889-8391.25.4.257.

Hovenkamp-Hermelink, J., van der Veen, D. C., Oude Voshaar, R. C., Batelaan, N. M., Penninx, B., Jeronimus, B. F., Schoevers, R. A., & Riese, H. (2019). Anxiety sensitivity, its stability and longitudinal association with severity of anxiety symptoms. Scientific reports, 9(1), 4314. https://doi.org/10.1038/s41598-019-39931-7.

Ino, K., Ogawa, S., Kondo, M., Imai, R., Ii, T., Furukawa, T. A., & Akechi, T. (2017). Anxiety sensitivity as a predictor of broad dimensions of psychopathology after cognitive behavioral therapy for panic disorder. Neuropsychiatric disease and treatment, 13, 1835–1840. https://doi.org/10. 2147/NDT.S121360.

Jafari, A., Pouyamanesh, J., Ghorbanian, N., & Kabiri, M. (2014). The effectiveness of schema therapy on moderating early maladaptive schemas and reducing students' anxiety sensitivity. *Journal of Instruction and Evaluation, 6*(24), 79-91.

Johnson, S. U., Ulvenes, P. G., Øktedalen, T., & Hoffart, A. (2019). Psychometric Properties of the General Anxiety Disorder 7-Item (GAD-7) Scale in a Heterogeneous Psychiatric Sample. Frontiers in psychology, 10, 1713. https://doi.org/10.3389/fpsyg.2019.01713.

Khaleghi, M., Leahy, R. L., Akbari, E., Mohammadkhani, S., Hasani, J., & Tayyebi, A. (2017). Emotional schema therapy for generalized anxiety disorder: A single-subject design. International Journal of Cognitive Therapy, 10(4), 269–282. https://doi.org/10.1521/ijct.2017.10.4.269.

Leahy, R. L. (2019). Introduction: Emotional Schemas and Emotional Schema Therapy. International Journal of Cognitive Therapy, 12(1), 1-4. https://doi.org/10.1007/s41811-018-0038-5.

Leahy, R. (2015). Emotional schema therapy. New York: The Guilford Press.

Leahy, R. (2012). Emotional schema therapy: A bridge over troubled waters. In J. Herbert & E. Forman (Eds.), Acceptance and mindfulness in cognitive behavior therapy: Understanding and applying the new therapies (pp. 109-131). John Wiley & Sons, Inc. : Hoboken.

Leahy, R. (2007). Emotion and Psychotherapy. *Clinical Psychology: Science and Practice, 14*(4), 353-357. https://doi.org/10.1111/j.1468-2850.2007.00095.x.

Leahy, R. (2002). A model of emotional schemas. Cognitive and Behavioral Practice, 9(3), 177-190. https://doi.org/10.1016/S1077-7229(02)80048-7.

Leahy, R., Tirch, D., & Napolitano, L. (2011). *Emotion regulation in psychotherapy : A practitioner's guide*. New York: Guilford Press.

Lieb, R., Becker, E., & Altamura, C. (2005). The epidemiology of generalized anxiety disorder in Europe. *European Neuropsychopharmacology, 15*(4), 445-452. https://doi.org/10.1016/j.euroneuro.2005.04.010.

Liu, H., Tian, Y., Liu, Y., Nigatu, Y. T., & Wang, J. (2019). Relationship between major depressive disorder, generalized anxiety disorder and coronary artery disease in the US general population. *Journal of Psychosomatic Research, 119*, 8-13. doi: https://doi.org/10.1016/j.jpsychores.2019.01.007.

Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. Y. (2008). Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. Medical care, 46(3), 266–274. https://doi.org/10.1097/MLR.0b013e318160d093.

Mantar, A., Yemez, B., & Alkin, T. (2011). Anxiety sensitivity and its importance in psychiatric disorders. *Turk psikiyatri dergisi, 22*(3), 187-193.

McHugh, R. K. (2019). 2 – Assessing anxiety sensitivity. In J. A. J. Smits, M. W. Otto, M. B. Powers & S. O. Baird (Eds.), The Clinician's Guide to Anxiety Sensitivity Treatment and Assessment (pp. 9-29): Academic Press.

Mohammadkhani, P., Pourshahbaz, A., Kami, M., Mazidi, M., & Abasi, I. (2016). Anxiety Sensitivity Dimensions and Generalized Anxiety Severity: The Mediating Role of Experiential Avoidance and Repetitive Negative Thinking . Iranian journal of psychiatry, 11(3), 140–146.

Morvaridi, M., Mashhadi, A., Shamloo, Z. S., & Leahy, R. L. (2019). The Effectiveness of Group Emotional Schema Therapy on Emotional Regulation and Social Anxiety Symptoms. International Journal of Cognitive Therapy, 12(1), 16-24. https://doi.org/10.1007/s41811-018-0037-6.

MoradiManesh, F., MirJafari, S. A., Goudarzi, M., & Mohammadi, N. (2007). Evaluate the psychometric properties of the revised anxiety sensitivity index (ASIR). *Journal of Psychology, 11*(4), 426-446.

Mousavi, F. (2011). *Examine relationships anxiety sensitivity and Big Five Personality and academic achievement in female high school students in Shiraz.* Master's Thesis, Shahid Beheshti University, Tehran.

Naeinian, M. R., Shaeiri, M. R., Sharif, M., & Hadian, M. (2011). To study reliability and validity for a brief measure for assessing Generalized Anxiety Disorder (GAD-7). *Clinical Psychology & Personality*, 2(4), 41-50. https://www.sid.ir/en/journal/ViewPaper.aspx?id=299776.

Norton, P. J., & Edwards, K. S. (2017). Anxiety sensitivity or interoceptive sensitivity. *European Journal of Psychological Assessment, 33*(1), 30-37. https://doi.org/10.1027/1015-5759/a000269.

Olthuis, J. V., Watt, M. C., & Stewart, S. H. (2014). Anxiety Sensitivity Index (ASI-3) subscales predict unique variance in anxiety and depressive symptoms. Journal of Anxiety Disorders, 28(2), 115-124. https://doi.org/10.1016/j.janxdis.2013.04.009.

Ogawa, S., Kondo, M., Ino, K., Imai, R., Ii, T., Furukawa, T. A., & Akechi, T. (2018). Predictors of Broad Dimensions of Psychopathology among Patients with Panic Disorder after Cognitive-Behavioral Therapy. Psychiatry Journal, 2018, 5183834. https://doi.org/10.1155/2018/5183834.

Omani-Samani, R., Maroufizadeh, S., Ghaheri, A., & Navid, B. (2018). Generalized Anxiety Disorder-7 (GAD-7) in people with infertility: A reliability and validity study. *Middle East Fertility Society Journal*, 23(4), 446-449. https://doi.org/10.1016/j.mefs.2018.01.013.

Otto, M. W., Smits, J. A. J., Fitzgerald, H. E., Powers, M. B., & Baird, S. O. (2019). Anxiety sensitivity and your clinical practice. In J. A. J. Smits, M. W. Otto, M. B. Powers, & S. O. Baird (Eds.), The clinician's guide to anxiety sensitivity treatment and assessment (pp. 179–193). Elsevier Academic Press. https://doi.org/10.1016/B978-0-12-813495-5.00009-7.

Peterson, R. A., and Reiss, S. (1992). Anxiety Sensitivity Index Manual, 2nd Edn. Worthington, OH: International Diagnostic Services.

Rabian, B., Peterson, R. A., Richters, J., & Jensen, P. S. (1993). Anxiety sensitivity among anxious children AU – Rabian, Brian. *Journal of Clinical Child Psychology, 22*(4), 441-446. https://doi.org/10.1207/s15374424jccp2204_4.

Reiss, S. (1991). Expectancy model of fear, anxiety, and panic. Clinical Psychology Review, 11(2), 141–153. https://doi.org/10.1016/0272-7358(91)90092-9.

Reiss, S., Peterson, R. A., Gursky, D. M., & McNally, R. J. (1986). Anxiety sensitivity, anxiety frequency and the prediction of fearfulness. Behaviour research and therapy, 24(1), 1–8. https://doi.org/10.1016/0005-7967(86)90143-9.

Rosner, B. (2015). Fundamentals of biostatistics. Nelson Education.

Ruscio, A. M., Hallion, L. S., Lim, C., Aguilar-Gaxiola, S., Al-Hamzawi, A., Alonso, J., Andrade, L. H., Borges, G., Bromet, E. J., Bunting, B., Caldas de Almeida, J. M., Demyttenaere, K., Florescu, S., de Girolamo, G., Gureje, O., Haro, J. M., He, Y., Hinkov, H., Hu, C., de Jonge, P., Karam, E.J., Lee, S., Lepine, J.P., Levinson, D., Mniemneh, Z., Navarro-Mateu, F., Posada-Villa, J., Slade, T., Stein, D.J., Torres, Y., Uda, H., Wojtyniak, B., Kessler, R.C., Chatterji, S., & Scott, K. M. (2017). Cross-sectional comparison of the epidemiology of DSM-5 generalized anxiety disorder across the globe. *JAMA Psychiatry, 74*(5), 465-475. https://doi.org/10.1001/jamapsychiatry.2017.0056.

Rutter, L. A., & Brown, T. A. (2017). Psychometric Properties of the Generalized Anxiety Disorder Scale-7 (GAD-7) in Outpatients with Anxiety and Mood Disorders. *Journal of psychopathology and behavioral assessment*, *39*(1), 140–146. https://doi.org/10.1007/s10862-016-9571-9.

Saunders, M., Lewis, P., & Thornhill, A. (2012). Research methods for business students. Pearson Education Ltd.

Scott, K. M., Wells, J. E., Angermeyer, M., Brugha, T. S., Bromet, E., Demyttenaere, K., de Girolamo, G., Gureje, O., Haro, J. M., Jin, R., Karam, A. N., Kovess, V., Lara, C., Levinson, D., Ormel, J., Posada-Villa, J., Sampson, N., Takeshima, T., Zhang, M., & Kessler, R. C. (2010). Gender and the relationship between marital status and first onset of mood, anxiety and substance use disorders. Psychological medicine, 40(9), 1495–1505. https://doi.org/10.1017/S0033291709991942.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine*, *166*(10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092.

Taylor, S. (2020). Anxiety sensitivity. In J. S. Abramowitz & S. M. Blakey (Eds.), Clinical handbook of fear and anxiety: Maintenance processes and treatment mechanisms (pp. 65–80). American Psychological Association. https://doi.org/10.1037/0000150-004.

Taylor, S. (1999). Anxiety sensitivity theory: Research, and treatment of the fear of anxiety. Routledge.

Taylor, S., Zvolensky, M. J., Cox, B. J., Deacon, B., Heimberg, R. G., Ledley, D. R., ... Cardenas, S. J. (2007). Robust dimensions of anxiety sensitivity: Development and initial validation of the Anxiety Sensitivity Index-3. *Psychological Assessment, 19*(2), 176-188. https:// https://doi.org/10.1037/1040-3590.19.2.176.

Veisy, F., Farahani, H., Togha, M., Gharaee, B., Janani, L., Aghebati, A. (2021). Rapid screening for generalized anxiety disorder in patients with migraine. Current Journal of Neurology, 20(2), 102-110. http://dx.doi.org/10.18502/cjn.v20i2.6746.

Yang, H., Zhao, X., Fang, J., & Elhai, J. D. (2021). Relations between anxiety sensitivity's cognitive concerns and anxiety severity: Brooding and reflection as serial multiple mediators. *Current Psychology*, 1–7. https://doi.org/10.1007/s12144-021-02195-4.

Yoon, K. L., & Zinbarg, R. E. (2007). Generalized anxiety disorder and entry into marriage or a marriage-like relationship. Journal of anxiety disorders, 21(7), 955–965. https://doi.org/10.1016/j.janxdis.2006.10.006.

Zinchuk, M., Kustov, G., Pashnin, E., Gersamia, A., Rider, F., Yakovlev, A., Voinova, N., Popova, S., Avedisova, A., & Guekht, A. (2021). Validation of the Generalized Anxiety Disorder-7 (GAD-7) in Russian people with epilepsy. *Epilepsy & Behavior*, 123, 108269. https://doi.org/10.1016/j.yebeh.2021.108269.