

# Effectiveness of Spirituality-based Schema Therapy on Worry, Quality of Life, and Mental Well-being of Women with Generalized Anxiety Disorder

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## Abstract

**Background:** Chronic generalized anxiety disorder is challenging to manage and often presents itself with a variety of psychological and physical symptoms.

**Objectives:** This study aimed to explore how spirituality-based schema therapy impacts worry, quality of life, and mental well-being in women dealing with generalized anxiety disorder.

**Methods:** This study was carried out with a semi-experimental design, consisting of a pre-test, post-test, and a follow-up period of three months. The statistical population for this study was women with generalized anxiety disorder who referred to psychology and counseling clinics in Tehran, Iran, between July and November 2023. This study involved 26 participants who were selected through purposive sampling. The intervention group participated in ten 90-minute sessions twice a week, whereas the control group did not undergo any interventions. The used assessment tools were the World Health Organization Quality-of-Life Scale, Ryff's Psychological Well-Being Scales, and the State Worry Questionnaire. Statistical analysis of data was conducted using repeated measure ANOVA and MANCOVA tests in SPSS software (version 27).

**Results:** Based on the findings, self-acceptance, relationship with others, and autonomy underwent significant changes at the post-test and follow-up stages, compared to the pre-test stage ( $P < 0.05$ ). However, a significant contrast was noted in the psychological health component between the pre-test and the follow-up stages ( $P < 0.001$ ).

**Conclusion:** Based on the findings, spirituality-based schema therapy had a notable impact on the decrease of anxiety and improvement of mental well-being in women with disorders, as well as enhancement of self-acceptance, positive relationships with others, and autonomy in the short run.

**Keywords:** Generalized anxiety disorder, Quality of Life, Mental well-being, Spirituality-based schema therapy, Worry

## 1. Background

Generalized anxiety disorder (GAD) is a long-lasting anxiety disorder characterized by

continual feelings of tension and anxiety. It is connected to various behavioral and psychological issues, such as social phobia,

panic disorder, depression, obsessive-compulsive disorder, eating disorders, and sleep disorders (1). Onset of anxiety disorders generally occurs during childhood or adolescence; however, GAD can still occur in old age (50 years or older) (2). Females are more likely than males to experience GAD as 55-60% of those diagnosed are female. In Iran, the prevalence of GAD is 0.10 among the general population, with rates of 6.8% for females and 3.2% for males (3). Studies have shown that in females, the severity of GAD is positively correlated with age, depression symptoms, and feelings of loneliness (4).

Experience of GAD is often due to negative interpretation of ambiguous information which leads to worry. The GAD is a prevalent issue that involves uncontrollable worrying as its central feature (5). Worry, a key aspect of this disorder, refers to a series of negative thoughts and emotions connected to potential future dangers (6). Studies have found that worry and rumination, both types of repetitive negative thinking, are common in people with GAD (7). Previous research has revealed that GAD has a connection with negative beliefs about worry and fear of emotions (8).

Symptoms of anxiety and their consequences can have a significant impact on the daily lives of individuals. The GAD, for example, is connected to various issues, such as stigma, suicidal ideation, and a decline in the quality of life (9). Health-related quality of life encompasses various domains that capture how a disease and its treatment affect the physical, mental, and social well-being of a person (10). Research has indicated that an uptick in anxiety symptoms can be connected to several factors, including concurrent depression, a decrease in quality of life, and a diminished sense of vitality (11). Additionally, a study performed by Wilmer et al. in 2021 found that more severe anxiety symptoms were connected to a lower quality of life (12).

Stress and challenges of life can lead to feelings of anxiety and depression, resulting in disruptions to mental well-being, especially in

individuals with GAD (13). Mental well-being is crucial for overall health and quality of life, encompassing emotional, mental, and social aspects (14). According to Jalali et al. (2022), generalized anxiety can damage the mental health and well-being of people (15).

The GAD negatively impacts all aspects of psychosocial well-being and often occurs alongside medical conditions, like gastrointestinal or cardiovascular disorders and chronic pain. Additionally, individuals with GAD commonly exhibit symptoms of depression, physical limitations, and personality disorders, making it crucial to find ways to reduce these symptoms (4). There is a large body of research on the integration of spirituality and religion into psychotherapy to help patients, including spirituality-based schema therapy (16). Schema therapy, a form of treatment that addresses the core of many psychological issues by targeting beliefs, interpretations, and cognitive processing systems based on incompatible schemas, can effectively enhance mental health through cognitive restructuring of faulty beliefs, interpretations, and cognitions (17). Aside from schema therapy, forming a positive bond with God, seeking divine help to tackle issues, finding purpose in life, and generally incorporating spiritual therapy methods can help mitigate the harmful impacts of anxiety (18). Therapists who implement spirituality-based approaches are encouraged to address spiritual matters with clients in a neutral and non-judgmental manner (19). Research has indicated that spirituality-based schema therapy can effectively reduce anxiety in females who have experienced betrayal by their partners (20). Furthermore, a study has suggested that the incorporation of spirituality into psychotherapy can enhance the commitment of patients to the treatment process (16). Additionally, researchers have found that therapy focused on spiritual schemas is well-received by individuals seeking treatment (21).

## 2. Objectives

Generalized anxiety disorder is a common emotional disorder that can lead to various behavioral and psychological issues (1), especially affecting females, their families, and their social lives (3). Despite the significance of this issue, there is a lack of research focusing on the worry, quality of life, and mental well-being of females with GAD and its treatment. Therefore, this study aimed to address this research gap by exploring the impact of spirituality-based schema therapy on these factors in females with GAD. The main question this study seeks to answer is whether spirituality-based schema therapy can improve worry, quality of life, and mental well-being in women with generalized anxiety disorder.

## 3. Methods

The current study utilized a semi-

experimental design with pre-test, post-test, and three-month follow-up assessments, involving two groups, namely an intervention group receiving spirituality-based schema therapy and a control group. The research targeted females with GAD seeking treatment from psychology and counseling clinics in Tehran, Iran, between July and November 2023. Diagnosis of GAD was confirmed by clinicians and psychologists at each clinic based on the criteria and diagnostic interviews of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. In total, 26 female patients with GAD were selected for the study through purposive and random sampling methods, with 16 individuals allocated to the intervention group and 10 to the control group. Sample size adequacy was determined using G\*Power version 3.1.9.7, with parameters set at  $\alpha = 0.05$ , effect size = 0.4, and power test = 0.95 (22) (Figure 1).

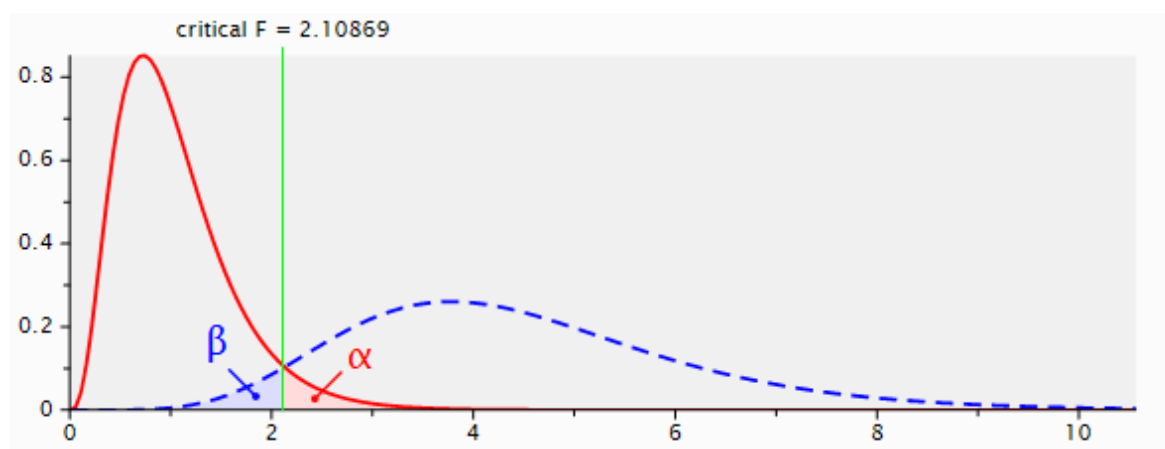


Figure 1. Sample size selection diagram with G-Power software

The MANOVA test was used to analyze the data, with 2 groups and a total sample size of 33 individuals. Inclusion criteria for the study required participants to be female, diagnosed with generalized anxiety disorder, at least 20 years old, physically healthy enough to attend research intervention sessions, have a medical record at the designated psychological clinics, possess a minimum level of literacy (equivalent to high school education), and have experienced generalized anxiety disorder for at least one year.

The exclusion criteria in this research were lack of simultaneous participation in other counseling or psychotherapy sessions, a severe physical or mental disorder that would make intervention impossible (e.g., substance abuse disorder, personality disorders, psychosis, delusions, hallucinations, and lack of awareness of time and place), undergoing drug therapy, lack of participation in three consecutive sessions, a disorder that would hinder regular attendance, and non-accurate completion of

the questionnaires. The researchers first obtained approval from their university and subsequently, visited counseling and psychology clinics to conduct the research. These clinics were selected using available sampling method, with the researchers being introduced by university professors. Subsequently, the researchers explained the research method and objectives to the manager of the clinics (three clinics in Tehran, whose names were kept confidential) and, upon initial approval, coordinated with the clinic's reception department to identify individuals referred for generalized anxiety disorder treatment.

Similarly, the researcher notified potential participants by posting notices about the research in the admission office, on the official website of the clinics, and on various social media platforms associated with the clinics. The next step involved a targeted selection of females who had expressed interest in participating in the research after responding to the notices. The researcher selected 32 individuals from volunteers and conducted an initial phone interview with them to explain the research objectives and ethical guidelines and answer any questions. These individuals then underwent a screening process to eliminate those who could not participate or did not meet the inclusion criteria. The phone interview also included a clinical assessment for generalized anxiety disorder, with participants being evaluated based on specific criteria for inclusion and exclusion. Those individuals who met the criteria and indicated their interest were subsequently asked to participate in the study following a detailed explanation of the objectives, advantages, disadvantages, schedule, and overall procedure of the research to ensure they could make an informed choice about their participation.

After conduction of the research, the

researchers selected 27 individuals to visit the clinics in person. During this stage, the individuals received written information about the intervention sessions. Moreover, the researchers conducted initial interviews with the participants to comprehend their situations better. A total of 11 individuals were excluded from the study at this point for various reasons, such as absence, ineligibility, or unwillingness to participate. Following this, the researchers obtained formal written consent from the participants through a consent questionnaire for their involvement in the study. A pre-test was then administered to the individuals using research instruments. In the first stage, data was collected from 16 individuals through questionnaires related to their worries, quality of life, and mental well-being. Following that, the participants were assigned randomly to either the experimental group or the control group to prepare for the interventions. The control group, comprising 16 women who sought clinical services and had existing files, did not have GAD and visited the clinic for other reasons. The experimental group participated in ten 90-minute sessions twice a week, whereas the control group did not receive any intervention. Although the control group maintained contact with the researchers, they did not undergo any specific active treatment. The interventions were conducted in a dedicated office at the clinic for educational workshops. [Table 1](#) provides a summary of the treatment sessions (20). During the final session of the intervention, the experimental group completed the research questionnaires at the post-test stage. Three months later, they completed the research questionnaires again at the follow-up stage. The control group also underwent all evaluation steps. [Figure 2](#) displays the CONSORT flow chart.

Table 1. Summary of spirituality-based schema therapy sessions

Session	Content
First	"Introducing schemas and becoming acquainted with the factors influencing their development, identifying issues through the schema model, assessing coping strategies of individuals to schemas, exploring the impact of spirituality on the well-being of individuals, and evaluating spiritual and meaningful beliefs."
Second	Identifying conflicting schemas and their connection to present issues, recognizing emotions linked to schemas and their impact on the beliefs of individuals, understanding the essence of spirituality and its influence on well-being, and handling difficulties.
Third	<ul style="list-style-type: none"> <li>- Assessing the accuracy of cognitive strategies known as schemas.</li> <li>- Instructing individuals on identifying and correcting cognitive mistakes.</li> <li>- Exploring conflicting schemas and mindsets.</li> <li>- Educating individuals on cultivating a spiritual mindset.</li> <li>- Demonstrating how spiritual individuals approach challenges.</li> </ul>
Fourth	Assessing the pros and cons of coping strategies related to schemas, comprehending their harmful effects on oneself, confronting and addressing schemas, identifying recurring patterns of thought, introducing different spiritual coping techniques for difficult life experiences, and learning how to engage in prayer.
Fifth	Teaching cognitive errors, exploring the reasons behind schema persistence, instructing cognitive strategies for altering schemas and addressing their endurance, facilitating communication between the schema component and the healthy aspect, reinforcing the idea of a well-adjusted adult, instructing about and identifying motivation, significance, purpose, and their significance in accurately grasping spirituality.
Sixth	Studying the origins of emotional changes in schemas through experimental methods, like imaginary dialogues and visualization, to increase awareness and process emotions, understanding emotions from a spiritual perspective, and identifying spiritual emotional schemas.
Seventh	Providing instruction on breaking behavioral patterns, instructing on the behavioral aspect of spiritual encounters and their outcomes, teaching anger management methods, creating a list of particular behaviors to adjust, educating on the beliefs of faith, reliance on God, and endurance, and promoting prayer and thankfulness towards God.
Eighth	Understanding and acknowledging the notion of attachment and its various styles, as well as its relationship with core maladaptive schemas, spirituality, and how spiritual attachment can positively impact mental health by enhancing psychological well-being.
Ninth	Training sessions focus on the impact of schemas on fostering effective relationships, exploring the benefits and drawbacks of maintaining relationships, applying motivational strategies, enhancing understanding of healthy and harmonious relationships, and delving into the influence of spirituality on interpersonal connections.
Tenth	Evaluation of successful training methods for managing stress and handling failure, as well as training on identifying and reinforcing positive beliefs, utilizing techniques focused on fostering forgiveness and tranquility, expressing gratitude and appreciation, and concluding treatment with a post-test assessment.

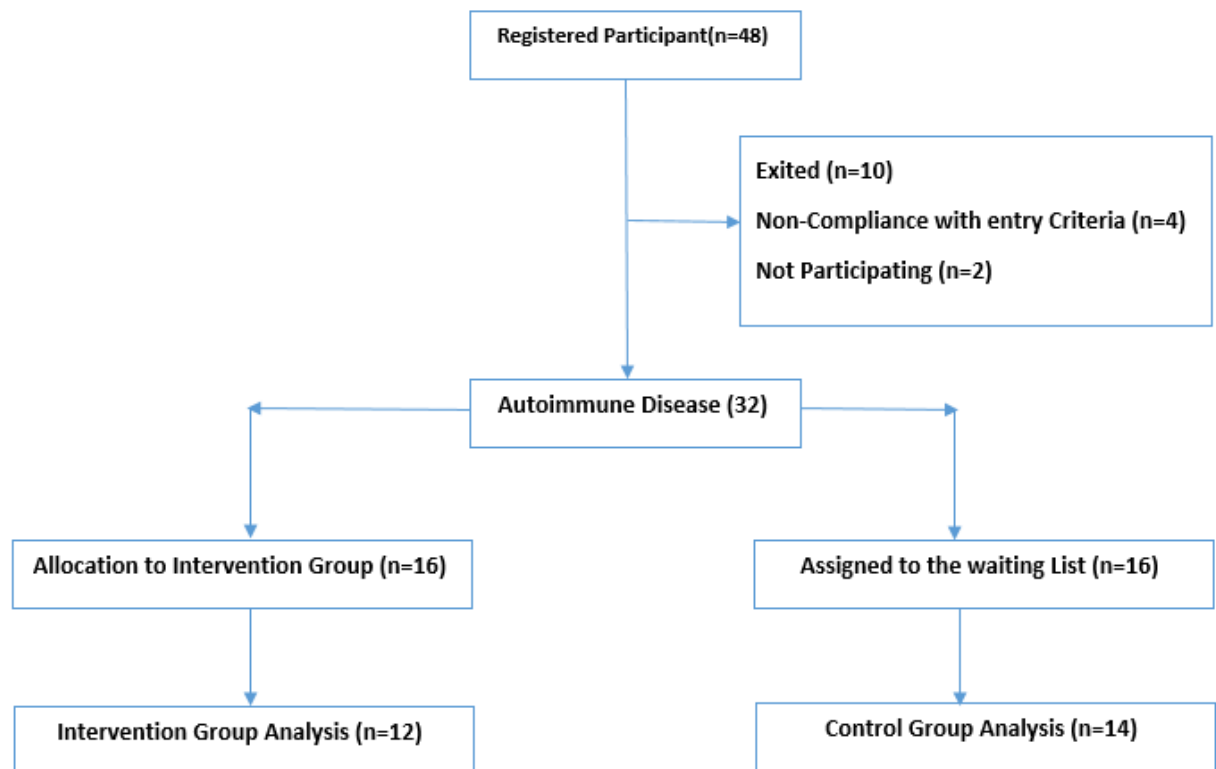


Figure 2. Flow diagram of the study

## Tools

### **World Health Organization Quality-of-Life Scale**

The World Health Organization developed a 26-item survey in 1996 to assess the quality of life (23). The questionnaire evaluates physical health (7 items), psychological health (6 items), social relations (3 items), social environment (8 items), and general health status (2 items). Responses range from 0 to 3, with 0 indicating no presence and 3 indicating high presence. Researchers have confirmed the internal consistency of the scale to be above 0.7 (24). In the current study, the Cronbach's alpha coefficient for the scale was determined to be 0.71.

### **Ryff's Psychological Well-Being Scales**

In 1980, Ryff created a 120-item self-assessment questionnaire aimed at measuring psychological well-being. Shorter versions with 84 items were later developed. Carol Reiff adapted the long form into the current 84-item version in 1989 at the University of Wisconsin (25). The scale consists of six factors, namely self-acceptance, positive relationship with others, autonomy, purposeful life, personal growth, and environmental mastery, each with 14 items. Responses are rated on a six-point Likert scale, ranging from 1 (completely disagree) to 5 (completely agree), with component scores ranging from 14 to 86. In Iran, researchers reported internal consistency for the scale between 0.76 and 0.83 (26). In a specific study, the researcher found Cronbach alpha coefficients of 0.81, 0.72, 0.80, 0.77, 0.73, and 0.73 for the components of self-acceptance, positive relationship with others, autonomy, purposeful life, personal growth, and environmental mastery, respectively, all of which achieved an overall value of 0.74.

### **Penn State Worry Questionnaire**

In 1990, Meyer et al. developed a 16-item questionnaire to assess pathological worry by measuring its extreme, pervasive, and uncontrollable characteristics (27). Participants

rated their responses on a five-point Likert scale ranging from one (not at all) to five (very much), with a higher score indicating higher levels of concern. It should be mentioned that the total score on the scale ranges from 16 to 80. A study in Iran found the internal consistency of the questionnaire to be high, with a Cronbach's alpha coefficient of 0.88 (28). In the current study, the researcher determined the Cronbach's alpha coefficient of the questionnaire to be 0.73.

### **Statistical analysis**

Descriptive statistics, including mean and standard deviation, were utilized in this study, along with analysis of covariance for inferential statistics. The collected data underwent analysis using Kruskal-Wallis H, repeated measures analysis of variance, and multivariate analysis of covariance with a significance level of 0.05 in SPSS software (version 27) for all statistical analyses. The normal distribution was assessed through the Kolmogorov-Smirnov test, while the homogeneity of variances was evaluated using Levene's test. "Furthermore, statistical analyses were conducted using Bonferroni post hoc test and Tukey test to make comparisons between the means."

## **4. Results**

The study gathered data from females diagnosed with GAD at three different stages of pre-test, post-test, and three-month follow-up, in both Schema therapy and control groups. Initially, the researcher examined and described the demographic characteristics of the participants. The individuals were divided into four groups based on age, namely 20-30, 31-40, 41-50, and 51 years old and above. The participants were categorized into four groups based on their educational background: high school, diploma, Bachelor's degree, and Master's degree. Similarly, participants were segmented into three categories based on the duration of their GAD diagnosis: 1-2, 2-3, and over 3 years. The findings from chi-squared



tests indicated no statistically significant differences among participants based on demographic variables ( $P>0.05$ ). Consequently, both groups demonstrated similar demographic characteristics.

The mean and standard deviation of the research variables in Table 3 were also analyzed by the researcher.

Table 3 presents the mean and standard deviation of the scores of participants on the research variables. This table shows that the mean score for the worry variable was comparable between the Schema therapy and control groups before the test. However, the mean scores for this variable in the Schema therapy group decreased in the post-test and follow-up stages, compared to the control group, which showed no changes. The components of self-acceptance, relationship with others, autonomy, purposeful life, and Personal growth in both groups showed little

difference in the pre-test phase. Nevertheless, the mean scores for these variables in the post-test and follow-up stages increased in the Schema therapy group, compared to the control group, which remained unchanged. No significant difference was observed between the research groups in terms of environmental mastery, psychological health, community relations, social environment, and general health status components. Additionally, the mean score for the psychological health variable did not differ much between the schema therapy and control groups in the pre-test phase. However, the mean scores for this variable in the post-test and follow-up stages increased in the Schema therapy group, compared to the control group, which had no changes. In Table 4, the researcher analyzed the results of multivariate covariance analysis and tests of between-subjects effects.

Table 3. Description of research variables

Variable	Groups	Mean± SD					
		Pre-test		Post-test		Follow-up	
		Mean	SD	Mean	SD	Mean	SD
Worry	Schema therapy	47.3333	3.33939	45.5833	5.69622	40.1667	5.74984
	Control	46.7143	3.96967	48.4286	4.66928	47.3571	5.37240
	Total	47.0000	3.63318	47.1154	5.26366	44.0385	6.55122
Self-acceptance	Schema therapy	54.3333	1.43548	58.5833	0.66856	60.6667	0.77850
	Control	56.6429	2.95107	56.2143	2.63639	57.1429	2.79717
	Total	55.5769	2.61033	57.3077	2.29380	58.7692	2.74675
Relationship with others	Schema therapy	48.6667	1.30268	57.2500	3.01888	58.5833	3.11764
	Control	49.2143	2.66541	49.6429	3.15271	48.6429	1.86495
	Total	48.9615	2.12567	53.1538	4.91278	53.2308	5.62358
Autonomy	Schema therapy	45.5833	2.15146	58.6667	3.36650	58.1667	3.58870
	Control	46.0714	1.77436	47.9286	6.06965	47.5000	4.48502
	Total	45.8462	1.93271	52.8846	7.34480	52.4231	6.74788
Purposeful life	Schema therapy	53.9167	1.92865	54.7500	2.52713	55.0000	2.37410
	Control	54.8571	2.34872	54.1429	2.17882	53.6429	1.90575
	Total	54.4231	2.17574	54.4231	2.31816	54.2692	2.20105
Personal growth	Schema therapy	44.4167	4.71860	45.5000	4.31699	46.4167	2.71221
	Control	46.1429	3.54872	43.6429	4.92415	43.5714	5.01865
	Total	45.3462	4.13707	44.5000	4.65833	44.8846	4.29257
Environment mastery	Schema therapy	33.0000	2.25630	33.0000	2.44949	34.0833	2.35327
	Control	31.7143	1.63747	31.7143	1.58980	31.7143	1.63747
	Total	32.3077	2.01533	32.3077	2.09321	32.8077	2.29816
Physical health	Schema therapy	14.3333	1.43548	14.3333	1.07309	14.0833	1.31137
	Control	14.3571	1.44686	14.5714	1.15787	14.5000	1.40055
	Total	14.3462	1.41258	14.4615	1.10384	14.3077	1.34964
Psychological health	Schema therapy	10.6667	1.66969	14.2500	1.48477	14.7500	0.75378
	Control	11.1429	1.83375	11.4286	1.50457	11.0714	1.26881
	Total	10.9231	1.74179	12.7308	2.05052	12.7692	2.14117
Community Relations	Schema therapy	5.1667	0.93744	5.4167	0.99620	5.4167	0.90034
	Control	5.2143	0.97496	5.1429	0.86444	5.2143	0.97496
	Total	5.1923	0.93890	5.2692	0.91903	5.3077	0.92819
Social environment	Schema therapy	16.4167	1.24011	17.9167	1.50504	17.5833	1.44338
	Control	16.9286	1.38477	16.9286	1.49174	16.7857	1.47693
	Total	16.6923	1.31967	17.3846	1.55118	17.1538	1.48842
General health status	Schema therapy	3.9167	0.90034	4.5000	0.79772	4.5000	0.67420
	Control	4.0714	0.82874	4.0714	0.82874	3.7143	0.72627
	Total	4.0000	0.84853	4.2692	0.82741	4.0769	0.79614

Table 4. Tests of between-subjects effects and covariance analysis test

Variable	Source	Variables	Sum of squares	Degrees of freedom	Mean squares	F	P value	Partial Eta
0222222222222	Pre-test	Post-test	1.815	1	1.815	0.065	0.800	0.003
		Follow-up	17.991	1	17.991	0.574	0.456	0.024
	Group	Post-test	53.611	1	53.611	1.931	0.178	0.077
		Follow-up	345.089	1	345.089	11.01	0.003	0.324
Self-acceptance	Pre-test	Post-test	0.001	1	0.001	0.000	0.991	0.000
		Follow-up	1.669E-5	1	1.669E-5	0.000	0.999	0.000
	Group	Post-test	28.819	1	28.819	6.957	0.015	0.232
		Follow-up	64.030	1	64.030	13.588	0.001	0.371
Relationship with others	Pre-test	Post-test	0.010	1	0.010	0.001	0.975	0.000
		Follow-up	28.656	1	28.656	5.338	0.030	0.188
	Group	Post-test	368.017	1	368.017	36.889	p<0.001	0.616
		Follow-up	663.150	1	663.150	123.527	p<0.001	0.843
Autonomy	Pre-test	Post-test	2.584	1	2.584	0.099	0.756	0.004
		Follow-up	3.271	1	3.271	0.188	0.669	0.008
	Group	Post-test	743.993	1	743.993	28.472	p<0.001	0.553
		Follow-up	735.603	1	735.603	42.308	p<0.001	0.648
Purposeful life	Pre-test	Post-test	0.725	1	0.725	0.127	0.725	0.005
		Follow-up	0.065	1	0.065	0.014	0.908	0.001
	Group	Post-test	2.865	1	2.865	0.502	0.486	0.021
		Follow-up	10.951	1	10.951	2.308	0.142	0.091
Personal growth	Pre-test	Post-test	138.869	1	138.869	8.376	0.008	0.267
		Follow-up	6.560	1	6.560	0.376	0.546	0.016
	Group	Post-test	50.596	1	50.596	3.052	0.094	0.117
		Follow-up	57.930	1	57.930	3.316	0.082	0.126
Environmental mastery	Pre-test	Post-test	0.679	1	0.679	0.159	0.694	0.007
		Follow-up	29.925	1	29.925	10.452	0.004	0.312
	Group	Post-test	7.976	1	7.976	1.869	0.185	0.075
		Follow-up	55.812	1	55.812	19.494	0.000	0.459
Physical health	Pre-test	Post-test	0.158	1	0.158	0.122	0.731	0.005
		Follow-up	4.023	1	4.023	2.291	0.144	0.091
	Group	Post-test	0.362	1	0.362	0.278	0.603	0.012
		Follow-up	1.086	1	1.086	0.618	0.440	0.026
Psychological health	Pre-test	Post-test	2.582	1	2.582	1.162	0.292	0.048
		Follow-up	0.231	1	0.231	0.197	0.661	0.008
	Group	Post-test	47.321	1	47.321	21.300	p<0.001	0.481
		Follow-up	84.516	1	84.516	72.134	p<0.001	0.758
Community Relations	Pre-test	Post-test	1.780	1	1.780	2.172	0.154	0.086
		Follow-up	0.910	1	0.910	1.028	0.321	0.043
	Group	Post-test	0.437	1	0.437	0.534	0.472	0.023
		Follow-up	0.240	1	0.240	0.271	0.608	0.012
Social environment	Pre-test	Post-test	0.065	1	0.065	0.028	0.869	0.001
		Follow-up	0.358	1	0.358	0.162	0.691	0.007
	Group	Post-test	5.817	1	5.817	2.488	0.128	0.098
		Follow-up	4.434	1	4.434	2.003	0.170	0.080
General health status	Pre-test	Post-test	0.659	1	0.659	0.992	0.330	0.041
		Follow-up	0.275	1	0.275	0.546	0.468	0.023
	Group	Post-test	1.346	1	1.346	2.027	0.168	0.081
		Follow-up	3.764	1	3.764	7.474	0.012	0.245

Outcomes of the multivariate covariance analysis in Table 4 revealed that the P value for between-subjects effects in the Worry variable was significant only during the Follow-up phase ( $P=0.003$ ). This indicated a substantial difference in the intervention

group of the study, which was attributable to time. The components of self-acceptance, relationship with others, and autonomy also displayed significance in both the post-test and follow-up stages ( $P<0.05$ ), showcasing differences between the research groups



over time. Conversely, there were no variances found in the purposeful life and personal growth components during any of the pre-test and follow-up stages ( $P>0.05$ ). However, the environmental mastery component exhibited a significant difference solely in the follow-up phase ( $P<0.001$ ), denoting the impact of interventions over time. Similarly, the P value for between-subjects effects in the psychological health component was significant in both the post-test and follow-up stages ( $P<0.001$ ), highlighting differences between research groups over time. On the other hand, there were no changes noticed in the community relations, social environment, and physical health aspects at any of the pre-test and follow-up stages ( $P>0.05$ ). However, a notable disparity was observed only in the General health status section during the follow-up stage ( $P=0.012$ ), indicating the sustained impact of interventions. Findings of the repeated measurements analysis of variance, as shown in Table 6, explore the interactive effects between groups and measurement stages.

Based on the findings of the analysis of variance with repeated measures presented in Table 5, the P value for the within-subjects effects in the worry variable was found to be significant ( $P=0.034$ ). Similarly, the interaction effects between time and groups were also significant ( $P=0.026$ ), indicating that worry has changed in groups over time. Additionally, the P value for the within-subjects effects in the components of self-acceptance, relationship with others, and Autonomy was significant ( $P<0.001$ ), with significant interaction effects between time and groups ( $P<0.001$ ) suggesting changes in these components over time as well. However, no significant differences were observed in the components of purposeful life, personal growth, and environmental mastery between measurement stages ( $P>0.05$ ). The P value for the within-subjects

effects in the Psychological health component was significant ( $P<0.001$ ), along with significant interaction effects between time and groups ( $P<0.001$ ), indicating changes in this component over time. Nevertheless, there were no significant differences between measurement stages for the components of social environment, physical health, community relations, and general health status ( $P>0.05$ ). The researcher performed pairwise comparisons between groups using the Bonferroni test, as shown in Table 6.

According to Table 6, there was a notable variation in the Worry scores between the pre-test and follow-up stages ( $P=0.038$ ). However, there was no significant difference between the post-test and follow-up stages ( $P=0.205$ ). These findings suggested that the intervention was able to successfully reduce worries in participants over time. Additionally, there was a significant divergence in Self-acceptance, Relationship with others, and Autonomy when comparing the post-test and follow-up stages with the pre-test stage ( $P<0.05$ ). Nevertheless, there was no noticeable difference between the post-test and follow-up stages ( $P>0.05$ ). Lack of significant changes in the follow-up stage indicated that the changes observed after the interventions were short-term rather than long-lasting. Furthermore, there was no notable difference between any of the research phases in terms of the aspects of purposeful life, Personal Growth, and Environmental Mastery ( $P=1.000$ ). Moreover, there was a substantial difference in the Psychological health component between the follow-up stages and pre-test ( $P<0.001$ ). However, no significant difference was found between the post-test and follow-up stages ( $P=1.000$ ). These findings demonstrated that the intervention approach used in the study positively impacted the psychological health of the participants.

Table 5. Tests of within-subjects effects and repeated measures analysis of variance

Variable	Source		Sum of squares	Degrees of freedom	Mean Square	F	P value
Worry	TIME	Sphericity	182.338	2	91.169	3.623	0.034
	TIME * Group	Assumed	197.876	2	98.938	3.931	0.026
Self-acceptance	TIME	Sphericity	151.565	2	75.782	15.641	P<0.001
	TIME * Group	Assumed	123.308	2	61.654	12.725	P<0.001
Relationship with others	TIME	Sphericity	363.266	2	181.633	31.310	P<0.001
	TIME * Group	Assumed	391.881	2	195.940	33.776	P<0.001
Autonomy	TIME	Sphericity	905.506	2	452.753	40.712	P<0.001
	TIME * Group	Assumed	539.455	2	269.727	24.254	P<0.001
Purposeful life	TIME	Sphericity	0.202	2	0.101	0.026	0.975
	TIME * Group	Assumed	17.741	2	8.870	2.251	0.116
Personal growth	TIME	Sphericity	6.565	2	3.282	0.233	0.793
	TIME * Group	Assumed	74.770	2	37.385	2.655	0.081
Environmental mastery	TIME	Sphericity	5.056	2	2.528	0.547	0.582
	TIME * Group	Assumed	5.056	2	2.528	0.547	0.582
Physical health	TIME	Sphericity	0.346	2	0.173	0.116	0.891
	TIME * Group	Assumed	0.500	2	0.250	0.167	0.847
Psychological health	TIME	Sphericity	66.953	2	33.476	14.269	P<0.001
	TIME * Group	Assumed	62.184	2	31.092	13.253	P<0.001
Community relations	TIME	Sphericity	0.214	2	0.107	0.120	0.887
	TIME * Group	Assumed	0.368	2	0.184	0.206	0.814
Social environment	TIME	Sphericity	7.592	2	3.796	1.715	0.191
	TIME * Group	Assumed	8.618	2	4.309	1.947	0.154
General health status	TIME	Sphericity	1.118	2	0.559	0.892	0.417
	TIME * Group	Assumed	2.913	2	1.456	2.323	0.109

Table 6. Bonferroni post hoc test to check the difference between the three phases of the research

Variables		(J) TIME	Mean Difference	Std. Error	P value
Worry	(I) TIME	Post-test	0.018	1.217	1.000
		Follow-up	3.262*	1.213	0.038
	Post-test	Follow-up	3.244	1.700	0.205
Self-acceptance	Pre-test	Post-test	-1.911*	0.611	0.014
		Follow-up	-3.417*	0.627	P<0.001
	Post-test	Follow-up	-1.506	0.598	0.057
Relationship with others	Pre-test	Post-test	-4.506*	0.739	P<0.001
		Follow-up	-4.673*	0.492	P<0.001
	Post-test	Follow-up	-0.167	0.748	1.000
Autonomy	Pre-test	Post-test	-7.470*	1.035	P<0.001
		Follow-up	-7.006*	0.861	P<0.001
	Post-test	Follow-up	0.464	0.876	1.000
purposeful life	Pre-test	Post-test	-0.060	0.604	1.000
		Follow-up	0.065	0.605	1.000
	Post-test	Follow-up	0.125	0.428	1.000
Personal growth	Pre-test	Post-test	0.708	0.854	1.000
		Follow-up	0.286	1.072	1.000
	Post-test	Follow-up	-0.423	1.179	1.000
Environmental Mastery	Pre-test	Post-test	0.000	0.530	1.000
		Follow-up	-0.542	0.685	1.000
	Post-test	Follow-up	-0.542	0.569	1.000
Physical health	Pre-test	Post-test	-0.107	0.346	1.000
		Follow-up	0.054	0.326	1.000
	Post-test	Follow-up	0.161	0.348	1.000
Psychological health	Pre-test	Post-test	-1.935*	0.501	0.002
		Follow-up	-2.006*	0.421	p<0.001
	Post-test	Follow-up	-0.071	0.341	1.000
Community Relations	Pre-test	Post-test	-0.089	0.298	1.000
		Follow-up	-0.125	0.290	1.000
	Post-test	Follow-up	-0.036	0.184	1.000
Social environment	Pre-test	Post-test	-0.750	0.399	0.218
		Follow-up	-0.512	0.371	0.541
	Post-test	Follow-up	0.238	0.465	1.000
General health status	Pre-test	Post-test	-0.292	0.208	0.523
		Follow-up	-0.113	0.235	1.000
	Post-test	Follow-up	0.179	0.217	1.000

## 5. Discussion

The main objective of this study was to explore the impact of spirituality-based schema therapy on worry, quality of life, and mental well-being in women with GAD. The results indicated that the intervention used in the study effectively reduced anxiety over time. However, there were temporary improvements in self-acceptance, relationships with others, and autonomy post-intervention, but these changes were not consistent. Conversely, there were no significant changes in purposeful life, personal growth, and environmental mastery during the research. Furthermore, the spirituality-based schema therapy had a beneficial impact on mental health and helped enhance it.

The combination of spirituality and religion in schema therapy is an underexplored research area. However, the results of the current study, which demonstrated that spirituality-based schema therapy can decrease anxiety, are consistent with those of earlier studies (21, 29, 30). Analysis of therapy session videos and clinical notes in the study indicated that Puerto Rican women found spirituality-based schema self-therapy to be highly acceptable and appropriate (21). Another study concluded that schema therapy significantly reduces anxiety and enhances psychological well-being (30). Additionally, research has shown that spirituality can be beneficial in reducing anxiety among patients (29).

Explanation of this discovery should emphasize that schemas dictate our self-perception, expectations, and interpretation of events. When early maladaptive schemas are established in the mind of an individual, they are triggered in future situations that are related to the schema and elicit strong negative emotions. Consequently, schema therapy operates on the premise that schemas contribute to psychological harm and personality disorders; therefore, the focus of treatment should be on the identification and

modification of these schemas that gradually infiltrate the minds of individuals and have negative impacts on their lives (31).

This type of therapy assists women with anxiety disorders characterized by severe worries in uncovering the foundational beliefs behind their core beliefs, evaluating their pros and cons, validating or refuting the schemas with evidence, and, ultimately, summarizing the entire process in educational materials, such as cards, to facilitate a deeper comprehension of their conflicting schemas and their connection to current life issues and challenges (32). Simultaneously, while schema therapy uncovers the source of worries of an individual, spirituality-based approaches reduce uncontrollable worries by instilling a sense of purpose in the lives of people. Through a combination of schema therapy and spirituality-based techniques, anxious women gain hope by recognizing their incompatible schemas and acknowledging the presence of a supportive higher power who guides them through life. This awareness promotes hope for what is to come and nurtures the idea that positive outcomes are in store, consequently lessening their concerns (17).

Results of the current study indicated that spirituality-based schema therapy had short-term benefits in improving self-acceptance, positive relationships with others, and autonomy. However, no significant difference was observed between groups in the areas of purposeful life, personal growth, and environmental mastery (20, 31, 33). These findings are in line with those of previous research (20, 31, 33). In a study, it was found that spirituality-based schema therapy can decrease anxiety in women (20). Another study suggested that schema therapy can enhance psychological well-being (31). Additionally, researchers concluded that schema therapy is effective in improving the psychological well-being of depressed patients (33).

In explaining this discovery, it should be noted that spirituality-based schema therapy

had short-term effects on self-acceptance, positive relationships with others, and autonomy. This was due to the fact that treatment or reduction of anxiety is a process that necessitates a lengthier period and that individuals suffering from anxiety disorders require extensive psychological and behavioral support to address the illness by recognition of the incorrect cognitive roots and adoption of appropriate behavioral techniques. Overall, spirituality-based schema therapy helps women with anxiety disorders become more aware of their internal emotions (30). When an individual comprehends the source of their maladaptive behaviors, their life finds a new meaning, allowing for the abandonment of negative interactions and unhealthy personality traits in favor of a positive mindset and constructive relationships with others. Spirituality-based schema therapy helps individuals with anxiety disorders by encouraging them to seek meaning and purpose in life, connect with themselves, others, and nature, and take responsibility for their actions. This approach supports them in overcoming anxiety and improving their quality of life (19). The reason why this therapy did not result in a significant improvement in areas, such as purposeful life, personal growth, and environmental mastery, could be the common worries and anxieties experienced by patients with anxiety disorders. These concerns may include fear of death, illness, social rejection, isolation, and failure, which can impact the effectiveness of the treatment. In addition, physical symptoms, like cardiac issues, brain atrophy, weakness, kidney problems, nerve issues, loss of mental strength, headaches, and dizziness can also influence the outcome of the treatment (2).

The present study found that spirituality-based schema therapy can effectively improve mental health, which is consistent with previous research (16, 17, 32). A study suggested that the integration of spirituality into psychotherapy may enhance the motivation of patients for treatment (16).

Another research indicated that schema therapy can increase mental health (17). Additionally, a study demonstrated that schema therapy can positively impact mental, physical, and environmental health (32).

According to research, people tend to become more spiritual during personal crises caused by illness or other factors, since spirituality and religion provide a sense of meaning and support during such difficult times. Therefore, integration of spirituality into treatment can be beneficial, as each individual should cultivate, reinforce, and activate their personal spiritual beliefs. Addressing spiritual concerns in therapy helps individuals merge their spirituality with other aspects of their identity, and incorporating spirituality-based schema therapy can generate positive expectations and enhance client engagement. By challenging negative beliefs and behaviors through schema therapy grounded in spirituality, individuals can experience improvements in psychological well-being by addressing core issues, such as emotions and negative thinking patterns (16).

Combination of spiritual therapy with schema therapy can help break the cycle of negative feelings and beliefs, such as hopelessness, helplessness, and humiliation, that are often associated with flawed schemas, like victimization and resignation. By focusing on inner strength and seeking support from a higher power, individuals can strengthen their resilience and overcome feelings of despair and inadequacy, leading to improved mental health (20).

It is essential to consider the limitations of each study when interpreting the results, as every study has its constraints. One of the limitations of the current research was the subjective nature of quality of life, which is affected by cultural norms, moral beliefs, and individual desires. This subjectivity can make it difficult to accurately compare quality of life scores among different individuals or groups, potentially leading to misinterpretations or biases. As a result, it is crucial to exercise

caution when applying the results of this study to other regions. Identification of specific factors that influence the quality of life and measurement of the quality of life is challenging due to its broad and multifaceted nature. Self-report measures, which are often relied upon, can be influenced by various factors, such as mood states, recall biases, and social desirability. The sample in this study predominantly consisted of Muslim Iranians, which may not fully represent the views of different minority groups and races. Practical limitations of the research included unexpected events, like relocation, illness, and changes in the attitudes of subjects towards participation in the study. Moreover, some participants were hesitant to share their true thoughts and feelings. Future research should consider the inclusion of a broader range of participants for better representation. In upcoming research, it is recommended that scientists explore how this therapeutic approach impacts other mood and anxiety disorders. The current study focused solely on females with GAD; hence, future studies should also evaluate the effectiveness of this treatment on males.

## 6. Conclusion

Based on the statistical findings and observations of this study, spirituality-based schema therapy has shown a significant impact on the reduction of worry and improvement of mental health among women with GAD in the short term. In addition, it has been found to enhance self-acceptance, positive relationships with others, and autonomy. The prevalence of anxiety is notable, particularly among females with GAD. Counselors and psychologists are encouraged to use this treatment approach more often when working with their clients. Moreover, the combination of this therapy with other educational and therapeutic techniques may enhance its efficacy. Results of this research could contribute to the better understanding and treatment of GAD in females. It is important to

recognize the potential value of incorporating deep philosophical content in university study programs to nurture the spirituality of young people, especially in a society increasingly focused on materialism. In a postmodern culture that prioritizes material needs over spiritual reflection, the findings of this study could offer practical insights into the field of education.

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