Journal Website

Article history:
Received 21 March 2025
Revised 18 April 2025
Accepted 02 May 2025
Published online 22 May 2025

Iranian Journal of Neurodevelopmental Disorders

Volume 4, Issue 2, pp 1-7

E-ISSN: 2980-9681

Effectiveness of Dream Therapy on Anxiety in Patients with Irritable Bowel Syndrome: A Strategy to Enhance Quality of Life

Shaghayegh. Pooyan[1], Seyed Hamid. Atashpour[2*]

[1] Department of Psychology, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
[2] Associate Professor, Department of Psychology, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran

*** Corresponding author email address**: hamdi.atashpour@iau.ac.ir

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Pooyan, S., & Atashpour, S. H. (2025). Effectiveness of Dream Therapy on Anxiety in Patients with Irritable Bowel Syndrome: A Strategy to Enhance Quality of Life. *Iranian Journal of Neurodevelopmental Disorders*, *4*(2), 1-7.
https://doi.org/10.61838/kman.jndd.4.2.1

A B S T R A C T

Purpose: This study was conducted to evaluate the effectiveness of dream therapy on anxiety in patients diagnosed with Irritable Bowel Syndrome (IBS), as a strategic approach to enhancing their quality of life.

Methods and Materials: The present research employed a semi-experimental clinical trial design with a control group. Following initial assessments and confirmation of inclusion criteria, participants were randomly assigned to two groups of 15 individuals each: an experimental group (receiving dream therapy) and a control group (waitlist). Inclusion criteria included a formal diagnosis of IBS based on the Rome III criteria, a minimum educational qualification of a high school diploma, being within the age range of 20–55 years, and scoring above the clinical cutoff on the Beck Anxiety Inventory (BAI). The experimental group received a dream therapy intervention across twelve 120-minute sessions. The measurement instrument was the Beck Anxiety Inventory (BAI), which was administered to both groups at pre-test and post-test stages. Data analysis was conducted at the level of inferential statistics using analysis of covariance (ANCOVA) via SPSS version 26.

Findings: The results indicated that dream therapy significantly reduced anxiety levels in the experimental group compared to the control group ($P < 0.005$). The effect size (group effect) was reported as 0.262, with a statistical power of 0.848.

Conclusion: These findings suggest that dream therapy can serve as an effective intervention for reducing anxiety in patients with Irritable Bowel Syndrome and, consequently, improving their quality of life.

Keywords: *Dream therapy, anxiety, Irritable Bowel Syndrome (IBS), quality of life.*

1. Introduction

Irritable Bowel Syndrome (IBS) is a functional gastrointestinal disorder characterized by symptoms such as abdominal pain accompanied by changes in the form or frequency of stool. Patients with IBS may also experience bloating, distension after eating, localized discomfort, and fluctuations in bowel movement patterns over time (Shahkaram et al., 2024). This syndrome is a common and often debilitating gastrointestinal condition marked by abdominal pain and altered bowel habits. Pharmacological treatments are often ineffective, prompting the development of various behavioral interventions (Naliboff et al., 2020). This chronic gastrointestinal disorder affects between 5%

and 20% of the general population and can seriously impact quality of life (Aguilera-Lizarraga et al., 2022). The effects of IBS on individuals—especially in terms of quality of life—and its implications for healthcare provision and broader society, including economic costs, are significant. While the extent of these impacts appears to be comparable across nations, their precise nature may differ based on sociocultural differences (Black & Ford, 2020).

Regarding the adverse effects of IBS on life, Lacy et al. (2021) noted in their study that most patients spend 10 to 15 years of their lives seeking immediate treatment for their condition (Lacy et al., 2021). Furthermore, other studies have reported that IBS patients are willing to accept a hypothetical medication to alleviate their symptoms, even if it carries a one percent risk of death. Hence, IBS can profoundly affect patients, lowering their quality of life and productivity (Camilleri, 2021). Moreover, most of these patients report poor quality of life and experience symptoms of depression, anxiety, and work-related stress (Saadati et al., 2022). In fact, stress plays a key role in this condition (Mazi et al., 2020). In a study by Ahmadi et al. (2022), it was mentioned that existing research on emotions shows a positive relationship between primary IBS symptoms and negative emotions such as anger, anxiety, and depression. These emotions are consistently accompanied by heightened visceral sensitivity and pain (Ahmadi et al., 2022). In a study conducted by Fircak (2021) aimed at assessing the mental health of IBS patients, high to moderate levels of stress and reduced stress resilience were reported, particularly among male patients. Moreover, declines in psychological and physical health components were observed in IBS patients, indicating a reduction in their quality of life (Fircak, 2021). It is worth noting that studying mental health in IBS patients is not only important for determining psychological profiles but can also serve as an alternative route for managing and treating this group of patients.

Dong et al. (2020) investigated the relationship between changes in IBS symptom severity and health-related quality of life, considering the moderating role of life stress events. In this study, most participants experienced moderate levels of life stress events (41.8%), followed by those with mild (39.2%) and severe (19.0%) levels of stress. Symptom severity was found to predict health-related quality of life, and the relationship between symptom severity and health-related quality of life was influenced by the level of stressful life events (Dong et al., 2020). Abdelaziz et al. (2023) determined in their study that increased anxiety is associated with heightened IBS symptoms. Thus, they concluded that IBS patients should be screened for anxiety, and the role of psychiatric management of anxiety in alleviating IBS symptoms should be explored. According to their findings, higher scores on the Beck Anxiety Inventory were significantly associated with an increased number of reported IBS symptoms. They stated that “our study reports that 87.6% of IBS patients suffered from severe anxiety.” (Abdelaziz et al., 2023).

The main treatment goals for patients with IBS are to improve overall symptoms, well-being, and quality of life (Chey et al., 2021). Some evidence suggests that anxiety related to gastrointestinal symptoms may be a primary trigger for symptom severity and impairment in quality of life in individuals with IBS. Overall, the goal of medical treatment for IBS is to relieve symptoms and minimize their impact on quality of life. However, it must be noted, unfortunately, that complete symptom resolution is often unattainable, and this should be clearly communicated to patients to manage expectations effectively (Staudacher et al., 2023).

In defining dream therapy, it can be described as a psychological technique concerning dreams and the therapeutic effectiveness of this phenomenon. It involves specific phases focusing on targeted themes, followed by attempts to generate predetermined dreams in clients. When its stages are practiced and repeated over several sessions, specific dream content is likely to emerge. Hence, the name "dream therapy" has been attributed to this treatment approach. This technique is significant both in assessing the client’s psychological condition and in facilitating their personal growth and development (Moghadasi, 2016; Moghadasi et al., 2019). Horowitz et al. (2023) note that targeted dream incubation is a protocol designed to induce specific content in hypnagogic dreams. This enables controlled studies using dream reports as independent variables (Horowitz et al., 2023). In line with publishing findings from the application of this therapeutic technique, the study by White and Taytroe (2003) is notable. Participants engaging in nighttime dream therapy reported a specific reduction in distress related to a particular issue, enhanced problem solvability, and improvement in their focal problem. Their daily anxious and depressive moods also decreased compared to the control group over a ten-day period (White & Taytroe, 2003). In the study by Moghadasi et al. (2019), it was also found that dream therapy, compared to the control group, had a significant reduction effect on death anxiety and depression, while significantly increasing sleep quality (Moghadasi et al., 2019).

E-ISSN: 2980-9681

In light of the above, the primary aim of this research is to examine the effectiveness of dream therapy on anxiety in patients with Irritable Bowel Syndrome, as a strategic approach for enhancing their quality of life.

2. Methods and Materials

2.1. Study Design and Participants

This study is a semi-experimental clinical trial with a control group, conducted to evaluate the effectiveness of dream therapy on anxiety in patients with Irritable Bowel Syndrome (IBS) as a strategy to enhance their quality of life. After initial assessments and confirmation of inclusion criteria, participants were randomly assigned to two separate groups: an experimental group that received dream therapy interventions and a control group that received no active intervention (waitlist). Assessments were conducted at two time points: before the intervention and immediately after its completion.

The statistical population of this study included individuals with IBS who referred to internal and gastroenterology clinics in the city of Isfahan. The sample size was 30 participants, selected initially through convenience sampling and subsequently voluntarily, based on inclusion criteria. The adequacy of this sample size—15 participants per group (experimental and control)—was determined according to Cohen's (2000) recommendation.

Each participant was evaluated by a specialist using the Rome III diagnostic criteria to confirm the diagnosis of IBS. Additional inclusion criteria were as follows: (1) age between 20 and 55 years, (2) at least a high school diploma, (3) scoring above the clinical cutoff on the Beck Anxiety Inventory (BAI) to ensure the presence of significant anxiety, and (4) providing informed consent to participate in the study. Exclusion criteria included: (1) failure to complete the pre-test, (2) participation in any other therapeutic interventions for IBS or anxiety during the study, (3) taking medications that could influence the therapeutic process, (4) unwillingness to continue participation, and (5) absence from more than two therapy sessions. It is also important to note that participants were required to possess the ability to dream, trust in the significance of dreams, and be open to confronting their unconscious mind.

To implement the study, after obtaining necessary permissions from the university, 30 participants were selected from among patients at the designated treatment centers using convenience sampling, and then assigned randomly to the experimental and control groups based on the inclusion criteria. Both groups were assessed in the pre-test and post-test phases using the research instruments. While the control group remained on the waitlist, the experimental group received 12 weekly therapy sessions, each lasting 120 minutes.

The data collection method for reviewing and writing the theoretical and empirical background consisted of library research. For data collection related to statistical analysis and answering the research question, field research methods were employed through the administration of interventions and distribution of questionnaires.

2.2. Measures

2.2.1. Anxiety

This inventory was developed by Beck et al. (1988) to assess the severity of anxiety in adolescents and adults in both research and clinical settings. It contains 21 items rated on a 4-point Likert scale (0 = Not at all, 1 = Mildly, 2 = Moderately, 3 = Severely). Scores range from 0 to 63. Beck et al. (1988) reported the construct validity of the inventory by correlating it with the revised Hamilton Anxiety Rating Scale (1959) and the revised Hamilton Depression Rating Scale (1960), yielding coefficients of 0.51 and 0.25, respectively. The test-retest reliability and Cronbach's alpha were reported as 0.75 and 0.92, respectively. In a study by Kavyani and Mousavi (2008), the concurrent validity of the BAI was confirmed via the interclass correlation between BAI scores and clinical assessments of anxiety in an anxious population, with a correlation of $r = 0.72$ ($p < 0.001$). In the same study, test-retest reliability and internal consistency (using Cronbach's alpha) were reported as 0.83 and 0.92, respectively (Kavyani & Mousavi, 2008). In the current study, the Cronbach's alpha coefficient was calculated to be 0.884.

2.3. Intervention

2.3.1. Dream Therapy

The therapeutic protocol for dream therapy was adapted from the study by Moghaddasi (2016), which examined the effectiveness of dream therapy on dependent variables such as depression, death anxiety, sleep quality, resilience, quality of life, and lifestyle. The protocol was implemented as follows (Moghadasi, 2016; Moghadasi et al., 2019):

- **Session 1:** This session focused on familiarizing group members with each other, creating a secure

E-ISSN: 2980-9681

and trustworthy environment conducive to group therapy, and conducting the pre-test.

- **Session 2:** This session aimed to foster group cohesion and discussion of shared problems.
- **Session 3:** Participants were asked about their views on dreams and the role of dreaming in human life, supported by scientific references.
- **Sessions 4 to 11:** These sessions focused on teaching the dream therapy process, which consists of the following eight steps:
    1. Choose an appropriate night.
    2. Reflect on the day's thoughts and emotions.
    3. Write down various aspects of the problem.
    4. Compose a one-line request for a desired dream.
    5. Concentrate on the request.
    6. Attempt to fall asleep.
    7. Upon waking, immediately write down the dream.
    8. Try to interpret the dream's message.

The above steps were taught by the therapist, and the eighth step was analyzed with the therapist's assistance.

- **Session 12:** This final session focused on summarizing and reviewing the impacts of the therapy to help participants continue the process independently, without therapist support.

2.4. Data Analysis

For data analysis in this study, in addition to descriptive statistics, inferential statistical analysis was performed using Analysis of Covariance (ANCOVA) in SPSS version 26. Prior to this, statistical assumptions—normal distribution of data, homogeneity of variances, homogeneity of regression slopes, and equality of error variance—were assessed through the Shapiro-Wilk test, Levene's test, and tests of interaction between pre-test scores and group membership.

3. Findings and Results

In the present study, with respect to the descriptive frequency of demographic variables, women constituted the majority in both the experimental and control groups in terms of gender. Regarding marital status, most participants in both groups were married. In terms of education level, most participants in the experimental and control groups had a master's and bachelor's degree, respectively. The most common age range among participants was 20 to 29 years in the experimental group and 30 to 39 years in the control group.

Table 1

Frequency and Percentage of Demographic Variables in Research Groups

Variable and Levels	Experimental Frequency (%)	Control Frequency (%)	Chi-Square Value (Significance)
Total Participants	15	15	
Gender			
- Female	13 (86.7%)	10 (66.7%)	1.677 (0.195)
- Male	2 (13.3%)	5 (33.3%)	
Marital Status			
- Single	4 (26.7%)	1 (6.7%)	2.160 (0.142)
- Married	11 (73.3%)	14 (93.3%)	
Education Level			
- High School Diploma	1 (6.7%)	2 (13.3%)	3.400 (0.493)
- Associate Degree	1 (6.7%)	2 (13.3%)	
- Bachelor's Degree	5 (33.3%)	7 (46.7%)	
- Master's Degree	6 (40.0%)	4 (26.7%)	
- Doctorate	2 (13.3%)	0	
Age Range			
- 20–29	6 (40.0%)	5 (33.3%)	6.156 (0.104)
- 30–39	4 (26.7%)	6 (40.0%)	
- 40–49	5 (33.3%)	1 (6.7%)	
- 50–59	0	3 (20.0%)	

As shown in the last column of Table 1, the chi-square test for demographic variables was not significant, indicating no statistically significant differences in demographic distribution between the two groups ($P > 0.05$).

E-ISSN: 2980-9681

The means, standard deviations, and standard errors of the research variables are presented in Table 2.

Table 2

Mean, Standard Deviation, and Standard Error of Research Variables

Scales and Test Phase	Experimental Group			Control Group		
	Mean	Standard Error	Standard Deviation	Mean	Standard Error	Standard Deviation
Pre-test Anxiety	20.933	1.830	7.085	21.400	2.558	9.905
Post-test Anxiety	14.533	1.305	5.055	19.800	2.566	9.937

Given that the experimental group showed changes in the post-test phase compared to the control group, its significance was assessed in the inferential section.

To assess the assumptions necessary for using parametric tests, the normality of the data was first examined. Due to the use of a Likert scale, skewness and kurtosis statistics (appropriate for Likert-type data) and the Shapiro-Wilk test were employed. The skewness values were within ±2 and kurtosis within ±3, indicating normal distribution. Furthermore, the Shapiro-Wilk statistic was non-significant for this variable, confirming data normality. To test the assumption of equal variances between the experimental and control groups, Levene's test was used, and the equality of variances was confirmed for the research variables. Additionally, the linearity and homogeneity of variance-covariance matrices were examined and validated.

Based on the results of the ANCOVA analysis for the anxiety variable, presented in the following table, the difference between the two groups was significant after controlling for pre-test scores ($F = 9.597$, $p = 0.005$). The partial eta squared for the group factor was 0.262, and the test power was 0.848. These findings indicate that 26.2% of the differences can be attributed to the independent variable (intervention), and this was confirmed with a test power of 84.8%.

Table 3

Results of Between-Group Effects Test for Anxiety Variable

Variable	Source	Sum of Squares	df	Mean Square	F	Significance	Partial Eta²	Effect Size
Anxiety	Pre-test	1232.413	1	1232.413	65.538	0.000	0.708	1
	Group	180.459	1	180.459	9.597	0.005	0.262	0.848
	Error	507.720	27	18.804	–	–	–	–
	Total	10789.000	30	–	–	–	–	–

Considering Table 3, it was determined that following the intervention, the mean anxiety scores of the experimental group significantly differed from those of the control group. Therefore, it can be concluded that dream therapy is effective in reducing anxiety and consequently enhancing the quality of life in patients with Irritable Bowel Syndrome.

4. Discussion and Conclusion

The findings of this study revealed that dream therapy significantly reduced anxiety levels in the experimental group compared to the control group. These results are consistent with studies such as those by Moghaddasi et al. (2019) and White and Tetroe (2003), which demonstrated that dream-based interventions can positively impact both the physical and emotional symptoms of patients. In this regard, it can be stated that Irritable Bowel Syndrome (IBS) is a psychosomatic disorder influenced by psychological factors such as anxiety, and dysfunction in this pathway leads to a decline in patients' quality of life. Dream therapy, by providing a safe framework for confronting unconscious conflicts, facilitates emotional discharge and reduces physiological arousal, ultimately decreasing anxiety and alleviating symptom severity—thereby contributing to improved quality of life.

Further analysis of previous studies confirmed that psychosomatic disorders such as IBS are significantly correlated with negative emotions like anxiety and depression. The current findings are in alignment with the results of prior studies (Abdelaziz et al., 2023; Ford et al., 2014) which affirmed the efficacy of psychological interventions in reducing IBS symptoms. These researchers emphasized the role of anxiety management in mitigating

E-ISSN: 2980-9681

IBS manifestations. Moreover, the findings of Ahmadi et al. (2022) demonstrated that regulating negative emotions can help reduce the physical symptoms associated with IBS (Ahmadi et al., 2022). The present study also aligns with the research of Moghaddasi et al. (2019), which confirmed the effectiveness of dream therapy in decreasing anxiety.

These findings suggest that dream therapy, by activating the unconscious and facilitating the processing of repressed emotions, contributes to the reduction of anxiety and consequently decreases somatic tensions and psychosomatic symptoms related to IBS, ultimately aiding in the enhancement of patients' quality of life.

In interpreting these findings and drawing conclusions, it can be stated that the significant reduction in anxiety scores after the intervention in the experimental group indicates that dream therapy, through access to unconscious content and regulation of internal emotions, can have a positive and clinically relevant impact on reducing anxiety. This is particularly important in psychosomatic disorders such as IBS, where anxiety plays a critical role in symptom exacerbation. In further explanation, anxiety, as a key psychological factor in IBS, exacerbates physical symptoms through its influence on the brain–gut axis. The cumulative outcome of these symptoms and consequences ultimately results in diminished life satisfaction and quality of life. Dream therapy, drawing upon Freud's theory of primary process thinking to alleviate internal tensions and intrapsychic conflicts, offers emotional catharsis, reduces internal stress, and enhances emotional regulation capacities—disrupting this pathological cycle. Hence, this mechanism aligns with Freudian psychoanalytic theories regarding the unconscious and its role in anxiety generation. Consequently, anxiety reduction may not only influence IBS symptom severity but also improve patients' overall quality of life and mitigate the illness's negative personal and social impacts.

This study faced several limitations that should be considered when interpreting the results. The use of convenience sampling from the city of Isfahan restricts the generalizability of the findings to broader populations. The limited body of research on dream therapy, both in Iran and globally, posed challenges in establishing a robust theoretical background. Due to the subjective nature and time-dependent aspects of dream therapy, it was not possible to fully monitor the intervention implementation by the therapist. Additionally, analytic treatments often require longer and more individualized sessions, which could not be provided in this group-based design. The therapeutic outcomes were also heavily reliant on the participants' ability to engage deeply with their unconscious material. The sample was predominantly female, which may have introduced gender bias. Finally, the inherent complexity of collaboration between medical and psychological professionals in diagnosing and treating psychosomatic conditions—and the patients' confusion stemming from the physical nature of symptoms—posed structural challenges to treatment adherence and diagnostic clarity.

For future research, it is recommended that samples be selected randomly from larger and more demographically diverse populations to enhance the external validity and generalizability of the findings. Researchers are encouraged to move beyond conventional treatment frameworks and focus on underexplored therapeutic modalities, integrating creativity grounded in strong theoretical foundations to expand the scientific knowledge base. The use of technology to monitor patients at home may also improve protocol adherence and intervention fidelity. Finally, in light of the growing prevalence of psychosomatic disorders, it is crucial to implement public awareness programs to prevent unnecessary delays in diagnosis, reduce financial and psychological burdens, and improve patients' quality of life.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We hereby thank all individuals for participating and cooperating us in this study.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

E-ISSN: 2980-9681

Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the study and participated in the research with informed consent. This research was conducted in accordance with the ethical principles outlined in the Ethics Charter of the Islamic Azad University, Isfahan (Khorasgan) Branch. Ethical approval was obtained from the university's ethics committee under code IR.IAU.KHUISF.REC.1403.123.

References

Abdelaziz, H. A., Ellakany, W. I., Ellakany, A., Dean, Y. E., Rouzan, S. S., Bamousa, B. A. A., & Aiash, H. (2023). The relationship between anxiety and irritable bowel syndrome symptoms among females: A cross-sectional study in Egypt. *Medicine*, *102*(32), e34777. https://doi.org/10.1097/MD.0000000000034777

Aguilera-Lizarraga, J., Hussein, H., & Boeckxstaens, G. E. (2022). Immune activation in irritable bowel syndrome: what is the evidence? *Nature Reviews Immunology*, *22*(11), 674-686. https://doi.org/10.1038/s41577-022-00700-9

Ahmadi, I., Bafandeh Qaramaleki, H., & Mahaki, M. (2022). The Role of Emotional Patterns in Predicting Irritable Bowel Syndrome with the Mediation of Anxiety Sensitivity. *Quarterly Journal of Innovative Psychological Research*, *17*(68), 23-32. https://psychologyj.tabrizu.ac.ir/article_15334.html

Black, C. J., & Ford, A. C. (2020). Global burden of irritable bowel syndrome: trends, predictions and risk factors. *Nature reviews Gastroenterology & hepatology*, *17*(8), 473-486. https://doi.org/10.1038/s41575-020-0286-8

Camilleri, M. (2021). Diagnosis and treatment of irritable bowel syndrome: a review. *JAMA*, *325*(9), 865-877. https://doi.org/10.1001/jama.2020.22532

Chey, W. D., Keefer, L., Whelan, K., & Gibson, P. R. (2021). Behavioral and Diet Therapies in Integrated Care for Patients With Irritable Bowel Syndrome. *Gastroenterology*, *160*(1), 47-62. https://doi.org/10.1053/j.gastro.2020.06.099

Dong, Y., Baumeister, D., Berens, S., Eich, W., & Tesarz, J. (2020). Stressful life events moderate the relationship between changes in symptom severity and health-related quality of life in patients with irritable bowel syndrome. *Journal of clinical gastroenterology*, *54*(5), 445-451. https://doi.org/10.1097/MCG.0000000000001261

Fircak, M. (2021). Assessment of mental health in patients with irritable bowel syndrome. *Gastroenterology*, *55*(4), 252-257. https://doi.org/10.22141/2308-2097.55.4.2021.247918

Ford, A. C., Quigley, E. M., Lacy, B. E., Lembo, A. J., Saito, Y. A., Schiller, L. R., Soffer, E. E., Spiegel, B. M., & Moayyedi, P. (2014). Effect of antidepressants and psychological therapies, including hypnotherapy, in irritable bowel syndrome: systematic review and meta-analysis. *The American Journal of Gastroenterology*, *109*(9), 1350-1366. https://doi.org/10.1038/ajg.2014.148

Horowitz, A. H., Esfahany, K., Gálvez, T. V., Maes, P., & Stickgold, R. (2023). Targeted dream incubation at sleep onset increases post-sleep creative performance. *Scientific reports*, *13*(1), 7319. https://doi.org/10.1038/s41598-023-31361-w

Kavyani, H., & Mousavi, A. A.-S. (2008). Psychometric Features of the Beck Anxiety Inventory Across Age and Gender Groups in the Iranian Population. *Journal of the Medical School*, *66*(2), 126-140. https://tumj.tums.ac.ir/article-1-641-fa.html

Lacy, B. E., Pimentel, M., Brenner, D. M., Chey, W. D., Keefer, L. A., Long, M. D., & Moshiree, B. (2021). ACG clinical guideline: management of irritable bowel syndrome. *Official Journal of the American College of Gastroenterology*, *116*(1), 17-44. https://doi.org/10.14309/ajg.0000000000001036

Mazi, M., Ebrahimi, A., Daghaghzadeh, H., & Aghaei, H. (2020). The Effectiveness of Compassion-Focused Therapy (CFT) on Perceived Stress in Patients with Irritable Bowel Syndrome: An Experimental Study. *Isfahan Medical School Journal*, *38*(588), 602-608. https://jims.mui.ac.ir/article_16123.html

Moghadasi, R. (2016). *Developing an Analytical Dream Therapy Package and Comparing Its Effectiveness with Analytical Visualization of Psychological Journeys Based on Death Problem Solving on Depression, Death Anxiety, Sleep Quality, Resilience, Quality of Life, and Lifestyle* Doctoral Dissertation, Islamic Azad University, Isfahan (Khorasgan) Branch].

Moghadasi, R., Golparvar, M., & Hassan Abadi, H. (2019). Comparing the Effectiveness of Dream Therapy with Analytical Visualization on Depression, Death Anxiety, and Sleep Quality in Students. *Social Health*, *7*(1), 46-56. https://journals.sbmu.ac.ir/ch/index.php/ch/article/view/24053

Naliboff, B. D., Smith, S. R., Serpa, J. G., Laird, K. T., Stains, J., Connolly, L. S., & Tillisch, K. (2020). Mindfulness-based stress reduction improves irritable bowel syndrome (IBS) symptoms via specific aspects of mindfulness. *Neurogastroenterology & Motility*, *32*(9), e13828. https://doi.org/10.1111/nmo.13828

Saadati, S., Sadeghi, A., Mohaghegh-Shalmani, H., Rostami-Nejad, M., Elli, L., Asadzadeh-Aghdaei, H., & Zali, M. R. (2022). Effects of a gluten challenge in patients with irritable bowel syndrome: a randomized single-blind controlled clinical trial. *Scientific reports*, *12*(1), 4960. https://doi.org/10.1038/s41598-022-09055-6

Shahkaram, H., Yaztappeh, J. S., Sadeghi, A., Kianimoghadam, A. S., Soltanabadi, S., Bakhtiari, M., & Arani, A. M. (2024). Comparing the effectiveness of transdiagnostic treatment with acceptance and commitment therapy on emotional disorders, rumination, and life satisfaction in patients with irritable bowel syndrome: a randomized clinical trial. *BMC Gastroenterology*, *24*(1), 1-12. https://doi.org/10.1186/s12876-024-03142-w

Staudacher, H. M., Black, C. J., Teasdale, S. B., Mikocka-Walus, A., & Keefer, L. (2023). Irritable bowel syndrome and mental health comorbidity - approach to multidisciplinary management. *Nature reviews Gastroenterology & hepatology*, *20*(9), 582-596. https://doi.org/10.1038/s41575-023-00794-z

White, G. L., & Taytroe, L. (2003). Personal problem-solving using dream incubation: dreaming, relaxation, or waking cognition? *Dreaming*, *13*(4), 193-209. https://doi.org/10.1023/B:DREM.0000003143.00133.1c

E-ISSN: 2980-9681