Iranian Evolutionary Educational Psychology Journal
IEEPJ
University of Hormozgan
Online ISSN: 2588 - 4395
Homepage: https://ieepj.hormozgan.ac.ir

Investigating the Effectiveness of Sensory Processing Training on Couples' Satisfaction

Freshteh Aminaei Chatrudi[1], Mahin Askari[2]✉, Hassan Baniasadi[3]

1. Ph.D. Student of Counseling, Department of Counseling, Qe. C., Islamic Azad University, Qeshm, Iran
2. Department of General Courses, Hormozgan University of Medical Sciences, Bandar Abbas, Iran (corresponding author), mahinask2005@yahoo.com
3. Department of Psychology, Shahid Bahonar University of Kerman, Kerman, Iran

Article Info

Article type:
Research Article

Article history:
Received 12 Apr. 2025
Received in revised form 7 Jun. 2025
Accepted 24 Jul. 2025
Published online 01 Sep. 2026

Keywords:
Marital satisfaction,
Sensory processing training,
Couples,
Conflict

ABSTRACT

Objective: Marital satisfaction is a multidimensional construct encompassing satisfaction with marital interactions and with the emotional and practical aspects of marriage. This study investigated the effectiveness of sensory processing training in improving marital satisfaction among couples experiencing marital conflict.

Methods: A quasi-experimental pretest-posttest design with a control group was used. The statistical population comprised couples referred to family counseling centers in Kerman in 2023, from which 60 participants were purposively selected and randomly assigned to an experimental group (n = 30) and a control group (n = 30). Data were collected using the ENRICH Marital Satisfaction Scale (1989). The experimental group completed a 10-session sensory processing training program designed to address sensory sensitivities and improve emotional regulation and communication; the control group received no intervention. Data were analyzed using analysis of covariance (ANCOVA) in SPSS version 27.

Results: ANCOVA showed a significant effect of sensory processing training on marital satisfaction, $F = 57.522$, $p < .001$, $\eta^2 = 0.502$, with the intervention accounting for 50.2% of the variance in marital satisfaction scores. The experimental group showed significantly greater improvement than the control group.

Conclusions: Sensory processing training appears to be an effective intervention for improving marital adjustment by addressing sensory sensitivities and enhancing emotional regulation and interpersonal communication. These findings suggest that sensory interventions may complement existing therapeutic approaches for marital conflict. Further research is recommended to examine the long-term effects and applicability of this training across different populations and cultural contexts.

Cite this article: Aminaei Chatrudi, F., Askari, M. & Baniasadi, H. (2026). Investigating the effectiveness of sensory processing training on couples' satisfaction. *Iranian Evolutionary Educational Psychology Journal*, 8 (3), 1-19.
DOI: https//doi.org/

Publisher: University of Hormozgan.
DOI: https// doi.org/

Introduction

Marital satisfaction is a key construct in the assessment of a couple's relationship, and it encompasses aspects such as the feelings of affection, trust, and companionship that arise from the exchanges between spouses (Khazaei et al., 2022). The state of adjustment between the expected and the actual situation of the individual in a marital relationship would develop marital satisfaction, which is the most important factor in the durability of marriage in the literature. Marriage satisfaction is a measure of the interest and affection of couples and their positive attitude towards marriage (Taghani et al., 2019). The family immune to harm is the ultimate result of increasing marital satisfaction. Conversely, social disadvantages and increased social deviance result from marital difficulties.

Marital satisfaction is a complex phenomenon influenced by a combination of psychological, social, and biological factors. Among these, psychological factors such as attachment styles and marital status have been identified as key predictors of marital satisfaction (Azizi et al., 2023; Kazemi et al., 2023). (Eilert & Buchheim, 2023) demonstrated that secure attachment styles promote trust and emotional connection between partners, while insecure attachment styles, such as anxious or avoidant tendencies, emotional distance or excessive dependence, can lead to dissatisfaction. Similarly, (Adham, 2023) highlighted the critical role of communication patterns, emphasizing that constructive communication—marked by active listening, empathy, and openness—enhances understanding and conflict resolution, whereas destructive communication patterns, such as criticism, defensiveness, and resistance, undermine the quality of relationship. In addition to psychological elements, marital satisfaction is deeply rooted in the emotional and relational dynamics between spouses. It has been proven that factors such as intimacy, commitment, and mutual understanding strengthen relationship bonds and long-term satisfaction. (Navabinejad et al., 2024) argued that emotional intimacy, characterized by a sense of closeness and vulnerability, makes partners feel appreciated and supported, which in turn promotes a deeper connection. (Blake & Janssens, 2023) further identified mutual understanding and commitment as essential components of a successful marriage, and noted that couples who prioritize their shared goals and show a willingness to invest in their relationship are more likely to experience lasting satisfaction. However, the influence of external stresses cannot be ignored, as they often interfere with the internal harmony of marital relationships. For example, infertility can impose emotional

and psychological stress on couples, leading to feelings of inadequacy, frustration, and sadness, which may weaken marital bonds (Jiang et al., 2024). Similarly, financial instability is frequently cited as a source of conflict, as it can increase stress, reduce feelings of security, and lead to disagreements about priorities and responsibilities. Stress from work, especially in dual-income households, can also negatively affect marital satisfaction by limiting quality time together, reducing emotional availability, and increasing irritability. These external factors highlight the complex interaction between individual, relational, and environmental variables in the shaping of marital satisfaction(Mousavi, 2022).

Sensory processing refers to the perception, interpretation and response of sensory stimuli by individuals. Variations in sensory processing styles, including hypersensitivity and hyper-sensitiveness, can affect emotional regulation, empathy and communication, all of which are important components of marital satisfaction (Costa-Lopez et al., 2021; Sperati et al., 2024). Sensory processing is a broad term that refers to the ability to process and to organize sensations for daily functioning. Sensory processing involves one's ability to: (a) perceive sensation; (b) transduce sensory stimuli into neural impulses; (c) discriminate the nature of sensory impulses; and, (d) integrate and organize sensory information. The ability to properly process sensory information is believed to be fundamental to learning, perception, movement and emotion; and therefore, provides a vital basis for daily functioning (Dellapiazza et al., 2018).

In clinical practice, sensory-processing interventions are mainly developed and implemented in children with neurodevelopmental disorders, particularly autism spectrum disorder (ASD). These interventions, which include sensory integration therapy, environmental modification and individualized sensory nutrition, are designed to modulate atypical sensory responses, improve self-regulation and adaptive behavior (David et al., 2024; Patil et al., 2023). Research has shown that these approaches can lead to measurable improvements in the attention, emotional regulation and social engagement of children with sensory impairment (Passarello et al., 2022). Despite their proven efficacy in pediatric populations, the use of sensory processing interventions in adult populations, particularly in marital therapy, remains untried.

Recent research highlights the strong correlation between sensory processing styles and different levels of emotional and interpersonal dysfunction in adults. For example, individuals with increased sensory processing sensitivity (SPS) have been found to exhibit increased negative

affectivity and to have maladaptive conflict resolution strategies, both of which are detrimental to the satisfaction of relationships (Zorlular & Uzer, 2023). In addition, specific patterns of sensory processing, such as low-registration and sensory avoidance, are associated with interpersonal difficulties, with attachment styles mediating these relationships (Lee & Park, 2020). These findings suggest that sensory processing characteristics may affect emotional regulation and interpersonal interactions, which may affect marital satisfaction.

Psychological interventions involving sensory-processing training have shown significant effectiveness in improving self-regulation, emotional awareness and interpersonal communication (Costa-Lopez et al., 2021; Kandlur et al., 2023; Sperati et al., 2024). These interventions are grounded in the understanding that sensory integration plays a critical role in emotional and behavioral regulation, as the way individuals process sensory information directly impacts their ability to manage stress, maintain focus, and engage in meaningful interactions (Passarello et al., 2022). For couples, sensory processing interventions offer a valuable framework for addressing sensory-based challenges that may underlie or exacerbate marital difficulties. For instance, heightened sensitivity to stimuli such as touch, sound, or light can lead to misinterpretations, frustration, or avoidance behaviors in intimate relationships, creating tension and reducing marital satisfaction (Camarata et al., 2020). By equipping couples with tools to recognize and regulate their sensory triggers, these interventions foster greater empathy and understanding, thus improving the overall quality of their relationship.

Furthermore, sensory processing interventions can complement and increase the effectiveness of other therapeutic approaches. For example, cognitive-behavioral therapy (CBT) focuses on identifying and modifying maladaptive thought patterns and behaviors, while sensory processing training addresses the physiological and sensory dimensions that often underlie emotional dysregulation. This integrative approach allows therapists to address both the cognitive and sensory components of relational challenges and provides a more holistic strategy to improve marital satisfaction (Hemati Alamdarloo & Mradi, 2021). Similarly, when combined with reality therapy, which emphasizes personal responsibility and choice in addressing relational conflicts, sensory interventions can further empower couples to understand how their sensory sensitivities influence their interactions and decision-making processes (Azarnik et al., 2022; Esmaili et al., 2022). This synergy between sensory-based and cognitive-behavioral approaches not only

enhances the therapeutic experience but also contributes to sustainable improvements in emotional intimacy and conflict resolution.

A substantial body of research literature supports the effectiveness of intervention approaches in improving marital satisfaction. These interventions focus on different aspects of marital functioning, from communication and intimacy to marital sanctification and emotional regulation. For example, (Banaha et al., 2023) examined the effect of group psychosexual education in infertile women and showed a significant improvement in marital satisfaction and self-worth. This suggests that addressing the emotional and relational problems associated with infertility through targeted interventions may have a positive impact on marital satisfaction. Similarly, (Jafari et al., 2021) found that training in communication skills resulted in a significant improvement in marital satisfaction. This underlines the key role of effective communication in promoting healthy relationships and highlights the potential of communication interventions to improve marital satisfaction. In addition, research has highlighted the impact of wider systemic factors such as family dynamics and early maladaptation patterns on marital compatibility and satisfaction (Hashemi et al., 2024; Kazemi et al., 2023; Kover et al., 2024; Tavakol et al., 2017). (Kazemi et al., 2023) examined the interaction between the dynamics of the family and the current state of marriage and showed that unresolved family issues can have a significant impact on the functioning of marriage. The results also showed that there is a difference between the two groups with and without a history of marital infidelity in emotional schema, coping strategies and marital incompatibility. (Kover et al., 2024) have studied the role of early maladaptive patterns, which are deeply rooted patterns of thinking and behavior that are developed in childhood, in shaping the dynamics of relationships and contributing to marital conflict (Kover et al., 2024).

The review of the theoretical framework highlighted the key role of sensory processing training on marital conflicts. The study's literature review also highlighted a significant gap on sensory processing training intervention in marital conflicts, therefore, this study aimed to investigate the effectiveness of sensory processing training on couples' satisfaction.

Material and Methods

This study used a quasi-experimental pretest-posttest design with a control group to investigate the effectiveness of sensory processing training in couples' satisfaction. The statistical sample

included all couples with marital conflicts who referred to the Kerman family counseling centers in 2023. From this population, 30 couples with the lowest satisfaction score on the Enrich Marital Satisfaction (EMS) Scale (1989) and the highest conflict score on the Conflict Questionnaire were carefully selected. Participants were selected based on the following inclusion criteria: a score above the cutoff (73) on the Marital Satisfactions scale, no prior participation in another psychotherapy or educational sessions, and willingness to participate in the intervention sessions. Exclusion criteria included missing more than two sessions, not completing homework, or experiencing a specific illness during the study period. In order to respect ethical considerations, participants were assured that their personal data would be kept confidential and the results were provided without the names and details of the participants. These couples were then randomly assigned to either the experimental group (15 couples; 30 subjects) or the control group (15 couples; 30 subjects).

Measures

***ENRICH Marital Satisfaction Scale*.** The EMS comprises two of the subscales of the ENRICH Inventory. The ENRICH Inventory is a multidimensional marital satisfaction inventory that includes 12 category scales and 47 items. These scales were developed through a series of extensive theoretical and empirical analyses (Fowers & Olson, 1989). The 12-category scales of the ENRICH Inventory are Idealistic Distortion, Marital Satisfaction, Personality Issues, Communication, Conflict Resolution, Financial Management, Leisure Activities, Sexual Relationship, Children and Parenting, Family and Friends, Equalitarian Roles, and Religious Orientation. The questionnaire has been scored on a five-degree Likert scale of completely agree (5), agree (4), neither agree nor disagree (3), disagree (2), and completely disagree (1). Scores of less than 30 indicate severe dissatisfaction with marital affairs, between 40-60 indicates relative dissatisfaction and moderate, between 60-70 indicates high satisfaction, and over 70 indicates the highest satisfaction. The EMS Scale was evaluated for internal consistency and test-retest reliability. Cronbach's alpha revealed an internal reliability of .86. Test-retest reliability was assessed with 115 individuals over a period of 4 weeks. The reliability coefficient over time was .86. Item-total correlations were conducted to further assess the degree to which the items form a cohesive scale. The item-total correlations for the Marital Satisfaction scale items are strong, ranging from .52 to .82 with a mean of .65 for men and .68 for women (Fowers & Olson, 1989).

(Ghassamia et al., 2013) obtained Cronbach's alpha of 0.95 for the validity of the scale. In this study, the Cronbach's alpha of the scale was 0.81.

Adolescent/Adult Sensory Profile Questionnaire*:* (AASP) is a self-report measure developed by (Brown et al., 2001) as a trait measure of sensory processing patterns and effects on daily life behavior. The AASP consists of 60 items (on a 5-point Likert scale) regarding how he or she generally responds to different sensations. Fifteen items represent each of the four quadrants, or sensory profile types. The sensory processing categories are taste, smell, movement, sight, touch, hearing and activity level (proprioception). These categories are distributed throughout each of the 15 items included in each quadrant. Each of the four quadrants shows high Cronbach's coefficient of internal consistency. Internal consistency coefficient alphas range from 0.639 to 0.775 for quadrant scores (Brown et al., 2001). The Persian version of the AASP questionnaire is a reliable and valid and all items in the Content Validity Ratio (CVR) and Content Validity Index (CVI) received an acceptable score. The Cronbach's alpha score for different parts of AASP was also calculated (*a* between 0.894 and 0.916; $p<0.001$). The test–retest reliability of sub-tests of AASP was excellent (ICC between 0.885 and 0.948; $p<0.001$) (Zaree et al., 2023). In this study, the internal consistency reliability for the total test is high ($r = .97$) and concurrent validity of the Sens or score with the Sensory Profile score for sensory reactivity and sensory avoiding is moderate ($r = .50$).

Intervention

Sensory Processing Training

The intervention protocol consisted of 10 carefully structured sessions of sensory-processing training to improve the understanding and management of sensory-processing issues and their potential impact on marital satisfaction. Each session lasted for 90 minutes. These sessions were provided to the experimental group systematically and gradually, with each session focusing on a particular sensory mode and its application in practice.

Table 1. Summary of Sensory Training and Processing Sessions

Session 1	**Introduction and Group Cohesion: The opening session served as a point of reference and an ice-breaker, facilitating introductions between members of the group and laying the ground for group coherence. The objectives of sensory processing training were clearly defined, outlining the intended results in terms of improved self-regulation, emotional awareness and interpersonal communication in couples. Rules and expectations for participation, confidentiality and compliance have been established in order to create a safe and supportive learning environment.**
Session 2	Theoretical framework and conceptual understanding: The second session provided a theoretical framework for understanding sensory processing, including a detailed explanation of the neurological processes involved in receiving, organising and responding to sensory input. Common sensory processing disorders such as sensory modal processing disorder, sensory discrimination disorder and sensory-based motor disorder have been identified and discussed. The concepts of marital satisfaction has also been introduced and the possible impact of sensory processing differences on these dynamics has been examined.
Session 3-7	Sessions 3-7: Specific exercises by sensory modality: Sessions 3-7 focused on practical exercises by specific sensory modalities. Session three focused on visual processing, including activities such as wearing bright clothing and viewing visually stimulating images to improve visual discrimination and processing. Session four focused on gustatory processing, using exercises such as chewing gum, sucking on lollipops and consuming ice cubes to modulate the oral sensory input. Session five focused on olfactory processing, with activities such as smelling different flowers and participating in blindfolded scent recognition games to improve olfactory discrimination and awareness. Session six was devoted to tactile processing, including exercises such as rocking and touching different textiles to regulate tactile sensitivity. Session seven featured proprioceptive and auditory exercises, including butterfly-movement, swinging, and headphones-based auditory activities to increase body awareness and hearing.
Session 8	Application and integration of therapeutic techniques: Building on sensory modality-specific exercises, session 8 provided practical exercises and guidance on the use of appropriate therapeutic techniques to address individual sensory needs in couples. The session highlighted the integration of sensory processing strategies into daily routines and interactions to support self-regulation and improve communication.
Session 9	Home-based practice and generalisation: In order to facilitate the generalisation of the acquired skills, Session 9 focused on the practice of daily sensory activities at home. Participants were encouraged to integrate sensory exercises into their home environment and to experiment with different strategies to address the sensory needs of their individual and partner. The session highlighted the importance of continuous practice and communication between partners to optimise the benefits of sensory processing training.
Session 10	Extending social support and integration into natural environments: The final session expanded the scope of intervention by focusing on the training of individuals who regularly interact with people with sensory processing disorders, such as family members and close friends. The session stressed the importance of creating a supportive environment that accommodates sensory differences and promotes mutual trust. Strategies to integrate sensory exercises into natural environments such as workplaces and social events have also been discussed to facilitate the long-term integration of sensory processing principles into daily life.

Results

The data presented in Table 1 show that the modal age group for both female participants and their husbands is 26 to 30 years. In terms of educational attainment, a diploma's degree represents the highest frequency. For the variable of marriage duration, the largest proportion of couples have

been married for a period of 1 to 5 years. It was also found that 21.3% of the sampled couples had no children. Of those couples with children, 25.2% had a firstborn child under the age of five, and 11.8% had a child who was married.

Table 2. Descriptive indices of demographic characteristics of men and women in the sample group

Variable	Gender	Mean	Standard Deviation	Minimum Value	Maximum Value	Valid Data (N)
Age	Women	36.06	10.89	21	67	30
	Husbands	41.04	11.93	25	73	30
Education	Women	13.7	2.86	3	22	30
	Husbands	14.13	3.23	5	22	30
Duration of Marriage of Couples		14	11	1	44	60

Descriptive statistics, namely mean and standard deviation, were calculated to summarize the central trend and variability of data for both experimental and control groups across pretest and post-test measures. An ANCOVA analysis was performed to evaluate the research hypotheses regarding the effect of sensory processing interventions on marital satisfaction and to determine the statistical significance of the observed differences in post-test scores between the experimental and control groups. This analysis controlled for pre-existing differences in marital satisfaction between groups using marital status as a covariate. All statistical analyses were performed with SPSS version 27 and the $p<0.05$ threshold was adopted for the determination of statistical significance. This limit has been chosen to minimize the risk of type I errors while still providing sufficient power to detect significant effects.

Table 3. Descriptive Statistics for Marital Satisfaction Scores

Variable	Group	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Marital Satisfaction	Control (n = 30)	116.83	9.84	108.20	15.08
Marital Satisfaction	Sensory Processing (n = 30)	117.03	10.74	146.37	16.82

Table (3) showed the descriptive statistics of marital satisfaction scores in both the control and experimental groups at pretest and posttest. The control group had a mean marital satisfaction score of 116.83 (SD = 9.84) at baseline. After the intervention period, a slight increase in mean score of 108.20 (SD = 15.08) was observed in the control group. Conversely, the experimental group that received sensory processing intervention showed a significantly different pattern. The mean marital satisfaction score of the experimental group was 117.03 (SD = 10.74) before the intervention. There was a significant and notable increase in marital adjustment scores after

intervention, with the mean increasing to 146.37 (SD = 16.82). This difference in reported marital satisfaction in the experimental group indicates a possible positive effect of sensory processing intervention on marital satisfaction. Further statistical analysis, such as ANCOVA, is needed to establish the statistical significance of the observed increase and to control for pre-existing differences. Before the ANCOVA was conducted, a thorough assessment of its underlying assumptions was made to ensure that the results were valid.

Table 4. Normality Test of Marital Satisfaction Variable Distribution in the Control Group and Sensory Processing Group

Variable	Phase	Shapiro-Wilk	p-value
Marital Satisfaction	Pre-test	0.981	0.848
	Post-test	0.978	0.773

The presumption of normality was tested by the Shapiro-Wilk test. Results showed that data for both control and sensory processing groups were generally stratified both pre-test (p = 0.848) and post-test (p = 0.773) p-values, with p-values exceeding the critical alpha value of 0.05.

Table 5. Homogeneity of Variance Test for the Marital Satisfaction Variable in the Control Group and Sensory Processing Group

Variable	Phase	Levene Statistic	Degrees of Freedom 1	Degrees of Freedom 2	p-value
Marital Satisfaction	Pre-test	2.265	1	58	0.138
	Post-test	3.978	1	58	0.051

The assumption of homogeneity of variances was assessed using Levene's test. The results revealed no statistically significant differences in variances between the groups for both pretest (p = 0.131) and posttest (p = 0.051) scores, thus confirming that the assumption of equal variances was met.

Table 6. Homogeneity Regression Slopes Test of for the Marital Satisfaction Variable in the Control Group and Sensory Processing Group

Variable	F Statistic	Degrees of Freedom 1	Degrees of Freedom 2	p-value
Marital Satisfaction	3.98	1	56	0.051

Finally, the assumption of homogeneity of regression slopes, which requires that the relationship between the covariate (pretest scores) and the dependent variable (posttest scores) is consistent

across groups, was evaluated. This was achieved by examining the statistical significance of the interaction term between the covariate and the independent variable (grouping). The non-significant interaction ($p = 0.051$) indicated that the relationship between pretest and posttest scores did not differ significantly between the control and sensory processing groups, thereby satisfying the assumption of homogeneity of regression slopes.

Table 7. Results of ANCOVA for Marital satisfaction Scores Based on Grouping (Control vs. Sensory Processing)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Statistic	p-value	Eta Squared	Test Power
Grouping	11650.937	1	11650.937	57.522	0.001	0.502	1.000
Error	11545.212	57	202.548	-	-	-	-
Total	24454.600	59	-	-	-	-	-

Table 7 summarizes the between-subjects effects derived from the ANCOVA model. The analysis revealed a statistically significant main effect of group (control versus sensory processing) on marital satisfaction ($F = 57.522$, $p < 0.001$, $\eta^2 = 0.502$). This finding suggests that, after correction for pre-existing differences in marital satisfaction as measured by pretests, there was a significant difference between the adjusted mean marital satisfaction scores of the control group and the sensory processing group. Specifically, this suggests that the sensory processing intervention had a significant impact on marital satisfaction scores. Furthermore, the partial eta-squared ($\eta^2 = 0.502$), a measure of effect size, indicates that a substantial proportion (502%) of the variance in marital satisfaction scores can be attributed to the sensory processing training intervention. This large effect size underscores the practical significance of the intervention. The observed power of the test was 1.000, indicating that a high level of statistical power.

Discussion

This study investigated the effectiveness of sensory processing training on marital satisfaction in couples experiencing marital conflict. The findings of this study provide strong evidence of the significant impact of sensory-processing training on improving marital satisfaction in couples with marital conflict. The results showed that sensory processing training accounted for 50.1 percent of the variation in marital satisfaction cores, reflecting the significant impact of the intervention on marital satisfaction. This magnitude of effect indicates that sensory processing training is not only

statistically significant, but also of practical relevance, offering a transformational approach to marital satisfaction. The high rate of explained variation highlights the potential for intervention as a targeted strategy to address specific sensory problems that may be at the root of broader emotional and relational issues. By focusing on sensory processing, the training sessions provided couples to better understand and manage their sensory experiences, thereby reducing conflict and increasing mutual understanding.

The results of this study are consistent with the previous studies of (Azarnik et al., 2022; Costa-Lopez et al., 2021; Hashemi et al., 2024; Kandlur et al., 2023; Lee & Park, 2020; Passarello et al., 2022; Sperati et al., 2024), and (Hemati Alamdarloo & Mradi, 2021).

One of the key findings of the study was the role of sensory processing in shaping interpersonal dynamics in marital relationships. Variations in sensory processing, such as hypersensitivity or sensory avoidance, can affect emotional regulation, empathy and communication, all of which are critical components of marital satisfaction (Costa-Lopez et al., 2021; Sperati et al., 2024). The intervention sessions, which included sensory exercises focused on visual, tactile, olfactory, gustatory, proprioceptive and auditory modalities, were likely to have contributed to the improvement of emotional awareness and self-regulation. This is in line with existing literature which highlights the role of sensory processing in promoting emotional stability and strengthening of relationships (Kandlur et al., 2023; Passarello et al., 2022).

The significant improvement in marital satisfaction observed in this study may also be attributed to the integration of sensory exercises into the daily routine of the participants, as highlighted during sessions 8 and 9. By doing sensory activities at home and applying them to real-life scenarios, couples were able to generalize their skills and solve problems in relation to sensory issues in a relationship. This is in line with previous research showing that interventions that promote consistency of practice and integration in the natural environment are more likely to deliver long-term benefits (Hemati Alamdarloo & Mradi, 2021).

Another notable finding of this study is that the intervention can significantly reduce conflict in marital adjustment, which is a key factor in promoting marital satisfaction. Conflict resolution is widely recognized as a cornerstone of marital harmony, as couples who adopt a constructive approach to resolving conflict are more likely to experience a higher level of marital satisfaction and stability (Kandlur et al., 2023). Sensory processing interventions seem to play a key role in

improving couples' ability to effectively resolve conflicts by addressing sensory factors that often contribute to the escalation of disputes. Sensory processing problems, such as increased sensitivity to certain stimuli (sound, touch, light) may increase tensions during a marital disagreement. For example, people with auditory sensitivities may feel overwhelmed or offended by raised voices during a quarrel, while tactile sensitivities may misinterpret physical gestures as intrusive or threatening. These sensory responses may exacerbate emotional dysregulation, making it difficult for couples to have a constructive dialogue or to de-escalate conflict. By giving participants tools to identify and manage their sensory triggers, the intervention helps to reduce these physiological stress responses, allowing couples to approach conflict in a more relaxed and emotional-regulatory way. Moreover, the emphasis of the intervention on integrating sensory strategies into daily routines has likely strengthened its impact on mediation. Session 9, which focused on home practice and generalization of skills, encouraged participants to use sensory techniques in real life situations, including in emotionally charged situations. By consistently practicing these strategies, couples were better able to cope with stress-related nightmares that could otherwise escalate into tantrums. Moreover, the focus of the final session on extending social support and sensory exercises in natural environments is likely to have increased the long-term effectiveness of the intervention by promoting a supportive relationship context in which conflicts can be addressed more constructively.

Apart from its direct effect on sensory processing, the intervention also seems to have improved communication and mutual understanding between partners. Sensory processing differences can often lead to misunderstanding or frustration in intimate relations (Camarata et al., 2020). But by giving couples tools to identify and regulate their sensory triggers, the intervention could promote greater empathy and reduce conflict, thereby improving overall marital satisfaction. This observation supports previous studies highlighting the interaction between sensory processing and communication patterns in the shaping of the outcomes of relationships (Lee & Park, 2020; Zorlular & Uzer, 2023).

Moreover, the findings of the study have practical implications for the integration of sensory processing interventions into broader therapeutic frameworks. For example, a combination of sensory-based approaches with cognitive behavioral therapy (CBT) or real-life therapy could provide a more comprehensive strategy to address emotional and relationship problems in couples.

Such integrative approaches have been shown to improve emotional intimacy and conflict resolution by addressing both the cognitive and sensory dimensions of relational issues (Azarnik et al., 2022; Esmaili et al., 2022).

In order to apply these findings in practice, therapists and couple advisers should consider including sensory processing assessments in initial assessments. An understanding of the sensory sensitivities of both partners may provide valuable insights into the dynamics of their relationship. Structured sensory-processing training programs such as those conducted in this study may be included in marital therapy sessions to address sensory problems and to improve emotional regulation. Practitioners should also educate couples on the role of sensory processing in relational dynamics and equip them with practical tools for navigating sensory conflicts. Finally, the creation of resources such as workshops or self-help manuals on sensory processing and its effects on marital satisfaction could extend the benefits of such interventions to a broader audience.

Although the results of this study are promising, a number of limitations should be noted. First, the sample size was relatively small and limited to couples returned to the counselling centers in Kerman, Iran. This limits the applicability of the findings to a wider population. Future research should replicate this study with larger and more diverse samples to confirm its findings and explore cultural differences in perceptual processing and marital satisfaction. The study also relied on self-reported measures such as the ENRICH marital satisfaction scale and the adolescent and adult sensory profile questionnaire, which may be biased by social desirability bias. The inclusion of objective assessments or observational data in future studies could provide a more complete picture of the impact of the intervention. Another limitation is the short duration of the study, which focused on immediate post-traumatic outcomes. Longitudinal research is needed to assess the sustainability of the observed improvement in marital satisfaction over time. In addition, exploring possible mediating or moderating factors, such as attachment styles, communication patterns, and stress levels, may provide a more in-depth insight into the mechanisms that underlie the relationship between sensory processing and marital satisfaction.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

Funding

The authors did (not) receive support from any organization for the submitted work.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

Adham, T. K. I. (2023). Conflict resolution in team: Analyzing the of conflicts and best skills for resolution. *Scholars Journal of Engineering and Technology*, *11*(08), 152-162. https://doi.org/10.36347/sjet.2023.v11i08.001

Azarnik, M., Rafiepoor, A., Hatami, M., & Mousavi, M. S. (2022). The Effectiveness of Communication Skills Training on Marital Satisfaction of Female Students of Isfahan University of Medical Sciences, Iran. *Journal of Health System Research*, *18*(2), 154-160. https://doi.org/10.48305/jhsr.v18i2.1459

Azizi, M., Haji-Alizadeh, K., & Fallahi Shah-Abadi, N. (2023). Relationship between Marital Satisfaction and Attachment Style: The Mediating Role of Mentalization and Boredom. *International Journal of Behavioral Sciences*, *17*(1), 8-15. https://doi.org/https://doi.org/https://doi.org/ 10.30491/ijbs.2023.375871.1881

Banaha, S., Pasha, H., Bakhtiari, A., Omidvar, S., Behmanesh, F., Faramarzi, M., & Esmailzadeh, S. (2023). Effectiveness of group psychosexual training for marital adjustment and sexual self-efficacy of infertile women: A randomized controlled trial. *Iranian Journal of Psychiatry*, *18*(3), 275. https://doi.org/ 10.18502/ijps.v18i3.13004

Blake, S., & Janssens, A. (2023). Through 'thick and thin'as long as it is healthy: shared meanings of commitment in long-term couple relationships, whether married or not. *Journal of Family Studies*, *29*(2), 595-611. https://doi.org/10.1080/13229400.2021.1952889

Brown, C., Tollefson, N., Dunn, W., Cromwell, R., & Filion, D. (2001). The adult sensory profile: Measuring patterns of sensory processing. *The American Journal of Occupational Therapy*, *55*(1), 75-82. https://doi.org/https://doi.org/10.5014/ajot.55.1.75

Camarata, S., Miller, L. J., & Wallace, M. T. (2020). Evaluating sensory integration/sensory processing treatment: issues and analysis. *Frontiers in integrative neuroscience*, *14*, 556660. https://doi.org/ 10.3389/fnint.2020.556660

Costa-Lopez, B., Ferrer-Cascales, R., Ruiz-Robledillo, N., Albaladejo-Blazquez, N., & Baryła-Matejczuk, M. (2021). Relationship between sensory processing and quality of life: A systematic review. *Journal of clinical medicine*, *10*(17), 3961. https://doi.org/ 10.3390/jcm10173961

David, F., Kalibala, G., Pichon, B., & Treur, J. (2024). A network model for modulating sensory processing sensitivity in autism spectrum disorder: epigenetics, adaptivity, and other factors. *Cognitive Systems Research*, *87*, 101240. https://doi.org/https://doi.org/10.1016/j.cogsys.2024.101240

Dellapiazza, F., Vernhet, C., Blanc, N., Miot, S., Schmidt, R., & Baghdadli, A. (2018). Links between sensory processing, adaptive behaviours, and attention in children with autism spectrum disorder: A systematic review. *Psychiatry research*, *270*, 78-88. https://doi.org/https://doi.org/10.1016/j.psychres.2018.09.023

Eilert, D. W., & Buchheim, A. (2023). Attachment-related differences in emotion regulation in adults: A systematic review on attachment representations. *Brain Sciences*, *13*(6), 884. https://doi.org/doi: 10.3390/brainsci13060884

Esmaili, S., Khayyer, M., & Mehryar, A. H. (2022). The Effectiveness of Psychological Empowerment Intervention on Personal Growth Initiative and Marital Boredom in Divorce-Asking Women [Original]. *Iranian Evolutionary Educational Psychology Journal*, *4*(3), 564-572. https://doi.org/10.52547/ieepj.4.3.564

Fowers, B. J., & Olson, D. H. (1989). ENRICH Marital Inventory: A discriminant validity and cross-validation assessment. *Journal of marital and family therapy*, *15*(1), 65-79. https://doi.org/ https://doi.org/10.1111/j.1752-0606.1989.tb00777.x

Ghassamia, M., Asghari, A., Shaeiri, M. R., & Safarinejad, M. R. (2013). Validation of psychometric properties of the Persian version of the Female Sexual Function Index. *Urology Journal*, *10*(2), 878-885. https://doi.org/https://doi.org/10.22037/uj.v10i2.2142

Hashemi, S. F., Hamzehgardeshi, Z., Nataj, A. H., & Ganji, J. (2024). Factors Associated With Marital Adjustment in Couples: A Narrative Review [review]. *Current Psychosomatic Research*, *2*(2), 73-86. https://doi.org/10.32598/cpr.2.2.193.1

Hemati Alamdarloo, G., & Mradi, H. (2021). The effectiveness of sensory integration intervention on the emotional-behavioral problems of children with autism spectrum disorder. *Advances in Autism*, *7*(2), 152-166. https://doi.org/10.1108/AIA-12-2019-0051

Jafari, A., Alami, A., Charoghchian, E., Delshad Noghabi, A., & Nejatian, M. (2021). The impact of effective communication skills training on the status of marital burnout among married women. *BMC women's health*, *21*(1), 231. https://doi.org/ 10.1186/s12905-021-01372-8

Jiang, L., Zeng, T., Wu, M., Yang, L., Zhao, M., Yuan, M., Zhu, Z., & Lang, X. (2024). Infertility psychological distress in women undergoing assisted reproductive treatment: a grounded theory study. *Journal of Clinical Nursing*, *33*(9), 3642-3658. https://doi.org/ https://doi.org/10.1111/jocn.17195

Kandlur, N. R., Fernandes, A. C., Gerard, S. R., Rajiv, S., & Quadros, S. (2023). Sensory modulation interventions for adults with mental illness: A scoping review. *Hong Kong Journal of Occupational Therapy*, *36*(2), 57-68. https://doi.org/ 10.1177/15691861231204896

Kazemi, N., Rezaei Qazani, A., Bajalan, F., Alihadilo, M., & Rameshi, M. (2023). A Comparative Study of Marital Incompatibility, Coping Strategies and Emotional Schemas in Applicants for Divorce with and without Marital Infidelity History. *Iranian Evolutionary Educational Psychology Journal*, *5*(2), 193-204. https://doi.org/ 10.61186/ieepj.5.2.193

Khazaei, S., Salimi, H., Namjoo, S., & Abedini Chamgordani, S. (2022). The Structural Relationships between Romantic Jealousy , Marital Stability and Marital Satisfaction Mediated by Marital Control and Emotional Expression: An Evolutionary Perspective [Original]. *Iranian*

Evolutionary Educational Psychology Journal, *4*(3), 554-563. https://doi.org/10.52547/ieepj.4.3.554

Kover, L., Szollosi, G. J., Frecska, E., Bugan, A., Berecz, R., & Egerhazi, A. (2024). The association between early maladaptive schemas and romantic relationship satisfaction. *Frontiers in psychology*, *15*, 1460723. https://doi.org/https://doi.org/10.3389/fpsyg.2024.1460723

Lee, O. N., & Park, G.-A. (2020). The mediating effects of attachment styles on the relationship between sensory processing styles and interpersonal problems in healthy university students. *Occupational Therapy International*, *2020*(1), 6204120. https://doi.org/ 10.1155/2020/6204120

Mousavi, S. F. (2022). Job Stress and Marital Satisfaction in Married Nurses: The Mediating Role of Self-Regulation in Relationship. *Journal of Woman and Family Studies*, *10*(4), 38-55. https://doi.org/10.22051/jwfs.2023.39859.2847

Navabinejad, S., Rostami, M., & Parsakia, K. (2024). Influences of family structure and intimacy on emotional divorce: A cross-sectional analysis. *Journal of Psychosociological Research in Family and Culture*, *2*(1), 23-30. https://doi.org/https://doi.org/10.61838/kman.jprfc.2.1.5

Passarello, N., Tarantino, V., Chirico, A., Menghini, D., Costanzo, F., Sorrentino, P., Fucà, E., Gigliotta, O., Alivernini, F., & Oliveri, M. (2022). Sensory processing disorders in children and adolescents: taking stock of assessment and novel therapeutic tools. *Brain Sciences*, *12*(11), 1478. https://doi.org/10.3390/brainsci12111478

Patil, O., Kaple, M., & Kaple, M. N. (2023). Sensory processing differences in individuals with autism spectrum disorder: a narrative review of underlying mechanisms and sensory-based interventions. *Cureus*, *15*(10). https://doi.org/ 10.7759/cureus.48020

Sperati, A., Acevedo, B. P., Dellagiulia, A., Fasolo, M., Spinelli, M., D'Urso, G., & Lionetti, F. (2024). The contribution of sensory processing sensitivity and internalized attachment representations on emotion regulation competencies in school-age children. *Frontiers in psychology*, *15*, 1357808. https://doi.org/https://doi.org/10.3389/fpsyg.2024.1357808

Taghani, R., Ashrafizaveh, A., Soodkhori, M. G., Azmoude, E., & Tatari, M. (2019). Marital satisfaction and its associated factors at reproductive age women referred to health centers.

Journal of education and health promotion, *8*(1), 133. https://doi.org/ doi: 10.4103/jehp.jehp_172_18

Tavakol, Z., Moghadam, Z. B., Nasrabadi, A. N., Salehiniya, H., & Rezaei, E. (2017). A review of the factors associated with marital satisfaction. *Galen medical journal*, *6*(3), e641-e641. https://doi.org/10.31661/gmj.v6i3.641

Zaree, M., Hassani Mehraban, A., Lajevardi, L., Saneii, S., Pashazadeh Azari, Z., & Mohammadian Rasnani, F. (2023). Translation, reliability and validity of Persian version of Adolescent/Adult Sensory Profile in dementia. *Applied Neuropsychology: Adult*, *30*(1), 1-7. https://doi.org/ 10.1080/23279095.2021.1904927

Zorlular, M., & Uzer, T. (2023). Investigating the relationship between sensory processing sensitivity and relationship satisfaction: mediating roles of negative affectivity and conflict resolution style. *Current Psychology*, *42*(30), 26504-26513. https://doi.org/10.1007/s12144-022-03796-3