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The Effect of Systemic Sex Therapy on Patient Attitudes toward Vaginal Penetration Disorder in Patients with Vaginismus

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Abstract

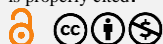
Background and Objective: Vaginismus is a prevalent sexual dysfunction significantly impacting mental health and marital quality. The present study aimed to determine the effect of systemic sex therapy on the attitudes of patients with vaginismus toward vaginal penetration disorder.

Methods: This single-group clinical trial employed a repeated measures design, including pre-test, post-test, and two follow-up phases at one- and three-month intervals. A convenience sample of 15 married women, referred to psychology and sexual health centers in Tehran during 2023-2024, participated in this study. Participants received 12 weekly 60-minute sessions of systemic sex therapy. Data were collected using the Multidimensional Vaginal Penetration Disorder Questionnaire (MVPDQ), assessing catastrophic cognitions, genital incompatibility, hypervigilance, avoidance, optimism, sexual information, penetration motivation, and marital adjustment, administered at four time points. Data were analyzed using mixed analysis of variance with repeated measures and Bonferroni post-hoc tests in SPSS-27.

Findings: Systemic sex therapy significantly reduced catastrophic cognitions, genital incompatibility, hypervigilance, and avoidance ($P < 0.001$) and improved optimism and sexual information ($P < 0.01$). While vaginal penetration disorder scores significantly decreased from pre-test to post-test ($P < 0.01$), these improvements were not sustained at follow-up phases. Penetration motivation ($P = 0.069$) and marital adjustment ($P = 0.010$) showed no significant changes.

Conclusion: The findings suggest that systemic sex therapy effectively improves cognitive-emotional aspects of vaginal penetration disorder. However, the lack of sustained effects on overall vaginal penetration disorder indicates a need for extended interventions. Systemic sex therapy is recommended as an adjunctive approach to address the multifaceted nature of vaginismus, enhancing cognitive and relational outcomes.

Keywords: Vaginismus, Sexual dysfunctions, Systemic sex therapy, Attitude



Vaginismus, as defined by the DSM-5, is a genito-pelvic pain/penetration disorder characterized by persistent or recurrent difficulties with vaginal penetration due to involuntary pelvic floor muscle contractions, often accompanied by fear, anxiety, or pain (American Psychiatric Association, 2013). This condition significantly impacts the quality of life for affected women and their partners (1). It frequently results in emotional distress, including feelings of inadequacy and shame, which can exacerbate psychological symptoms such as depression and anxiety (2). Beyond the individual suffering, the disorder profoundly affects marital and intimate relationships, leading to communication breakdowns, decreased intimacy, and even marital dissatisfaction (3, 4). Therefore, addressing the complex interplay of physiological, psychological, and relational factors is crucial for effective intervention and improving the holistic well-being of these patients.

The core issue in vaginismus extends beyond mere physical inability; it deeply involves a patient's psychological and emotional "attitudes" towards vaginal penetration. This encompasses a spectrum of cognitive, affective, and behavioral responses, ranging from intense fear and aversion to distorted beliefs about pain and physical harm (5, 6). These attitudes are not static but are often shaped by past experiences, cultural norms, and societal expectations around sexuality (7). Negative attitudes can manifest as hypervigilance towards sensations in the genital area, anticipatory anxiety before attempts at penetration, and ingrained avoidance behaviors, creating a self-perpetuating cycle of fear and non-engagement with sexual intimacy (8-10). Therefore, understanding and modifying these entrenched attitudes are paramount for therapeutic success, allowing women to reframe their perceptions and engage more positively with their bodies and sexual experiences.

The construct of vaginal penetration disorder itself, as recognized in contemporary diagnostic frameworks, highlights the pervasive nature of this challenge (11). It encompasses difficulties with vaginal intercourse, attempted vaginal penetration, or even the insertion of tampons or gynecological instruments, due to fear, anxiety, or actual pain (12, 13). These difficulties are often rooted in a complex etiology involving biological predispositions, psychological vulnerabilities (e.g., history of trauma, negative sexual education, etc.), and relational dynamics (e.g., partner's reactions, marital communication patterns, etc.) (14, 15). Consequently, an effective therapeutic approach must address not only the physical symptoms but also the deeply ingrained cognitive

Introduction

and emotional schemas that contribute to the persistence of vaginal penetration disorder. Targeting these multifaceted dimensions of the disorder is essential for achieving sustainable therapeutic outcomes and enhancing sexual well-being.

Historically, treatment approaches for vaginismus have ranged from behavioral techniques like progressive desensitization and dilator therapy to individual psychotherapy focusing on past trauma or anxiety (16). While these methods have shown varying degrees of success, their limitations often lie in their singular focus, neglecting the systemic and relational context in which sexual dysfunctions frequently manifest (17). Systemic sex therapy, on the other hand, views sexual problems as emergent properties of relational dynamics, emphasizing couple communication, shared meanings, and mutual problem-solving, unlike cognitive-behavioral therapy (CBT), which primarily targets individual cognitions and behaviors through structured techniques like cognitive restructuring and exposure (18). Past studies utilizing systemic frameworks in sexual therapy have demonstrated promising results in addressing complex sexual issues by fostering mutual understanding, improving communication, and facilitating collaborative problem-solving between partners (19, 20).

The current research is thus necessitated by the persistent challenges in effectively treating vaginismus and the growing recognition of the interconnectedness of individual symptoms and relational dynamics. Despite advancements in understanding sexual dysfunctions, few studies have empirically tested the effects of systemic interventions on specific MVEDQ subscales, such as catastrophic cognitions, hypervigilance, and avoidance, in women with vaginismus.

The primary objective of this study is to investigate the effect of systemic sex therapy on various dimensions of patient attitudes toward vaginal penetration disorder in women diagnosed with vaginismus.

Methods

Trial design

This single-group clinical trial employed a repeated measures design, including pre-test, post-test, and two follow-up phases at one- and three-month intervals. The study adhered to CONSORT guidelines for non-randomized trials, with participant recruitment and flow detailed in Figure 1 (CONSORT flow diagram).

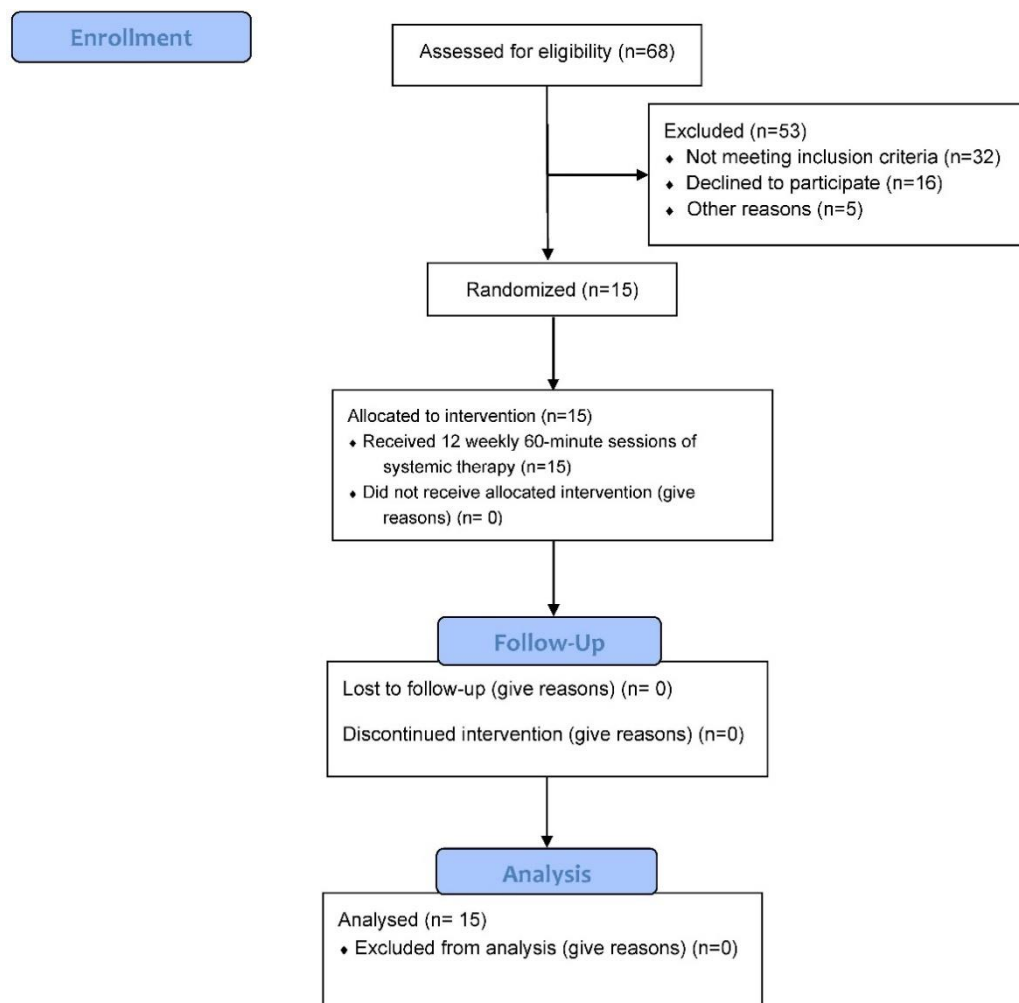


Figure 1. CONSORT flow diagram of participants

Participants

The sample comprised married women aged 18 years or older who were referred to psychology and sexual health centers in Tehran between 2023 and 2024. All participants were actively seeking treatment for symptoms consistent with a diagnosis of vaginismus. A convenience sample of 15 eligible participants was selected and assigned to the intervention group, as this was a single-arm study with no control group. A priori power analysis was conducted using G*Power to determine the necessary sample size for a repeated measures ANOVA. Targeting a medium effect size ($f=0.25$), an α level of 0.05, and a power of 0.80, the analysis indicated a minimum requirement of 12 participants. To account for potential attrition, 15 participants were ultimately enrolled. Married women aged over 18 were eligible to participate if they presented with a documented history of unsuccessful vaginal penetration attempts for at least six months, accompanied by active avoidance of penetration. Additional requirements included a minimum education level of a high school diploma, significant self-reported anxiety

and pain during attempted penetration, and the willingness of the husband to participate in systemic sex therapy sessions. Final participation required informed written consent from both partners. Exclusion criteria included: presence of severe psychiatric disorders (e.g., psychosis, bipolar disorder), current substance abuse, any organic medical condition explaining the penetration difficulties, pregnancy, or participation in prior or concurrent psychological interventions for vaginismus or related conditions. All participants and their husbands provided informed written consent prior to involvement. The study protocol adhered to the ethical guidelines and received approval from the Institutional Review Board of the University (IR.IAU.R.REC.1402.015;IRCTID: IRCT20220307054215N1).

Interventions

Participants and their husbands in the intervention group received 12 weekly 60-minute sessions of sys-

temic sex therapy, delivered by a trained and experienced therapist. The intervention program was structured based on the systemic approach to sexual therapy developed by Hertlein and Nelson (22), and was adapted to address the specific challenges of vaginismus within a relational context. The therapy incorporated culturally sensitive adaptations such as genogram construction tailored to respect Persian family structures and values, emphasizing extended family roles, and circular questioning designed to explore relational dynamics while avoiding culturally taboo topics around sexuality. The therapy sessions focused on

enhancing communication, challenging dysfunctional beliefs about sex and penetration, improving emotional regulation, and fostering collaborative problem-solving between partners. Key techniques included genogram construction, circular questioning, reframing, and behavioral exercises to gradually reduce avoidance and increase comfort with intimacy. A summary of the weekly sessions and their core objectives is provided in Table 1.

Table 1. Summary of systemic sex therapy sessions for patients with vaginismus

Session No.	Main Topic/Objective	Key Activities/Focus
1	Introduction & Assessment	Establishing rapport, systemic formulation of the problem, history taking (sexual, relational, medical), discussing expectations and therapy structure.
2	Understanding Vaginismus Systemically	Psychoeducation on vaginismus from a systemic perspective, exploring the couple's narrative of the problem, identifying contributing relational patterns.
3	Communication & Emotional Expression	Enhancing verbal and non-verbal communication within the couple, expressing fears, anxieties, and desires related to sex and intimacy.
4	Challenging Catastrophic Cognitions	Identifying and challenging negative, catastrophic thoughts about penetration and pain, cognitive restructuring techniques, exploring origins of fear.
5	Reclaiming the Body: Genital Incompatibility	Addressing discomfort and negative perceptions of the genitals, introducing body awareness exercises, promoting a more positive body image.
6	Reducing Hypervigilance & Anxiety	Mindfulness and relaxation techniques, desensitization exercises, managing anticipatory anxiety, focusing on sensory experiences without judgment.
7	Gradual Exposure & Avoidance Reduction	Relational exercises involving both partners to gradually build comfort with touch and penetration, starting with non-demanding shared activities, fostering mutual support to reduce avoidance.
8	Exploring Sexual Information & Pleasure	Dispelling myths about sex, providing accurate sexual information, encouraging exploration of non-penetrative sexual activities, focusing on pleasure and intimacy beyond penetration.
9	Enhancing Penetration Motivation	Discussing intrinsic and extrinsic motivations for penetration, aligning individual and couple goals, addressing ambivalence, fostering a shared sense of purpose.
10	Strengthening Marital Adjustment & Support	Improving overall marital satisfaction, enhancing spousal support, developing shared coping strategies for challenges, reinforcing positive relational patterns.
11	Integrating Changes & Sustaining Progress	Reviewing progress, consolidating new skills and perspectives, identifying potential relapse triggers, developing strategies for maintaining gains after therapy.
12	Conclusion & Future Planning	Summarizing the therapeutic journey, celebrating achievements, discussing ongoing challenges, future steps for continued growth and addressing any remaining concerns.

Outcomes

Data were collected using the Multidimensional Vaginal Penetration Disorder Questionnaire (MVPDQ), developed by Molaieinejad (21). This comprehensive self-report instrument is designed to assess pain resulting from vaginal penetration or sexual intercourse in participants. The MVPDQ comprises 72 items and evaluates 9 main subscales: catastrophic cognitions (32 items), helplessness (19 items), marital adjustment (4

items), avoidance (2 items), penetration motivation (4 items), sexual information (3 items), hypervigilance (2 items), optimism (3 items), and genital incompatibility (3 items). This questionnaire is primarily scored using a 5-point Likert scale, with the exception of specific items within the catastrophic cognitions and marital adjustment subscales, which utilize a 10-point Likert scale. For most subscales (catastrophic cognitions, helplessness, avoidance, hypervigilance, genital incompatibility), items are reverse-scored.

That is, higher scores indicate improvement and better outcomes, reflecting reduced severity of the symptom or construct. For optimism, penetration motivation, and sexual information, higher scores also indicate better outcomes such as greater optimism, motivation, or knowledge. For marital adjustment, higher scores generally indicate better adjustment, depending on context. The overall Cronbach's alpha for the MVPDQ in this study was 0.84, with subscale-specific reliabilities as follows: catastrophic cognitions (0.87), helplessness (0.82), marital adjustment (0.79), avoidance (0.80), penetration motivation (0.78), sexual information (0.81), hypervigilance (0.83), optimism (0.80), and genital incompatibility (0.79). The instrument has been utilized in several domestic studies, with findings indicating satisfactory reliability, reporting internal consistency coefficients ranging from 0.78 to 0.87. The primary outcome was the overall vaginal penetration disorder score, with secondary outcomes comprising changes in the MVPDQ subscales. Assessments were administered at four time points: pre-test, post-test, one-month follow-up, and three-month follow-up.

Sample size

A priori power analysis was conducted using G*Power software (version 3.1), targeting a medium effect size ($f=0.25$) for repeated measures ANOVA, with $\alpha=0.05$ and power=0.80. This indicated a minimum sample size of 12 participants. To account for potential attrition of up to 20%, 15 participants were ultimately enrolled.

Randomization

Not applicable, as this was a single-group clinical trial with no randomization or control group.

Blinding

Blinding of participants, therapists, or outcome assessors was not feasible in this single-group intervention study involving couple-based systemic sex therapy. However, to mitigate bias, standardized protocols were followed for therapy delivery and data collection, and self-reported outcomes were used consistently across time points.

Statistical methods

Collected data were analyzed using mixed analysis of variance (ANOVA) with repeated measures to assess within-group changes, with Greenhouse-Geisser corrections applied for violations of sphericity (fractional degrees of freedom reported where applicable). Bonferroni post-hoc tests were used for pairwise comparisons. Statistical assumptions, including normality (assessed via skewness and kurtosis within ± 3), homogeneity of variances (Levene's test, $p>0.05$), and sphericity (Mauchly's test, with Greenhouse-Geisser corrections where $p<0.05$), were evaluated to ensure the validity of the ANOVA results. All statistical analyses were

conducted using SPSS ver. 27. Two-sided p-values less than 0.05 were considered statistically significant, and effect sizes (partial eta squared, η^2) were reported to indicate the magnitude of effects.

Results

Participant flow

The CONSORT flow diagram (Figure 1) illustrates participant recruitment, screening, eligibility assessment, enrollment, and retention throughout the study phases. Of the 68 women screened from referrals to psychology and sexual health centers in Tehran, 15 met inclusion criteria and were enrolled in the intervention group. There was no attrition during the 12-week intervention or follow-up periods, with all 15 participants completing post-test, one-month follow-up, and three-month follow-up assessments.

Recruitment

Participants were recruited consecutively from married women over 18 years referred to psychology and sexual health centers in Tehran between January 2023 and December 2024. Recruitment ceased upon reaching the target sample size of 15 eligible participants.

Baseline data

The study cohort comprised 15 participants, each diagnosed with primary vaginismus. The participants exhibited a mean age of 30.5 ± 4.76 years. The mean duration of vaginismus among participants was 40.83 ± 28.03 months. Baseline demographic and clinical characteristics are summarized in Table 2, alongside outcome measures at all-time points for comparability.

Numbers analyzed

All 15 enrolled participants were analyzed for all outcomes using an intention-to-treat approach, with no missing data due to complete retention.

Outcomes and estimation

Table 2 provides a comprehensive overview of the descriptive statistics, including means and standard deviations, for all investigated variables across the four distinct measurement time points: pre-test, post-test, one-month follow-up, and three-month follow-up.

Table 2. Descriptive statistics of research variables by measurement stage

Variable	Stage	Mean	SD	Skewness	Kurtosis
Catastrophic cognitions	Pre-test	146.13	38.39	0.54	0.50
	Post-test	96.60	21.36	1.55	2.79
	One-month follow-up	109.00	25.32	0.68	0.77
	Three-month follow-up	95.47	7.82	0.84	2.01
Penetration motivation	Pre-test	13.33	3.35	-1.25	0.59
	Post-test	13.53	2.88	-1.37	2.16
	One-month follow-up	13.13	3.270	-0.81	2.11
	Three-month follow-up	15.20	3.19	0.23	-0.76
Helplessness	Pre-test	81.53	12.91	-1.09	0.33
	Post-test	87.40	8.28	-1.14	0.87
	One-month follow-up	88.67	9.83	-1.91	2.91
	Three-month follow-up	92.87	9.27	-2.14	1.21
Genital incompatibility	Pre-test	8.87	3.16	0.06	-0.21
	Post-test	12.40	3.14	-1.18	0.55
	One-month follow-up	12.67	4.08	-1.72	1.55
	Three-month follow-up	13.67	2.72	-2.67	1.79
Hypervigilance	Pre-test	5.20	1.66	-0.36	-0.29
	Post-test	6.67	2.13	-0.52	0.16
	One-month follow-up	6.47	1.81	-0.31	-0.73
	Three-month follow-up	8.73	1.49	-1.27	1.37
Optimism	Pre-test	10.20	1.94	-0.53	-0.99
	Post-test	11.47	1.46	-0.32	1.88
	One-month follow-up	11.20	1.61	0.57	0.99
	Three-month follow-up	11.93	1.53	0.53	-0.38
Avoidance	Pre-test	3.73	1.91	1.58	2.23
	Post-test	5.87	2.36	-0.27	-0.60
	One-month follow-up	7.20	2.83	-0.97	-0.35
	Three-month follow-up	6.10	0.38	0.85	1.00
Sexual information	Pre-test	9.27	2.12	1.361	2.22
	Post-test	12.07	1.71	-0.31	1.74
	One-month follow-up	12.93	2.63	-1.061	1.60
	Three-month follow-up	14.00	1.65	-1.32	1.92
Marital adjustment	Pre-test	19.87	2.95	-0.36	-0.36
	Post-test	19.60	4.31	-1.43	2.64
	One-month follow-up	19.93	3.96	-1.42	2.32
	Three-month follow-up	22.67	1.59	0.38	-1.45
Vaginal penetration disorder	Pre-test	298.13	37.20	0.48	-0.16
	Post-test	265.60	23.55	0.93	1.95
	One-month follow-up	281.20	26.74	0.18	-0.20
	Three-month follow-up	280.53	11.29	-1.27	1.85

Prior to the main analyses, the normality of the data distribution was assessed using skewness and kurtosis coefficients. The results indicated that the majority of skewness values were within the acceptable range of ± 3 , and kurtosis values were within ± 3 . This suggests that the data distributions for most variables exhibited sufficient normality, providing a suitable basis for applying parametric statistical tests, specifically mixed analysis of variance with repeated measures. The results of the mixed analysis of variance with repeated measures for the research variables across the four measurement stages are presented in Table 3. Specifically, systemic sex therapy evinced statistically

significant reductions in catastrophic cognitions ($F=18.17$, $P<0.001$), helplessness ($F=8.47$, $P=0.005$), genital incompatibility ($F=12.50$, $P<0.001$), hypervigilance ($F=15.30$, $P<0.001$), optimism ($F=6.99$, $P<0.001$), avoidance ($F=10.69$, $P<0.001$), and sexual information ($F=18.35$, $P<0.001$). Furthermore, a significant change was observed in marital adjustment ($F=6.07$, $P=0.010$). A notable reduction was evident in vaginal penetration disorder ($F=6.89$, $P=0.001$). Conversely, changes in penetration motivation were not statistically significant ($F=2.54$, $P=0.069$).

Table 3. Mixed analysis of variance with repeated measures for research variables across four measurement stages

Variable	SS	df	MS	F	P	η^2
Catastrophic cognitions	25266.53	3	8422.18	18.16	0.001	0.57
Penetration motivation	40.40	3	13.47	2.54	0.069	0.15
Helplessness	985.78	1.39	708.52	8.47	0.005	0.38
Genital incompatibility	197.40	3	65.80	12.50	0.001	0.47
Hypervigilance	96.33	3	32.11	15.30	0.001	0.52
Optimism	24.13	3	8.04	6.99	0.001	0.33
Avoidance	93.53	3	31.18	10.69	0.001	0.43
Sexual information	184.93	3	61.64	18.35	0.001	0.58
Marital adjustment	93.38	1.68	55.68	6.07	0.010	0.30
Vaginal penetration disorder	7956.467	3	2652.156	6.89	0.001	0.33

To identify specific time points where significant differences emerged for variables exhibiting overall significant changes in the repeated measures ANOVA

-VA, a Bonferroni post-hoc test was conducted. The results are presented in Table 4.

Table 4. Bonferroni post-hoc test results for research variables across measurement stages

Variable	Comparison	Mean Difference	Std. Error	P	95% CI
Catastrophic cognitions	Pre-test - Post-test	49.53	4.63	0.001	[40.14, 58.92]
	Pre-test - One-month follow-up	37.13	4.63	0.001	[27.74, 46.52]
	Pre-test - Three-month follow-up	50.67	4.63	0.001	[41.28, 60.06]
Penetration motivation	Pre-test - Three-month follow-up	1.87	0.61	0.070	[-0.13, 3.87]
Helplessness	Pre-test - Three-month follow-up	11.33	2.19	0.005	[6.07, 16.59]
Genital incompatibility	Pre-test - Post-test	3.53	0.61	0.001	[2.09, 4.97]
	Pre-test - One-month follow-up	3.80	0.61	0.001	[2.36, 5.24]
	Pre-test - Three-month follow-up	4.80	0.61	0.001	[3.36, 6.24]
Hypervigilance	Pre-test - Post-test	1.47	0.42	0.001	[0.53, 2.41]
	Pre-test - One-month follow-up	1.27	0.42	0.001	[0.33, 2.21]
	Pre-test - Three-month follow-up	3.53	0.42	0.001	[2.59, 4.47]
Optimism	Pre-test - Post-test	1.27	0.30	0.001	[0.59, 1.95]
	Pre-test - One-month follow-up	1.00	0.30	0.001	[0.32, 1.68]
	Pre-test - Three-month follow-up	1.73	0.30	0.001	[1.05, 2.41]
Avoidance	Pre-test - Post-test	2.13	0.49	0.001	[0.99, 3.27]
	Pre-test - One-month follow-up	3.47	0.49	0.001	[2.33, 4.61]
	Pre-test - Three-month follow-up	2.37	0.49	0.001	[1.23, 3.51]
Sexual information	Pre-test - Post-test	2.80	0.37	0.001	[1.92, 3.68]

	Pre-test - One-month follow-up	3.67	0.37	0.001	[2.79, 4.55]
	Pre-test - Three-month follow-up	4.73	0.37	0.001	[3.85, 5.61]
Marital adjustment	Pre-test - Three-month follow-up	2.80	0.73	0.010	[1.04, 4.56]
Vaginal penetration disorder	Pre-test - Post-test	32.53	6.27	0.009	[17.95, 47.11]
	Post-test - One-month follow-up	-15.60	6.27	0.090	[-30.18, -1.02]
	Post-test - Three-month follow-up	-14.93	6.27	0.120	[-29.51, -0.35]

The post-hoc analysis indicated significant reductions in catastrophic cognitions, genital incompatibility, hypervigilance, optimism, avoidance, and sexual information across all comparative stages (pre-test to post-test, one-month follow-up, and three-month follow-up), suggesting sustained therapeutic benefits. For the avoidance subscale, higher scores reflect improvement due to reverse-scoring, explaining the increase from pre-test ($M=3.73$) to post-test ($M=5.87$) and one-month follow-up ($M=7.20$). Helplessness and marital adjustment showed significant improvement only from pre-test to three-month follow-up. The overall vaginal penetration disorder score demonstrated a significant reduction from pre-test to post-test ($P=0.009$, 95% CI [17.95, 47.11]). However, the lack of significant differences between post-test and one-month follow-up ($P=0.090$, 95% CI [-30.18, -1.02]) or post-test and three-month follow-up ($P=0.120$, 95% CI [-29.51, -0.35]) indicates that the initial reduction in vaginal penetration disorder was not sustained over time, suggesting the need for additional maintenance strategies. Penetration motivation showed no significant pairwise differences ($P=0.069$, 95% CI [-0.13, 3.87]). Effect sizes (η^2) ranged from 0.15 to 0.58, indicating moderate to large effects for most outcomes.

Ancillary analyses

No ancillary (subgroup or sensitivity) analyses were performed, as the study focused on within-group changes in a homogeneous single-arm cohort.

Harms

No adverse events or harms related to the intervention were reported by participants or their husbands during the study period. Therapy sessions were conducted in a supportive environment, with ongoing monitoring for emotional distress, and no instances of worsening symptoms or dropout due to intervention effects were observed.

Discussion

This study investigated the effectiveness of systemic sex therapy in alleviating vaginal penetration disorder

and its intricate associated psychological dimensions. The findings compellingly revealed that systemic sex therapy led to statistically significant reductions in a range of problematic constructs, including catastrophic cognitions, feelings of helplessness, perceived genital incompatibility, hypervigilance, and avoidance behaviors. Furthermore, significant improvements were observed in participants' optimism levels and their acquisition of sexual information. Crucially, both marital adjustment and the overall score for vaginal penetration disorder also demonstrated meaningful enhancements. The results strongly suggest that systemic interventions are highly effective in treating vaginismus. Their therapeutic efficacy goes beyond the amelioration of physical symptoms to include significant positive changes in the cognitive, emotional, and relational dimensions of the condition. For Iranian couples, these findings are particularly relevant given cultural norms that often emphasize modesty and restrict open discussions about sexuality, which may exacerbate feelings of shame and hinder help-seeking behaviors. Systemic sex therapy's focus on relational dynamics and culturally sensitive communication strategies aligns well with addressing these barriers, fostering mutual understanding within the couple while respecting cultural values.

The observed significant reductions in catastrophic cognitions, hypervigilance, and avoidance are remarkably consistent with prevailing cognitive-behavioral models of vaginismus. These models, as outlined by ter Kuile et al. (23), suggest that fear of pain and learned avoidance perpetuate vaginismus, and systemic sex therapy shares mechanisms such as cognitive restructuring and exposure-based techniques to disrupt this cycle, which are adapted for a relational context. The marked improvements across these critical variables strongly suggest that systemic sex therapy effectively facilitates the fundamental restructuring of maladaptive thought processes and behavioral responses directly pertaining to vaginal penetration (22). These findings are robustly supported by a substantial body of prior research affirming the efficacy of cognitive-behavioral treatments in mitigating negative cognitions and avoidance behaviors among

women afflicted with vaginismus (24, 25). For example, a seminal single-case study by Rezaei et al. (26) demonstrated that cognitive-behavioral therapy significantly improved catastrophic cognitions, helplessness, avoidance, and genital incompatibility in its participants, thereby lending substantial empirical support and external validity to the present findings. To contextualize the absence of a control group, the effect sizes in this study are comparable to or exceed those reported in prior CBT studies, such as ter Kuile et al. (23), and this suggests robust therapeutic impact despite the single-group design. The congruence across these studies highlights the foundational role of cognitive restructuring and exposure-based techniques, often integrated within systemic approaches, in disrupting the fear-avoidance cycle characteristic of vaginismus.

The notable enhancements in sexual information and improvements in marital adjustment underscore the profound importance of the holistic and relational approach inherent in systemic sex therapy. This therapeutic modality inherently emphasizes not only the individual's psychological state but also the intricate dynamics and interplay within the couple's relationship. Vaginismus frequently exerts profound and detrimental impacts on intimacy, sexual satisfaction, and the overall quality of marital relationships. Consequently, addressing these critical relational dimensions becomes absolutely crucial for achieving sustainable and comprehensive therapeutic gains. Our findings align with prior research by Aliakbari Dehkordi et al. (27), who investigated systemic-oriented couple therapy and reported significant improvements in sexual satisfaction and marital adjustment among couples affected by vaginismus. They reported significant post-treatment improvements in both sexual function and relational harmony, further solidifying the premise that interventions explicitly focusing on open communication, mutual understanding, and sexual education within a couple can lead to profoundly positive and enduring outcomes. The collective improvement in both individual psychological factors and relational dynamics suggests a synergistic effect where systemic engagement fosters a more supportive environment conducive to overall healing and adaptation. Clinically, these results highlight the need for therapist training in systemic couple-based interventions, particularly in facilitating culturally sensitive communication and joint problem-solving to address vaginismus effectively.

However, despite a statistically significant immediate reduction in the overall vaginal penetration disorder score from pre-test to post-test in the present study, the lack of statistical maintenance of this reduction during the subsequent follow-up periods (when compared directly to the post-test score) warrants careful

and nuanced consideration. This particular finding suggests that while systemic sex therapy demonstrably exerts an immediate positive impact, the long-term durability of this effect may necessitate further investigation and potentially the strategic integration of booster sessions or structured, ongoing maintenance programs. This observation is of paramount importance for informing the design and refinement of future therapeutic protocols for vaginismus, suggesting that a one-time intervention, while initially successful, may require reinforcement to sustain its benefits over extended periods. The chronic nature of vaginismus for many individuals might necessitate a more dynamic and adaptable treatment model that accounts for potential relapses or plateaus, thereby ensuring the longevity of therapeutic progress.

Limitations

The current study's limitations include a modest sample size and the absence of a control group. These factors constrain the generalizability of the findings and limit the ability to draw definitive causal inferences. Additionally, the reliance on self-reported outcomes may introduce response bias, and the short-term follow-up period limits insights into very long-term durability of effects.

Generalizability

The findings may be particularly applicable to married women in urban Iranian settings with access to specialized sexual health services, given the cultural adaptations in the intervention. However, generalizability to diverse cultural contexts, unmarried individuals, or those with secondary vaginismus warrants caution and further cross-cultural validation.

Conclusion

The findings of this study significantly contribute to the understanding of systemic sex therapy's effectiveness in treating vaginismus. The observed improvements across multiple psychological and relational domains highlight the value of a comprehensive, multi-faceted intervention. While the immediate post-treatment effects were robust, the lack of sustained effects on vaginal penetration disorder and non-significant changes in penetration motivation suggest that longer-term interventions, specifically targeting motivation and sustained relational support, are necessary for enduring outcomes. To enhance access to such interventions, policymakers should prioritize integrating systemic sex therapy into sexual health services, ensuring training for clinicians in couple-based approaches and improving availability in underserved regions. While the immediate post-treatment effects were robust, the need for further exploration into maintaining these gains over

the long term remains a critical area for future research.

Footnotes

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Ethical Approval: The full study protocol is available upon request from the corresponding author. The study protocol adhered to the ethical guidelines and received approval from the Institutional Review Board of the University (IR.IAU.R.REC.1402.015).

Registration

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