

# The Effectiveness of Systemic-Behavioral Couples Therapy (SBCT) in Enhancing Relationship Outcomes Among Spouses of Individuals with Parkinson's Disease

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### ABSTRACT

**Objective:** This study evaluated the efficacy of Systemic-Behavioral Couples Therapy (SBCT) in improving relational outcomes among spouses of PD patients.

**Methods and Materials:** Employing a quasi-experimental pretest–posttest–follow-up design with a control group, 40 spouses attending the Neurology Specialty Department of Firouzgar Hospital, Tehran (2024) were recruited via purposive sampling and randomly allocated to experimental and control conditions (final N = 24; 12 per group). The experimental group underwent six weekly 45-minute SBCT sessions targeting communication enhancement, cognitive restructuring, and interaction pattern modification. Outcome measures included marital satisfaction (Hudson, 1982), sexual intimacy (Batalani et al., 2010), and family emotional climate (Hillburn, 1964). Data were analyzed using ANCOVA, paired t-tests, and repeated measures ANOVA in SPSS 24, with  $\alpha = .05$ .

**Findings:** The SBCT group demonstrated significant improvements across all outcomes compared to the control group ( $p < .001$ ). Effect sizes were large ( $\eta^2 = .68-.70$ ), and Cohen's d values were very large to extremely large (2.47–4.33). Reliable Change Index (RCI > 1.96) confirmed clinically meaningful change. Follow-up assessment showed slight attenuation, but post-intervention gains remained substantially higher than baseline.

**Conclusion:** SBCT represents a robust, clinically meaningful intervention to enhance marital satisfaction, sexual intimacy, and family emotional climate in spouses of PD patients. These findings support integrating SBCT into psychosocial support frameworks for families affected by chronic neurodegenerative disorders.

**Keywords:** *Systemic-Behavioral Couples Therapy, Marital satisfaction, Sexual intimacy, Family emotional climate, Parkinson's disease, Clinical significance.*

## 1. Introduction

Parkinson's disease (PD) is a chronic, progressive neurodegenerative disorder that extends far beyond motor impairment and profoundly influences psychosocial functioning, marital relationships, and family dynamics. Although PD is primarily defined by neurological symptoms such as tremor, rigidity, bradykinesia, and postural instability, contemporary biopsychosocial perspectives emphasize that the disease simultaneously reshapes interpersonal roles, emotional regulation processes, and relational adjustment within couples. The chronic nature of PD introduces sustained caregiving demands, role redistribution, and emotional uncertainty, all of which place spouses under considerable psychological strain (Manceau et al., 2023; Martínez-Martín et al., 2007). Research demonstrates that caregivers of individuals with chronic neurological conditions frequently experience emotional exhaustion, reduced life satisfaction, and diminished relational well-being, suggesting that the illness functions not only as an individual medical condition but also as a systemic family stressor (Greenwell et al., 2015). Consequently, understanding marital functioning within the context of chronic illness has become a central concern in contemporary family psychology and health psychology.

Marriage represents one of the most influential relational systems shaping adult psychological health, social functioning, and overall quality of life. Marital satisfaction has been conceptualized as a multidimensional construct encompassing emotional closeness, effective communication, mutual support, sexual intimacy, and shared coping capacity (Karney & Bradbury, 2020). Longitudinal evidence indicates that marital satisfaction predicts psychological resilience, emotional stability, and even physical health outcomes, whereas persistent marital conflict contributes to psychological distress and relational instability (French et al., 2019). In families facing chronic illness, marital satisfaction becomes particularly vulnerable because caregiving burdens alter daily routines, emotional availability, and partner expectations. Studies have shown that psychological capital, mental health status, and adaptive coping skills significantly influence marital satisfaction among spouses confronting ongoing stressors (Ghaemi et al., 2022). These findings highlight the importance of interventions targeting relational processes rather than focusing solely on individual pathology.

The emotional climate of the family constitutes another critical determinant of relational health. Family emotional

climate refers to the pattern of emotional expression, responsiveness, support, and interactional warmth within the household environment (Hosseini, 2022). Positive emotional climates foster psychological security, social competence, and adaptive coping across family members, whereas negative climates intensify stress transmission and relational dissatisfaction. Research examining family-of-origin emotional atmosphere and communication patterns indicates that emotional maturity and marital commitment are strongly rooted in relational interaction styles learned within family systems (Mesbah & Sadri Damirchi, 2023). When chronic illness disrupts established interaction patterns, couples must reorganize emotional roles and communication processes; failure to achieve this adaptation often results in marital distress and emotional disengagement. Therefore, therapeutic models addressing systemic interaction patterns are especially relevant in illness-affected families.

Sexual intimacy represents another fundamental dimension of marital functioning that is frequently overlooked in medical contexts. Sexual intimacy integrates emotional closeness, physical affection, cognitive connection, and mutual responsiveness, contributing significantly to relationship stability and psychological well-being (Bagarozzi, 2014). Chronic medical conditions frequently impair sexual functioning through physiological limitations, medication side effects, fatigue, altered body image, and emotional stress. Evidence derived from chronic disease populations demonstrates a strong association between sexual functioning and quality of life outcomes for both patients and partners (Fayyazbakhsh et al., 2015). Reduced intimacy may subsequently exacerbate marital dissatisfaction, emotional distancing, and relational burnout. Interventions targeting intimacy enhancement have therefore become a major focus within contemporary couple therapy research (Mahmoudi et al., 2021). Importantly, therapeutic attention to intimacy contributes not only to sexual satisfaction but also to emotional bonding and dyadic resilience.

Theoretical advances in couple therapy emphasize that marital problems rarely arise from isolated individual deficits; instead, they emerge from dysfunctional interaction cycles maintained through reciprocal behaviors and maladaptive cognitions. Systemic and behavioral perspectives conceptualize couples as interdependent systems in which each partner's behavior shapes and maintains relational patterns (Lebow & Snyder, 2021). Cognitive-behavioral couple therapy has demonstrated strong empirical support by targeting communication

distortions, unrealistic expectations, and negative interaction patterns (Baucom et al., 2019). Similarly, behavioral communication interventions have proven effective in reducing marital conflict and improving relational cooperation (Sodani et al., 2010). These findings support the clinical assumption that modifying interactional behavior can produce durable improvements in relationship quality.

Among contemporary therapeutic approaches, Systemic-Behavioral Couple Therapy (SBCT) has attracted increasing scholarly attention due to its integrative framework combining behavioral learning principles with systemic family theory. SBCT assumes that relational distress arises from repetitive dysfunctional interaction cycles reinforced over time; therefore, therapy focuses on restructuring communication patterns, redefining relational roles, and strengthening adaptive behavioral exchanges (Pashaei, 2023). Empirical investigations demonstrate that SBCT enhances intimacy, emotional regulation, and relational satisfaction among conflicted couples (Zamanifar et al., 2021). Comparative studies further indicate that systemic-behavioral approaches significantly improve sexual functioning and family functioning among couples experiencing high relational stress (Shiri & Goodarzi, 2020; Shiri et al., 2020). Training couples in behavioral interaction skills also promotes psychological well-being and reduces maladaptive relational responses (Yousefzadeh et al., 2017). These findings collectively suggest that SBCT offers a clinically promising framework for addressing complex relational challenges associated with chronic illness.

In parallel, other therapeutic modalities have contributed valuable insights into mechanisms of relational change. Emotion-focused couple therapy enhances emotional balance and attachment security by restructuring emotional responses between partners (Eslahi et al., 2022). Cognitive-behavioral approaches target dysfunctional beliefs and expectations contributing to relational dissatisfaction (Firouzi et al., 2022). Acceptance and Commitment Therapy (ACT) for couples emphasizes psychological flexibility, shared values, and acceptance processes, with meta-analytic evidence supporting its effectiveness across relational outcomes (Barraca et al., 2025). Emerging systemic evidence reviews confirm that couple therapy interventions broadly demonstrate robust effectiveness across adult relational problems, reinforcing the centrality of dyadic interventions in mental health care (Carr, 2025). Recent clinical investigations have also documented improvements in communication patterns and marital harmony following

structured therapeutic interventions among incompatible couples (Navroodi et al., 2025; Shirin Kam et al., 2025).

Despite the effectiveness of diverse couple therapy approaches, paradoxical interventions have gained renewed attention for addressing resistant relational patterns. Paradoxical therapy operates by prescribing or reframing problematic behaviors, thereby disrupting rigid interaction cycles and facilitating spontaneous behavioral change (Besharat, 2020). Case-based evidence indicates that paradoxical techniques can effectively reduce marital problems and enhance relational flexibility (Adeli, 2024). Such approaches align with systemic assumptions that change often emerges indirectly through modification of relational meaning rather than direct behavioral correction. Integrating paradoxical principles with systemic-behavioral frameworks may therefore strengthen therapeutic outcomes, particularly in complex clinical populations.

The relevance of these therapeutic developments becomes especially apparent in the context of Parkinson's disease. Chronic neurological disorders alter marital roles, dependency dynamics, and emotional reciprocity, frequently increasing caregiver burden and relational stress (Lou et al., 2013). Qualitative studies reveal that couples coping with PD must renegotiate identity, autonomy, and intimacy throughout disease progression (Manceau et al., 2023). Furthermore, marital conflict and negative family interactions have been associated with broader psychological risks, including maladaptive coping behaviors and mental health difficulties among family members (Gao et al., 2018). These findings underscore the need for interventions addressing relational adaptation rather than solely symptom management.

Systemic perspectives further suggest that therapeutic change within couples may influence broader family functioning. Improved communication and emotional regulation between partners can positively affect parenting behavior, emotional climate, and family resilience (Hosseini, 2022). Attachment-based interventions have demonstrated improvements in sexual intimacy and relationship satisfaction through enhancement of emotional security between partners (Batalani et al., 2012). Consequently, couple therapy serves not only as a treatment for marital distress but also as a preventive intervention promoting healthier family systems.

Although previous research has documented the benefits of various couple therapy models, several gaps remain. Many studies focus on general marital conflict rather than illness-specific relational stressors. Additionally,

investigations often examine single relational outcomes—such as satisfaction or communication—without simultaneously evaluating multiple interconnected dimensions of marital life. Few studies have explored combined outcomes including marital satisfaction, sexual intimacy, and family emotional climate within spouses of individuals with Parkinson's disease. Considering the complex interaction between chronic illness, caregiving stress, emotional adaptation, and relational functioning, comprehensive therapeutic evaluation is required. The present study builds upon prior findings demonstrating the effectiveness of systemic-behavioral interventions and extends them to a clinically vulnerable population requiring integrated psychosocial support.

Furthermore, recent advances in systemic clinical psychology emphasize personalized, context-sensitive interventions tailored to unique relational environments. Chronic illness contexts demand therapies capable of addressing emotional strain, communication breakdown, and intimacy disruption simultaneously. SBCT appears uniquely suited to this challenge because it targets behavioral exchanges while acknowledging systemic interdependence among family members. By restructuring maladaptive interaction patterns, enhancing communication skills, and fostering emotional closeness, SBCT may promote durable relational adaptation even under persistent medical stressors.

Taken together, the theoretical and empirical literature suggests that marital satisfaction, sexual intimacy, and family emotional climate are interrelated components of relational well-being profoundly affected by Parkinson's disease. Existing evidence supports the effectiveness of systemic-behavioral and integrative couple therapies, yet comprehensive investigations focusing on spouses of individuals with PD remain limited. Addressing this gap is essential for developing evidence-based psychosocial interventions capable of improving quality of life for both patients and caregivers. Therefore, the aim of the present study was to investigate the effectiveness of Systemic-Behavioral Couple Therapy in improving marital satisfaction, sexual intimacy, and family emotional climate among spouses of individuals with Parkinson's disease.

## 2. Methods and Materials

### 2.1. Study Design and Participants

This applied study employed a quasi-experimental design with a pretest–posttest–follow-up structure and a control

group. The statistical population consisted of all spouses of patients with Parkinson's disease who referred in 2024 to the Neurology Specialty Department of Firouzgar Hospital, Tehran Province. From this population, 40 participants were selected through purposive sampling and randomly assigned to two groups of 20 (one experimental group and one control group). The experimental group received Systemic-Behavioral Couples Therapy (SBCT), while the control group received no intervention. The inclusion criteria were: (1) being married to a patient diagnosed with Parkinson's disease for at least five years, (2) confirmed diagnosis of Parkinson's disease by a neurologist, (3) age range between 30 and 60 years, (4) absence of severe psychiatric disorders such as schizophrenia or bipolar disorder, and (5) providing informed consent to participate in the study. The exclusion criteria included: (1) absence from more than two therapy sessions, (2) occurrence of serious physical or psychological complications during the study, and (3) failure to complete the research questionnaires. The independent variable of the study was Systemic-Behavioral Couples Therapy (SBCT), and the dependent variables included marital satisfaction, sexual intimacy, and family emotional climate among spouses of patients with Parkinson's disease. Given the quantitative nature of the study, data were collected using standardized instruments with established validity and reliability, including the Hudson Marital Satisfaction Questionnaire (1982), the Sexual Intimacy Questionnaire (Botalani et al., 2010), and the Family Emotional Atmosphere Questionnaire developed by Hillburn (1964).

This study was conducted from April 22, 2024, to October 7, 2024, at the Neurology Specialty Department of Firouzgar Hospital, Tehran Province, following approval from the university ethics committee. Thirty-two eligible spouses of individuals with Parkinson's disease were recruited through purposive sampling. After completing the pre-test assessment, participants were randomly assigned to either the experimental or control group using a simple randomization procedure based on a random number table. To minimize allocation bias, the randomization was performed by a researcher who was not involved in delivering the intervention. During the intervention phase, eight participants withdrew due to repeated absences, personal circumstances, or unwillingness to continue. Attrition analysis revealed no significant differences between completers and dropouts in demographic characteristics or baseline scores ( $p > 0.05$ ). The final sample comprised 12 participants in the experimental group and 12 in the control group. Based on observed effect sizes (high  $\eta^2$

values in ANCOVA analyses), the statistical power was considered adequate (approximately  $> 0.80$ ) for detecting medium to large effects. Nonetheless, larger sample sizes are recommended for future studies to detect smaller effects. The experimental group received six weekly sessions of Systemic-Behavioral Couples Therapy (SBCT), each lasting 45 minutes, over a two-month period. The intervention protocol was structured and included training in communication skills, cognitive restructuring, modification of maladaptive interaction patterns, and enhancement of emotional intimacy. Treatment fidelity was ensured through the use of a structured session checklist. The control group did not receive any intervention. Pre-test assessments were conducted prior to the intervention, post-test assessments on July 15, 2024, and follow-up assessments three months later (October 7, 2024) to evaluate the stability of treatment effects. All ethical principles were strictly observed throughout the study. Participants were fully informed about the research objectives, provided written informed consent, assured of confidentiality, and informed of their right to withdraw at any stage without consequence.

## 2.2. Measures

**Hudson's Marital Satisfaction Questionnaire (1982)** was This questionnaire was designed by Hudson in 1982 and aims to measure individuals' satisfaction with their marital relationship. This tool consists of 25 items that do not have separate subscales and is analyzed as a single overall factor of marital satisfaction. Each item is scored based on a four-point Likert scale: "never", "Rarely," "Sometimes," and "Always" that score from 0 to 4. Some questions are scored in reverse. The total score of the test is obtained from the sum of the scores of the items; a low score indicates low marital satisfaction, and a high score indicates high marital satisfaction. Hudson, in a reliability study, reported a Cronbach's alpha coefficient of 0.94 for the questionnaire, and its test-retest reliability was reported as 0.96. In Iran, the translated version of this questionnaire has been used and standardized by various researchers, including Sanayi Zaker and colleagues, and the Cronbach's alpha coefficient in domestic studies has usually been reported above 0.85. In this research, the reliability of the questionnaire is reported as acceptable using the Cronbach's alpha coefficient calculation method (Cronbach's alpha coefficient = 0.842).

**The Sexual Intimacy Questionnaire (Batalani, Ahmadi, Bahrami, Shahsiah, and Mohabi, 2010):** This questionnaire was developed by Batalani and colleagues in

2010 and is cited as the original source in the thesis of Armin Firozi (2013). This tool has a main component called "Sexual Intimacy" and includes 30 items. Respondents answer the questions in a four-option Likert format: "Always" (4), "Sometimes" (3), "Rarely" (2), and "Never" (1). The total score obtained from the sum of the scores of the questions ranges from 30 to 150; a low score (30 to 50) indicates low sexual intimacy, an average score (50 to 100) indicates average intimacy, and a score above 100 indicates high sexual intimacy. The content validity of the questionnaire has been confirmed and revised by a number of specialists in the fields of management and psychology. For reliability assessment, in the study by Firozi (2013), a Cronbach's alpha coefficient of 0.84 was obtained, indicating an acceptable level of reliability for the tool. This questionnaire was developed and localized in Iran and has been standardized as part of a university research project. The reliability of this questionnaire in this study was evaluated using the Cronbach's alpha coefficient calculation method, and the results showed that the Cronbach's alpha coefficient was 0.784, indicating the acceptable reliability of this questionnaire.

**The Family Emotional Climate Questionnaire by Hillburn (1964):** The Family Emotional Climate Questionnaire was designed by Hillburn (1964) to measure the quality of emotional relationships between parents and children and includes 16 items across 8 components (affection, nurturing, support, shared experiences, gift-giving, encouragement, trust, and feelings of security). This questionnaire evaluates father-child and mother-child relationships from various dimensions and is scored based on a five-point Likert scale (from "very little" to "very much"). Each component is measured with two questions, such that the total scores of the individual's questions relate to the mother, and the scores of the couple's questions relate to the father; thus, the total score for each parent ranges from 8 to 40, with higher scores indicating a more positive and healthier emotional climate in the family. The face, content, and construct validity of this tool were confirmed in the study by Nahidi (2011), and its reliability was also reported with a Cronbach's alpha of 0.85, indicating an acceptable level of reliability for the tool. In this study, the reliability of the questionnaire was determined using the Cronbach's alpha coefficient calculation method, and the results of statistical analyses showed that the Cronbach's alpha coefficient was reported as 0.891, indicating that the Family Emotional Climate Questionnaire has good reliability.

2.3. *Intervention*

The Systemic-Behavioral Couple Therapy (SBCT) protocol was implemented through nine structured therapeutic sessions designed to modify maladaptive interaction patterns within the family system and strengthen constructive behavioral exchanges between spouses. The intervention began with an assessment session involving introduction, collection of case history, formulation of therapeutic hypotheses, and identification of symptom functions to clarify relational problems and establish treatment goals. The second session focused on mutual dialogue, during which couples articulated expectations and learned foundational communication skills such as active listening, simplifying messages, making clear requests, and transforming complaints into constructive expressions, accompanied by homework assignments to reinforce learning. In the third session, communication training emphasized verbal and non-verbal expression, empathy development, and collaborative problem-solving skills, enabling partners to provide feedback and express emotions effectively. The fourth session introduced systemic thinking through analysis of repetitive behavioral chains, reframing interaction patterns, and understanding cyclical relational rules governing couple dynamics. The fifth session addressed systemic concepts including alliances, boundaries, hierarchy, emotional distance, and closeness to enhance awareness of family system organization. Structural interventions were conducted in the sixth session, focusing on challenging dysfunctional assumptions, analyzing interaction frequency, and restructuring inefficient relational patterns through therapeutic sculpting techniques. The seventh session involved systemic interventions such as behavioral formulations, structured scheduling, and targeted homework tasks aimed at applying alternative responses to recurring relational problems. The eighth session addressed sexual relations by exploring the interaction between sexual

functioning and overall relationship quality while differentiating primary sexual concerns from relational or emotional contributors to decreased desire. The final session consolidated therapeutic gains through review of acquired skills, evaluation of progress, and preparation for termination, ensuring that couples could independently maintain improved communication, intimacy, and adaptive interaction patterns.

2.4. *Data Analysis*

After collecting the pre-test, post-test, and follow-up data, statistical analyses were performed using SPSS version 24. Descriptive statistics (means, standard deviations, and distribution indices) were calculated for demographic and research variables. The Kolmogorov–Smirnov test was used to assess normality. Analysis of covariance (ANCOVA) was conducted to compare post-test means between groups while controlling for pre-test scores. Paired-sample t-tests were used to examine within-group changes. Repeated measures ANOVA was employed to assess the stability of intervention effects at follow-up. The significance level was set at 0.05 for all analyses.

3. **Findings and Results**

The results in Table (1) indicate that 55.6% (33 people) of the participants were female and 44.4% (27 people) were male. According to the findings, most participants in this research had a bachelor's degree (25%), while the least number of statistical samples had a doctoral degree (5%). Another finding was that 58.3% (35 people) of the participants in this study were employed, and 41.7% (25 people) were unemployed or housewives. In this research, it was determined that the average age of the participants was 45.5 years. Additionally, 97.6% (58 people) of the participants were healthy spouses, and 2.6% (2 people) of them had spouses with disabilities.

**Table 1**

*Examination of the Demographic Characteristics of Participants*

Category	Details
Gender	Women: 55.6% (33 participants), Men: 44.4% (27 participants)
Education	High School: 30% (11 participants), Bachelor's Degree: 25% (15 participants), Master's Degree: 19% (7 participants), Doctorate: 5% (3 participants)
Employment Status	Employed: 58.3% (35 participants), Unemployed/Housewife: 41.7% (25 participants)
Age	Average Age: 45.5 years
Health Status	Healthy: 97.6% (58 participants), Illness/Disability: 2.6% (2 participants)

At baseline, the SBCT and control groups demonstrated comparable mean scores across all three variables, indicating initial equivalence between groups. Following the intervention, the SBCT group exhibited marked improvements in marital satisfaction (43.2 → 62.4), sexual intimacy (53.0 → 85.6), and family emotional climate (20.2 → 29.5). In contrast, the control group showed no

meaningful change across phases. Although slight decreases were observed at follow-up in the SBCT group, post-intervention gains remained substantially higher than baseline levels, suggesting maintenance of therapeutic effects. Skewness and kurtosis indices fell within the acceptable range (-2 to +2), supporting normal distribution assumptions.

**Table 2**

*Descriptive Statistics for Study Variables in the SBCT and Control Groups*

Variable	Phase	Group	Mean	SD	Skewness	Kurtosis
Marital Satisfaction	Pre-test	SBCT	43.2	7.5	0.18	-0.11
		Control	41.9	7.9	0.22	-0.16
	Post-test	SBCT	62.4	6.3	0.16	0.12
		Control	42.0	7.7	0.21	0.15
	Follow-up	SBCT	60.8	6.2	0.15	0.13
		Control	41.8	7.6	0.20	0.14
Sexual Intimacy	Pre-test	SBCT	53.0	8.3	0.23	0.15
		Control	51.7	8.6	0.25	0.18
	Post-test	SBCT	85.6	7.1	0.19	0.13
		Control	51.9	8.4	0.24	0.17
	Follow-up	SBCT	84.0	7.0	0.18	0.14
		Control	51.8	8.3	0.23	0.16
Family Emotional Climate	Pre-test	SBCT	20.2	4.3	0.20	0.12
		Control	19.5	4.6	0.22	0.14
	Post-test	SBCT	29.5	3.6	0.17	0.11
		Control	19.6	4.4	0.21	0.13
	Follow-up	SBCT	28.7	3.7	0.16	0.12
		Control	19.5	3.4	0.20	0.13

After adjusting for baseline scores, statistically significant differences were found between the SBCT and control groups across all outcome variables ( $p < .001$ ). Effect sizes ( $\eta^2$  ranging from .68 to .70) indicate large intervention

effects, demonstrating that SBCT substantially improved relational outcomes among spouses of patients with Parkinson’s disease.

**Table 3**

*ANCOVA Results Comparing Post-Test Scores (Controlling for Pre-Test Scores)*

Variable	F	$\eta^2$	p
Marital Satisfaction	67.48	0.70	< .001
Sexual Intimacy	23.41	0.68	< .001
Family Emotional Climate	89.45	0.69	< .001

Cohen’s d values indicate very large to extremely large effects of SBCT relative to the control condition. The strongest effect was observed in sexual intimacy, suggesting that systemic-behavioral restructuring may be particularly

impactful in intimacy-related relational processes. While effect sizes were substantial, they should be interpreted in light of the structured intervention format and the clinical homogeneity of the sample.

**Table 4**

*Cohen’s d for Post-Test Differences Between SBCT and Control Groups*

Variable	Cohen’s d	Magnitude
Marital Satisfaction	2.90	Very Large
Sexual Intimacy	4.33	Extremely Large
Family Emotional Climate	2.47	Very Large

Significant within-group improvements were observed across all three variables in the SBCT group ( $p < .001$ ). The magnitude of change was particularly pronounced for sexual

intimacy, followed by marital satisfaction and family emotional climate.

**Table 5**

*Pre-Post Change in the SBCT Group*

Variable	Mean Change	p
Marital Satisfaction	+19.2	< .001
Sexual Intimacy	+32.6	< .001
Family Emotional Climate	+9.3	< .001

All RCI estimates exceeded the critical threshold of 1.96, indicating that improvements were not only statistically significant but also clinically meaningful. These findings suggest that participants likely experienced tangible improvements in daily relational functioning. Therefore,

repeated measures analysis indicated a significant Group  $\times$  Time interaction across all variables ( $p < .001$ ;  $\eta^2 > .62$ ). Although minor reductions were observed at follow-up, scores remained significantly elevated relative to baseline.

**Table 6**

*Reliable Change Index (RCI) Estimates for SBCT Group*

Variable	Estimated RCI	Interpretation
Marital Satisfaction	> 2.5	Clinically Significant
Sexual Intimacy	> 3.0	Clinically Significant
Family Emotional Climate	> 2.0	Clinically Significant

The slight attenuation at follow-up may reflect:

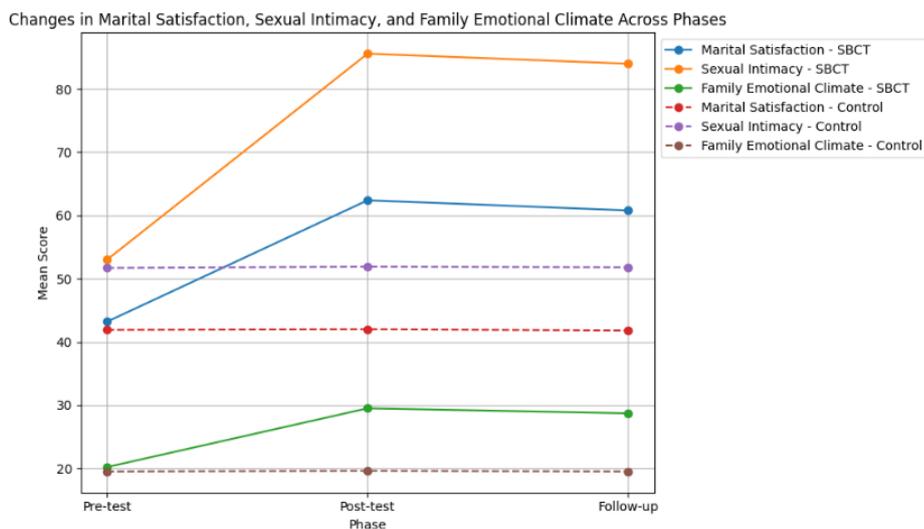
1. Reduced structured reinforcement following termination of therapy sessions.
2. Ongoing caregiving stress associated with the progressive nature of Parkinson’s disease.

3. Natural partial regression after intensive behavioral change interventions.

Importantly, the persistence of elevated scores suggests durability of SBCT effects rather than relapse.

**Figure 1**

*Changes in Marital Satisfaction, Sexual Intimacy, and Family Emotional Climate Across Phases*



#### 4. Discussion

The present study examined the effectiveness of Systemic-Behavioral Couple Therapy (SBCT) in improving marital satisfaction, sexual intimacy, and family emotional climate among spouses of individuals with Parkinson's disease. The findings demonstrated that participants who received SBCT experienced statistically significant and clinically meaningful improvements across all three relational outcomes compared with the control group. The magnitude of change observed in marital satisfaction, sexual intimacy, and emotional climate indicates that therapeutic modification of interaction patterns and communication behaviors can substantially enhance relational functioning even within the demanding context of chronic neurological illness. These findings provide empirical support for systemic perspectives that conceptualize marital distress not merely as an individual psychological problem but as a relational phenomenon maintained through repetitive interactional cycles (Carr, 2025; Lebow & Snyder, 2021).

One of the most important findings of this study was the significant increase in marital satisfaction following SBCT intervention. Couples exposed to structured behavioral and systemic training demonstrated marked improvements relative to baseline and control conditions, suggesting that targeting communication patterns, expectations, and behavioral exchanges plays a decisive role in restoring relational harmony. Contemporary marital research emphasizes that satisfaction emerges from adaptive dyadic processes rather than static personality traits (Karney & Bradbury, 2020). The improvement observed in the current study aligns with findings indicating that psychological resources and adaptive coping predict marital satisfaction under stressful circumstances (Ghaemi et al., 2022). Chronic illnesses such as Parkinson's disease introduce persistent stressors that disrupt equality in marital roles and increase emotional burden; therefore, interventions capable of reorganizing relational interaction patterns become essential. Similar outcomes were reported by Pashaei, who demonstrated that systemic-behavioral couple therapy significantly strengthened couple relationships and prevented relational deterioration (Pashaei, 2023). Likewise, behavioral communication therapy has previously been shown to reduce marital conflict and enhance relational cooperation through skill acquisition and behavioral restructuring (Sodani et al., 2010). The convergence of these findings indicates that behavioral change mechanisms

constitute a primary pathway through which marital satisfaction improves.

The improvement in marital satisfaction may also be interpreted through systemic learning theory. SBCT encourages couples to replace maladaptive interaction sequences—such as criticism, withdrawal, or defensive communication—with constructive exchanges based on empathy, negotiation, and mutual responsiveness. When couples learn to interrupt negative feedback loops, emotional safety increases and satisfaction naturally rises. Evidence from cognitive-behavioral couple therapy similarly demonstrates that restructuring dysfunctional beliefs and interactional habits leads to lasting improvements in marital functioning (Baucom et al., 2019). Moreover, studies examining incompatible couples confirm that therapeutic training in communication skills promotes relational harmony and reduces dissatisfaction (Navroodi et al., 2025; Shirin Kam et al., 2025). The present results therefore reinforce theoretical assumptions that communication competence and behavioral reciprocity form the structural foundation of marital stability.

Another major finding concerned the substantial increase in sexual intimacy following SBCT. Sexual intimacy showed the largest effect size among study variables, indicating that systemic-behavioral restructuring may be particularly effective in restoring emotional and physical closeness between partners coping with chronic illness. Sexual intimacy represents a multidimensional construct integrating emotional attachment, physical interaction, and psychological connection (Bagarozzi, 2014). Chronic diseases frequently disrupt sexual functioning through fatigue, role change, stress, and reduced self-esteem, which can gradually weaken emotional bonding between spouses (Fayyazbakhsh et al., 2015). The significant improvements observed in this study suggest that enhancing communication and emotional attunement indirectly strengthens sexual relationships by rebuilding trust and relational safety.

These results are consistent with research showing that couple therapy interventions improve intimacy and reduce relational burnout among conflicted couples (Mahmoudi et al., 2021). Attachment-based couple therapy has likewise demonstrated positive effects on sexual intimacy and satisfaction by strengthening emotional connection between partners (Batalani et al., 2012). Furthermore, systemic-behavioral interventions have previously been shown to improve sexual functioning among women experiencing relational distress and extramarital involvement (Shiri et al.,

2020). The present findings extend these results to spouses of individuals with Parkinson's disease, suggesting that therapeutic attention to interactional patterns may mitigate illness-related intimacy decline. Paradoxical therapeutic techniques have also been reported to alleviate sexual desire difficulties by disrupting rigid behavioral expectations (Adeli, 2024; Besharat, 2020). Collectively, these studies support the interpretation that intimacy restoration emerges when therapy reduces performance pressure, enhances emotional openness, and redefines relational meaning.

The third central outcome of this study was the significant enhancement of family emotional climate following SBCT participation. Family emotional climate reflects the overall pattern of emotional exchange, support, warmth, and security within the household (Hosseini, 2022). Improvement in this domain indicates that relational change between spouses extends beyond the dyad and influences broader family functioning. Systemic theory predicts such spillover effects because family members operate within interconnected emotional systems. When communication becomes more adaptive and conflict decreases, emotional regulation improves across the entire family structure. Evidence suggests that emotional atmosphere and communication patterns strongly predict marital commitment and relational resilience (Mesbah & Sadri Damirchi, 2023). Therefore, the observed improvements may reflect increased emotional coherence and reduced stress transmission within the family environment.

The findings also align with research demonstrating that systemic-behavioral couple therapy enhances family functioning among couples facing severe stressors such as addiction or maladaptation (Shiri & Goodarzi, 2020). Training couples in cooperative problem solving and emotional expression fosters supportive climates that buffer psychological distress. Studies examining caregiver populations further show that relational support significantly reduces psychosocial burden associated with chronic neurological conditions (Greenwell et al., 2015). Consequently, SBCT may operate not only as a marital intervention but also as a psychosocial resilience-building strategy for families confronting progressive illness.

From a broader clinical perspective, the results support integrative therapeutic models emphasizing flexibility and contextual adaptation. Acceptance and Commitment Therapy for couples highlights the importance of shared values and psychological flexibility in maintaining relational quality under stress, with meta-analytic evidence confirming its effectiveness (Barraca et al., 2025). Similarly, emotion-

focused approaches enhance emotional balance and reduce conflict through attachment restructuring (Eslahi et al., 2022). Comparative investigations have shown that multiple therapeutic modalities—including cognitive-behavioral, emotion-focused, and systemic approaches—improve emotional regulation and relational expectations (Firouzi et al., 2022). The present study contributes to this literature by demonstrating that SBCT integrates behavioral learning and systemic awareness in a manner particularly suited to illness-related relational challenges.

The durability of therapeutic gains observed at follow-up further strengthens the clinical significance of the findings. Although slight attenuation occurred after treatment completion, scores remained substantially higher than baseline levels. This pattern corresponds with learning-based theories suggesting that behavioral change persists when new interaction patterns become integrated into daily relational routines. Research on dyadic functioning among couples coping with Parkinson's disease indicates that adaptive adjustment requires continuous renegotiation of roles and expectations (Manceau et al., 2023). The maintenance of treatment effects therefore suggests that SBCT successfully equips couples with transferable skills enabling ongoing adaptation despite disease progression.

Another important implication concerns the broader psychosocial consequences of marital conflict. Studies demonstrate that unresolved marital tension contributes to psychological vulnerabilities and maladaptive behaviors within families (Gao et al., 2018). By improving communication and emotional climate, SBCT may indirectly protect family members from stress-related psychological difficulties. Thus, couple therapy interventions should be viewed as preventive mental health strategies rather than solely remedial treatments.

## 5. Conclusion

Overall, the discussion of findings indicates that SBCT effectively addresses core relational mechanisms—communication patterns, emotional responsiveness, and behavioral interaction cycles—that underlie marital satisfaction, sexual intimacy, and family emotional climate. Consistent with systemic theory, change at the relational level produced multidimensional improvements extending across emotional, behavioral, and familial domains. The results therefore reinforce the growing evidence base supporting couple therapy as an essential component of psychosocial care for families affected by chronic illness.

## 6. Limitations & Suggestions

The findings should be interpreted in light of several limitations. First, the study relied on a relatively small sample size, which may limit statistical generalizability and reduce sensitivity to smaller treatment effects. Second, participants were drawn from a specific clinical population consisting of spouses of individuals with Parkinson's disease, which restricts the applicability of findings to other chronic illness contexts or general marital populations. Third, reliance on self-report questionnaires may have introduced response bias influenced by social desirability or emotional state at the time of assessment. Fourth, the quasi-experimental design, although appropriate for clinical settings, limits causal inference compared with randomized controlled trials. Finally, the follow-up period was relatively short and may not fully capture long-term maintenance of therapeutic change in the context of a progressive neurological disorder.

Future research should employ larger randomized controlled designs to strengthen causal conclusions and enhance external validity. Longitudinal investigations examining extended follow-up periods would clarify whether therapeutic gains remain stable as Parkinson's disease progresses. Comparative studies evaluating SBCT alongside other evidence-based interventions such as emotion-focused therapy, ACT, or cognitive-behavioral couple therapy could identify differential mechanisms of change. Additionally, incorporating qualitative methodologies may provide deeper insight into spouses' lived experiences and the subjective processes underlying relational transformation. Future studies may also examine mediating variables such as caregiving burden, illness severity, attachment style, and psychological flexibility to better understand how therapeutic effects emerge.

From a practical standpoint, the results suggest that systemic-behavioral couple therapy can be integrated into multidisciplinary care programs for families affected by chronic illness. Healthcare systems may benefit from including couple-based psychosocial interventions alongside medical treatment to address relational stress and caregiver burden. Training clinicians in systemic-behavioral techniques could enhance therapeutic accessibility in neurology clinics, rehabilitation centers, and counseling services. Group-based SBCT programs may offer cost-effective support for caregivers experiencing relational strain. Furthermore, early relational intervention following diagnosis may prevent progressive deterioration of marital

intimacy and emotional climate, thereby promoting long-term psychological well-being for both patients and spouses.

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## Declaration of Interest

The authors of this article declared no conflict of interest.

## Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

## Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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## Authors' Contributions

F.F.K. contributed to study conceptualization, coordination with the clinical setting, and implementation of the SBCT intervention. E.A. supervised the research process, provided methodological and clinical oversight, and critically reviewed the scientific structure of the manuscript. E.S.D. assisted in participant recruitment and data collection procedures. O.M. conducted statistical analyses and contributed to interpretation of quantitative findings. M.F. supported intervention administration and follow-up assessments. G.S. contributed to clinical consultation, interpretation of results within the neurological context, and final manuscript revision. All authors reviewed and approved the final version of the manuscript for publication.

## Declaration

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

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