



Influence of Olson's Circumplex Model on Marital Intimacy and Communication Beliefs of War Veterans and Their Spouses

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Abstract

Background: The transition from military to civilian life presents considerable difficulties for veterans and their families, with significant implications for marital relationships, particularly in the areas of intimacy and communication.

Objectives: This study sought to determine the impact of Olson's circumplex model on marital intimacy and communication beliefs among war veteran couples.

Methods: A quasi-experimental pre-test-post-test-follow-up control group design was implemented, with 32 couples recruited via convenience sampling from veteran counseling and rehabilitation centers in Ahvaz during the fall of 2023. Participants were randomly assigned to either the experimental (n = 16) or control (n = 16) group. The experimental group received ten 90-minute weekly sessions based on Olson's circumplex model, while the control group received no intervention. Pre- and post-test data were collected using the Marital Intimacy Needs Questionnaire (MINQ) and the Dysfunctional Relationship Beliefs Questionnaire (DRBQ). Repeated measures analysis of variance (ANOVA) was employed for data analysis.

Results: At post-test, statistically significant between-group differences were found for both marital intimacy and communication beliefs among war veteran couples ($P < 0.01$). The intervention, based on Olson's circumplex model, resulted in increased marital intimacy and improved communication beliefs. These between-group differences persisted at the follow-up assessment.

Conclusions: The present findings provide preliminary evidence suggesting the potential utility of interventions based on Olson's circumplex model for enhancing marital intimacy and communication beliefs within war veteran couples. Clinicians working with this population may consider integrating principles of Olson's circumplex model into their therapeutic approaches.

Keywords: Couples Therapy, Communication, Marital Intimacy, Family, Veterans

1. Background

War-related disabilities can significantly impact veterans' marital quality of life. Despite facing numerous challenges, veterans, like other individuals, must navigate social reintegration (1). These disabilities can manifest in various forms, including impaired limb function, sensory loss, diminished stress tolerance, and sexual dysfunction. These changes can negatively affect veterans' social roles, particularly within their marital relationships. The impact of war-related disability extends beyond the individual veteran, often exerting

detrimental effects on the entire family system and, consequently, the marital relationship (2). Changes in physical appearance, sexual dysfunction, and the presence of psychological sequelae such as anxiety, grief, guilt, and diminished self-esteem and self-efficacy are associated with numerous adverse consequences for families, impacting both the emotional climate and the mental health of family members (3). Research indicates that even years after the initial traumatic experiences, war survivors may continue to experience significant psychological distress, which can negatively influence

marital intimacy and, ultimately, marital satisfaction (4).

Couples' communication beliefs are a contributing factor to increased marital conflict and the development of marital burnout (5). From a cognitive therapy perspective, irrational beliefs regarding marital communication can be a primary source of dissatisfaction and complaints. Irrational beliefs are cognitions that significantly influence an individual's cognitive system, impacting the interpretation of information and the quantity and quality of behaviors and emotions (6). Relational beliefs manifest as demands and goals expressed in the form of essential preferences. When these preferences are unmet, the relationship is prone to distress. Understanding marital conflict necessitates examining couples' thought patterns concerning their interactions, their irrational beliefs, and their underlying expectations of the relationship (7). Couples' beliefs about marital roles are rooted in individual cognitive schemas. Numerous irrational beliefs originate from cognitive distortions, including mind-reading expectations, the belief in a partner's unchanging nature, beliefs about inherent gender differences, and sexual perfectionism (8). Research has demonstrated that irrational relationship beliefs are a key predictor of marital distress (9).

Marital intimacy stems from a close and affectionate relationship with another person. Intimacy is associated with knowledge and understanding of the other individual, as well as the expression of feelings and thoughts (10). Bagarozzi (11) conceptualizes intimacy as encompassing nine dimensions: Emotional, intellectual, psychological, physical, sexual, spiritual, recreational, social, temporal, and aesthetic, and posits that similarity across these dimensions enhances intimacy between spouses. The development of intimacy occurs through a process of mutual responsiveness. Sensitivity to others, early family experiences, relationships with the opposite sex, and peer relationships influence the level of intimacy between couples. A common element in most distressed relationships is the failure of partners to meet each other's intimacy needs (12). Many marital problems are rooted in a lack of intimacy and communication difficulties. Intimate relationships are a fundamental human need, and the failure to fulfill this need can lead to decreased marital satisfaction, increased conflict, and the development of emotional and psychological disorders (13).

In this context, one approach to preventing marital dissatisfaction is marriage enrichment programs based on Olson's circumplex model. This intervention focuses on improving couple relationships, aiming to enhance self- and partner awareness, emotional tracking, and empathy within the context of developing effective communication skills (14). This model is based on a systemic approach that emphasizes external and environmental factors contributing to conflict, rather than solely focusing on internal individual factors. The model's objective is to teach and restructure behavioral functioning (15). Research findings have demonstrated the positive effects of this model on couple relationship quality and the improvement of their communication skills (16-18).

It is evident that marital relationships among couples who are war survivors require additional attention. Focusing on the emotional aspects and consequences of such events can provide a source of comfort and security for these traumatized individuals and their families (4). Veterans' family experiences involve changes in family structure, family relationships, adaptation, and adjustment. Veterans experience significant trauma in various aspects of life, necessitating the development of counseling, psychological, and care programs. Spouses of veterans also endure considerable stress due to multiple roles and responsibilities. Reduced social support, financial concerns, a lack of family security, and the increasing needs and demands of children are among the primary concerns for spouses of veterans (19). Given the aforementioned points, it is clear that the condition of veterans who have experienced psychological and physical disorders due to injuries sustained during the imposed war requires intervention and follow-up. The consequences of war-related disability are also associated with numerous negative outcomes for families, impacting couple relationships.

2. Objectives

Therefore, the present study aimed to investigate the effectiveness of couple therapy based on Olson's circumplex model on marital intimacy and relational beliefs in veteran couples.

3. Methods

A quasi-experimental pre-test-post-test-follow-up control group design was employed to conduct this

study. Thirty-two couples with veteran spouses were recruited through convenience sampling from veteran counseling and rehabilitation centers in Ahvaz during the fall of 2023 and subsequently assigned to either the experimental ($n = 16$) or control ($n = 16$) condition. Participants were included if they had at least a high school education, no psychiatrist-diagnosed psychiatric disorders, a veteran spouse, and willingness to participate. Participants were excluded if they had a psychiatrist-diagnosed psychiatric disorder, were concurrently participating in other counseling, or missed more than two intervention sessions.

3.1. Instruments

3.1.1. The Marital Intimacy Needs Questionnaire

The Marital Intimacy Needs Questionnaire (MINQ), developed by Bagarozzi (20), is designed to assess intimacy needs across various dimensions, including psychological, sexual, intellectual, emotional, physical, aesthetic, spiritual, recreational, and social. The MINQ comprises 41 items, with responses rated on a Likert scale ranging from 1 (not at all a need) to 10 (a very strong need). Scores range from a minimum of 41 to a maximum of 410. Pasha et al. (21) reported a Cronbach's alpha reliability coefficient of 0.94 for this instrument. In the present study, the Cronbach's alpha reliability coefficient for this questionnaire was found to be 0.92.

3.1.2. The Dysfunctional Relationship Beliefs Questionnaire

The Dysfunctional Relationship Beliefs Questionnaire (DRBQ), developed by Eidelson and Epstein (22), assesses irrational relationship beliefs within couple relationships using 40 items and five subscales. These subscales include: Disagreement is destructive, mindreading is expected, partners cannot change, sexual perfectionism, and the belief in gender differences. Responses are rated on a Likert scale ranging from 0 (completely false) to 5 (completely true). Higher scores on this instrument are associated with lower marital satisfaction. Navid et al. (23) reported an internal consistency (Cronbach's alpha) of 0.77 in their study. In the present study, the Cronbach's alpha reliability coefficient for this questionnaire was 0.82.

3.2. Procedure

Following ethical approval from the university's research department, data collection commenced at a

counseling and rehabilitation center in Ahvaz. After establishing rapport and ensuring confidentiality, participants completed the questionnaires. The experimental group received ten 90-minute sessions based on Olson's circumplex model (summarized in Table 1), while the control group was placed on a waitlist. All therapeutic interventions were conducted by a doctoral student in psychology under faculty supervision. Post-test assessments were administered immediately following the intervention, with a follow-up assessment 45 days later.

3.3. Data Analysis

Data were analyzed using both descriptive and inferential statistics. Descriptive statistics (means and standard deviations) were calculated. Repeated measures analysis of variance (ANOVA) was employed for inferential analyses, with Bonferroni post-hoc tests conducted where appropriate. All analyses were performed using SPSS version 27, with the alpha level set at 0.05.

4. Results

The experimental and control groups were balanced in terms of gender, with each group consisting of eight male and eight female participants ($n = 16$ per group). Table 2 presents the means and standard deviations for marital intimacy and communication beliefs subscales (disagreement is destructive, mindreading is expected, partners cannot change, sexual perfectionism, and belief in gender differences) for both groups across all assessment points (pre-test, post-test, and follow-up).

Assumptions of repeated measures ANOVA were assessed prior to data analysis. Normality was confirmed using the Kolmogorov-Smirnov test. Homogeneity of variance was assessed using Levene's test. As Mauchly's test indicated a violation of the sphericity assumption, the Greenhouse-Geisser correction was applied. Repeated measures ANOVA revealed statistically significant changes across the three time points ($P < 0.001$). A significant interaction between group and time was observed for both marital intimacy and communication beliefs ($P < 0.001$). Post-hoc analyses revealed significant between-group differences favoring the experimental group for all variables ($P < 0.05$) (Table 3).

Bonferroni post-hoc comparisons (Table 4) examined differences across pre-test, post-test, and follow-up

Table 1. Summary of Olson's Circumplex Model Sessions

Sessions	Content
1	Establishing rapport and a therapeutic alliance with the couples, outlining the rules, objectives, and number of therapy sessions, providing an overview of Olson's model, administering the pre-test
2	Intimacy in couple relationships, defining intimacy and its dimensions, instruction on establishing intimate relationships, examining barriers to intimacy within the couple's relationship
3	Cohesion and flexibility, creating a map of the couple and their family, balancing stability and change, familiarization with common couple issues related to flexibility and cohesion
4	Introduction to the concept of conflict in couple relationships, normalizing conflict within the relationship, examining common conflict resolution styles
5	Identifying conflict resolution styles in each partner, practicing the eleven steps for improving communication and resolving conflicts
6	The importance of sexual intimacy, improving sexual communication, identifying barriers to healthy sexual relationships, examining common sexual myths
7	The importance and necessity of communication and its complexity, examining communication in successful couples, common communication problems in couples
8	Communication skills, types of communication styles, how communication styles impact couple relationships, establishing effective communication
9	Roles and responsibilities, managing roles within couple relationships, classic power dynamics in relationships, common problems related to roles in couples' lives, establishing balanced roles
10	Summarization, identifying obstacles to implementing learned skills, providing practical solutions, administering the post-test

Table 2. Marital Intimacy and Communication Beliefs: Means and SDs by Group and Time ^a

Variables	Experimental Group	Control Group
Marital intimacy		
Pre-test	178.50 ± 9.16	187.43 ± 7.14
Post-test	191.31 ± 8.38	187.06 ± 6.87
Follow-up	190.75 ± 8.68	187.87 ± 5.34
Disagreement is destructive		
Pre-test	25.56 ± 3.46	26.56 ± 3.28
Post-test	21.31 ± 3.71	24.43 ± 3.46
Follow-up	21.18 ± 3.88	26.31 ± 3.43
Mindreading is expected		
Pre-test	23.75 ± 3.78	24.25 ± 3.15
Post-test	18.81 ± 4.00	23.75 ± 3.21
Follow-up	19.06 ± 4.01	23.62 ± 3.15
Partners cannot change		
Pre-test	25.93 ± 3.17	24.81 ± 3.25
Post-test	21.31 ± 3.59	24.79 ± 3.03
Follow-up	20.93 ± 3.66	24.56 ± 3.05
Sexual perfectionism		
Pre-test	24.56 ± 3.30	26.31 ± 2.75
Post-test	19.56 ± 3.44	25.93 ± 2.95
Follow-up	19.75 ± 3.41	25.75 ± 2.86
Belief in gender differences		
Pre-test	25.18 ± 3.01	24.31 ± 2.98
Post-test	19.87 ± 3.81	23.93 ± 2.83
Follow-up	19.93 ± 3.71	23.81 ± 2.92

^a Values are expressed as mean ± SD.

assessments for marital intimacy and the communication beliefs subscales (disagreement is destructive, mindreading is expected, partners cannot change, sexual perfectionism, and belief in gender

differences) in both groups. Within the experimental group, significant improvements were observed from the pre-test to both the post-test and follow-up for both marital intimacy and communication beliefs ($P < 0.001$).

Table 3. Summary of Repeated Measures Analysis of Variance Results for Communication Beliefs and Marital Intimacy

Variables	SS	df	MS	F	P	H ²
Marital intimacy						
Time	841.93	1.44	584.10	64.13	0.001	0.68
Time × group	840.89	1.44	583.38	64.05	0.001	0.68
Group	1691.86	1	1691.76	10.24	0.003	0.26
Disagreement is destructive						
Time	108.25	1.57	68.65	191.02	0.001	0.86
Time × group	90.75	1.57	57.55	160.14	0.001	0.84
Group	337.50	1	337.50	9.07	0.005	0.23
Mindreading is expected						
Time	154.14	1.68	91.53	262.37	0.001	0.89
Time × group	96.89	1.68	57.53	164.29	0.001	0.84
Group	266.66	1	266.66	7.06	0.010	0.19
Partners cannot change						
Time	131.58	1.64	79.79	221.35	0.001	0.88
Time × group	117.25	1.64	71.10	197.24	0.001	0.86
Group	96.00	1	96.00	4.98	0.031	0.15
Sexual perfectionism						
Time	154.08	1.80	85.47	271.91	0.001	0.90
Time × group	105.58	1.80	58.57	186.32	0.001	0.86
Group	532.04	1	532.04	18.40	0.001	0.38
Belief in gender differences						
Time	174.43	1.56	111.26	286.09	0.001	0.90
Time × group	125.27	1.56	79.90	205.45	0.001	0.87
Group	133.02	1	133.01	4.31	0.042	0.13

No significant changes were found within the control group at any assessment point. No significant differences were found between post-test and follow-up in either group.

5. Discussion

This study investigated the influence of Olson's circumplex model on marital intimacy and communication beliefs in war veteran couples. The results indicated that couple therapy based on Olson's circumplex model increased marital intimacy in veteran couples. This finding is consistent with the results of previous studies (17, 24). Olson's circumplex model is grounded in systems theory. This model was designed for clinical assessment, treatment planning, and research on the effectiveness of family therapy, effectively serving as a bridge between theory and practice (14). Marital intimacy is directly related to marital adjustment and life satisfaction. A common characteristic of most distressed relationships is the couple's failure to meet each other's intimacy needs. Many marital problems stem from a lack of intimacy

and communication difficulties. Intimate relationships are a fundamental human need, and the failure to fulfill this need can lead to decreased marital satisfaction, increased conflict, and the development of emotional and psychological disorders (11).

In explaining these findings, it can also be stated that in couple therapy based on Olson's circumplex model, the therapist encourages couples to share joint activities and experiences to enhance closeness and intimacy and, by understanding the balance between emotional dependence and individual autonomy, to provide a sense of security and freedom for each other (15). The therapist teaches couples effective communication skills, such as active listening and expressing feelings and needs in a constructive and respectful manner, which can help couples establish deeper connections. Therefore, this approach can enhance marital intimacy in couples (18). Furthermore, Olson's circumplex model directly addresses the instruction of establishing intimate relationships, examining barriers to intimacy within the couple's relationship, and familiarization with common couple issues related to flexibility and

Table 4. Bonferroni Post-hoc Test for Pairwise Comparison of Marital Intimacy and Communication Beliefs in the Pre-test, Post-test, and Follow-up

Variables	Experimental Group		Control Group	
	Mean Difference (A - B)	P	Mean Difference (A - B)	P
Marital intimacy				
Post-test				
Pre-test	12.81	0.001	0.37	0.999
Pre-test	12.25	0.001	0.34	0.999
Follow-up				
Post-test	0.56	0.999	0.81	0.622
Disagreement is destructive				
Post-test				
Pre-test	4.25	0.001	0.12	0.999
Pret-test	4.37	0.001	0.25	0.999
Follow-up				
Post-test	0.12	0.999	0.12	0.999
Mindreading is expected				
Post-test				
Pre-test	4.93	0.001	0.50	0.293
Pre-test	4.68	0.001	0.62	0.180
Follow-up				
Post-test	0.25	0.403	0.12	0.999
Partners cannot change				
Post-test				
Pre-test	4.62	0.001	0.09	0.999
Pre-test	5.00	0.001	0.25	0.891
Follow-up				
Post-test	0.37	0.714	0.25	0.891
Sexual perfectionism				
Post-test				
Pre-test	5.00	0.001	0.37	0.264
Pre-test	4.81	0.001	0.56	0.120
Follow-up				
Post-test	0.19	0.760	0.18	0.752
Belief in gender differences				
Post-test				
Pre-test	5.31	0.001	0.37	0.433
Pre-test	5.25	0.001	0.50	0.261
Follow-up				
Post-test	0.06	0.999	0.12	0.120

cohesion during the intervention process (24). Consistent engagement with these elements by the couples can certainly contribute to increased intimacy between them.

The results also indicated that couple therapy based on Olson's circumplex model improved communication beliefs in couples. This finding aligns with the results of a previous study (25). Olson's circumplex model aims to assist couples in identifying and focusing on the positive aspects of their relationship, identifying

problematic areas, teaching assertiveness skills, effective communication and active listening, resolving problematic issues using conflict resolution strategies, exploring issues related to the family of origin and creating a map of family relationships, planning and designing interventions to achieve individual, couple, and family goals, and examining financial aspects to implement these plans (14).

Relational beliefs refer to the mindset that couples hold regarding their marital relationship and which

they have accepted as the reality of their relationship (22). Rational beliefs refer to flexible and reasonable cognitions. Individuals holding rational beliefs understand that the world does not always operate fairly and that adverse events occur in life. Consequently, emotions such as regret, suffering, and sorrow are also experienced. In contrast, irrational beliefs are inflexible and absolute beliefs that lead to dysfunctional and distressing attitudes and encompass two main characteristics: (A) They are based on rigid, dogmatic beliefs using "must" statements; (B) the philosophy behind these beliefs refers to overgeneralized and unreasonable cognitions. Irrational beliefs can distort external realities and create misunderstandings that disrupt individuals' social adjustment (7). In couple therapy based on Olson's circumplex model, the therapist initially helps couples identify their dysfunctional beliefs and behavioral patterns, and by improving cohesion, couples learn to become closer to each other and provide greater emotional support. This helps to reduce negative and dysfunctional beliefs (25). Furthermore, by encouraging couples to accept changes and adapt to new circumstances, they learn to challenge their negative beliefs and adopt new approaches. Therefore, this approach can improve dysfunctional relational beliefs in couples.

5.1. Conclusions

The findings of this study provide strong evidence for the effectiveness of an intervention based on Olson's circumplex model in enhancing marital intimacy and improving communication beliefs among war veteran couples. The statistically significant between-group differences observed at the post-test for both marital intimacy and communication beliefs demonstrate the immediate positive impact of the intervention. Critically, the persistence of these significant differences at the follow-up assessment indicates that the intervention's effects were not only immediate but also enduring. This sustained improvement suggests that the intervention facilitated meaningful and lasting changes in relationship dynamics. These results contribute to the growing body of literature supporting the application of Olson's circumplex model in addressing relationship challenges faced by veteran couples and highlight the potential of targeted interventions to foster stronger, more intimate, and

more effectively communicative relationships within this population.

Footnotes

Authors' Contribution: Study concept and design, acquisition of data, analysis and interpretation of data, and statistical analysis: H. A. A.; Administrative, technical, and material support, and study supervision: M. T. S.; Critical revision of the manuscript for important intellectual content: H. A. A. and R. J. F.

Conflict of Interests Statement: The authors declare no conflict of interest.

Data Availability: The dataset presented in the study is available on request from the corresponding author during submission or after its publication. The data are not publicly available due to confidentiality considerations of participants' data.

Ethical Approval: The study was approved by the Ethics Committee of Islamic Azad University, Ahvaz branch (code: [IR.IAU.AHVAZ.REC.1402.114](#)).

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