

Journal of Psychology of woman

2022, Volume 3, Issue 4, Pp. 84-94

eISSN: 2783-333X

Social Problem Solving in Women with PTSD and Addiction

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Abstract

The present study investigates social problem solving in women with PTSD and addiction. The research design is ex-post facto. The number of participants is 179, including 56 women with PTSD without a history of addiction, 51 women with PTSD and addiction, 39 women with addiction, and 33 normal women without a history of substance use and severe psychological disorders. The PTSD groups were divided based on the duration of the disorder into two groups: those with less than one year and those with more than one year, with 25 individuals randomly assigned to each group. The tools used for assessment were the Social Problem-Solving Inventory-Revised (SPSI-R) and the PTSD Checklist for DSM-5 (PCL-5). The research findings indicated significant differences between the addicted and non-addicted groups in all three variables: positive problem orientation, rational problem solving, and total constructive problem-solving scores. The findings suggested that there were significant differences in all three subscales of dysfunctional problem solving and its overall score.

Keywords: *Post-Traumatic Stress Disorder, Social Problem Solving, Addiction, Women.*

Cite this article as:

Tajeryan, Z., Afrooz, G. A., & Nouryghasemabadi, R. (2022). Social Problem Solving in Women with PTSD and Addiction. *JPW*, 3(4): 84-94.



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Introduction

Post-Traumatic Stress Disorder (PTSD) is a relatively common and complex psychiatric and psychological disorder that occurs following an individual's exposure to trauma, resulting in significant disability and impairment. It is characterized by four categories of symptoms: re-experiencing, avoidance/numbness, increased arousal, and changes in mood and cognition (American Psychiatric Association, 2022).

Various studies examining the comorbidity of PTSD with other disorders have highlighted the significance of substance-related disorders in this group (Debell et al., 2014; Hien et al., 2015; van Dam et al., 2012).

Research on the prognosis and causes of substance use disorder prevalence among women has shown that more than 80% of women seeking treatment for substance use disorder have a history of trauma—either in the form of violence or sexual assault—in their life histories (Cohen et al., 2013; Ouimette & Brown, 2003).

Avoidance coping strategies play an important role in the comorbidity of PTSD/SUD, particularly in alcohol use (Hruska et al., 2011). Individuals use substances and alcohol as an avoidance strategy in response to distress associated with PTSD and to reduce the severity of symptoms (Kaysen et al., 2014; Simpson et al., 2014). Additionally, research indicates a strong significant relationship between PTSD and suicidal behaviors as an ineffective solution to stressful situations (Panagioti et al., 2009; Panagioti et al., 2012).

Studies show that individuals with PTSD, including war veterans (Nezu & Carnevale, 1987) and those affected by interpersonal traumas (Shattered & Bryant, 2008), use more maladaptive coping strategies (such as avoidance) and fewer adaptive problem-solving styles, leading to increased PTSD symptoms (Arias & Pape; Dreer et al., 2004; Solomon et al., 1988).

Due to the prominence and importance of social processes in post-trauma recovery, social problem-solving strategies may mediate the relationship between trauma exposure and the development of PTSD (Nezu & Carnevale, 1987; Sutherland & Bryant, 2008). For example, maladaptive avoidance problem-solving strategies negatively correlate with all four categories of PTSD symptoms (re-experiencing, avoidance/numbness, changes in cognition/mood, and arousal) (Reich et al., 2015; Ullman et al., 2007). Some research also shows that the use of maladaptive avoidance problem-solving strategies is more prevalent among abuse survivors (Leitenberg et al., 2004; Swan & Snow, 2006) and women exposed to domestic violence and sexual abuse (Sullivan et al., 2005). These strategies not only correlate with the severity of PTSD symptoms (Street et al., 2005) but also predict re-victimization and the development of PTSD (Goldberg et al., 2014).

Social problem solving refers to the adaptive and maladaptive strategies individuals use to solve their daily problems (D'Zurilla & Chang, 1995; D'Zurilla et al., 1998; D'Zurilla et al., 2002). Problem solving is not only crucial for individuals' psychological adjustment to stressful events (Bell & D'Zurilla, 2009) but also highly significant for those who have endured severe stressors.

A set of studies have elucidated a significant relationship between problem-solving styles and orientation toward problems and PTSD symptoms (Dirkzwager et al., 2003; Ferdos & Seyed-Hosseini, 2007; Galor & Hentschel, 2012; Kasckow et al., 2012; Nezu & Carnevale, 1987; Reich et al., 2015; Sutherland & Bryant, 2008). Another study with 244 subjects found that high PTSD symptom scores predict weaker problem-solving skills (Kasckow et al., 2012). On the other hand, some studies concluded that problem-solving skills' efficiency does not directly influence PTSD symptoms (Sutherland & Bryant, 2008), which raises questions.

Problem solving is a significant moderator in the relationship between stressful life events and subsequent psychological distress. Individuals with poor problem-solving skills experience significantly higher levels of psychological distress, such as depression (Bell & D’Zurilla, 2009; Brack et al., 1992; Cheng, 2001; Dirkzwager et al., 2003; Frye & Goodman, 2000; Gibbs et al., 2009; Goodman et al., 1995; Kasckow et al., 2012; Leitenberg et al., 2004; Nezu et al., 1995; Nezu, 1986; Nezu & Carnevale, 1987; Nezu et al., 1986; Nezu & Ronan, 1988; Reich et al., 2015; Siu & Shek, 2010; Sutherland & Bryant, 2008) and anxiety ((Miner & Dowd, 1996).

Nezu et al. (2013) found in his study that problem solving mediates between the trauma experienced and post-trauma recovery (Nezu et al., 2012). Furthermore, research has shown that problem solving significantly mediates the relationship between stress and psychological harm (Dirkzwager et al., 2003; Frye & Goodman, 2000; Gibbs et al., 2009; Goodman et al., 1995; Kasckow et al., 2012; Leitenberg et al., 2004; Nezu et al., 1995; Nezu, 1986; Nezu & Carnevale, 1987; Nezu et al., 1986; Nezu & Ronan, 1988; Reich et al., 2015; Siu & Shek, 2010; Sutherland & Bryant, 2008).

Therefore, social problem solving is typically effective in creating and maintaining PTSD symptoms, especially in interpersonal traumas and its comorbidity with substance-related disorders as a problem-solving strategy. However, this issue has been less attended to in research. Hence, the present study examines the differences in problem solving among addicted women with PTSD compared to non-addicted groups.

Methods and Materials

Study Design and Participants

The present study employed a causal-comparative research design. The statistical population consisted of women with PTSD who were addicted and non-addicted, attending treatment centers during the summer of 2016. The research

sample included women with PTSD and addiction selected from shelters for homeless women in Tehran (Niloufar Abi and Lavizan shelters) and non-addicted women with PTSD attending the Behavioral Disorders Counseling Center at Imam Khomeini Hospital. It also included addicted women attending two addiction treatment centers for women (Marham and Behbood Gostaran Hamgam centers) and healthy women with no history of substance use or severe mental illness, selected from the general population of the city. The sample size was 179 participants: 56 women with PTSD without a history of addiction, 51 women with PTSD and addiction, 39 women with addiction, and 33 normal individuals without a history of substance use or severe psychological disorders. The PTSD groups were divided based on the duration of the disorder into two groups: less than one year and more than one year, with 25 individuals randomly assigned to each group. Convenience sampling was used, and the control group was matched with the sample group in terms of age and gender.

The procedure was conducted individually, and participants were assured of the confidentiality of their personal information and that the data collected would be used solely for research purposes. After securing participation, questionnaires were distributed. In the PTSD population, if the PCL-5 checklist significantly indicated PTSD symptoms, the report was discussed with the group's psychiatrist to confirm the PTSD diagnosis.

Measures

Social Problem-Solving

The short form of the Social Problem-Solving Inventory-Revised (SPSI-R; 2002) is a 25-item self-report Likert-type tool. The SPSI-R is based on the social problem-solving model. The first version had 70 items, and its validity and reliability were confirmed in a series of validation studies using clinical and non-clinical samples (Siu & Shek, 2010). The revised form, like the 70-

item and 52-item forms, consists of five subscales: Positive Problem Orientation, Negative Problem Orientation, Rational Problem Solving, Impulsivity/Carelessness Style, and Avoidance Style.

PTSD

The PTSD Checklist is a self-report scale used to screen individuals with PTSD from normal individuals and other patients. The first version was developed by Weathers et al. (1991) for the U.S. National Center for PTSD and had 17 items with three versions. The new version, PCL-5, was developed upon the request of the National Center for PTSD and based on DSM-5, consisting of 20 items. This questionnaire was translated and used

in Iran for the first time (Ferdos & Seyed-Hosseini, 2007). In the present study, the Cronbach's alpha for this scale was calculated as 0.89, and the test-retest reliability over one week was 0.85.

Data Analysis

The data were analysed with analysis of variance and SPSS-26.

Findings and Results

The age range of the groups was between 18-60 years, with the mean age of the addicted and non-addicted PTSD groups being 35.60 and the mean age of the normal individuals being 36.90. Table 1 shows the descriptive indices related to the scores of the constructive problem-solving variable among the groups.

Table 1. Means and Standard Deviations of Constructive and Dysfunctional Problem Solving by Research Groups

Variable	Component		Addicted < 1 Year	Addicted > 1 Year	Non- addicted < 1 Year	Non- addicted > 1 Year	Total Addicted	Total Non- addicted
Constructive Problem Solving	Positive Orientation	Problem	7.08 (1.71)	8.90 (2.61)	8.76 (1.62)	8.04 (1.93)	9.26 (2.58)	10.45 (1.52)
	Rational Solving	Problem	14.56 (2.73)	22.40 (5.32)	17.79 (3.54)	16.92 (4.68)	21.92 (5.44)	24.12 (3.64)
	Constructive Solving	Problem	21.64 (3.25)	31.30 (6.34)	26.55 (4.49)	24.96 (5.25)	31.17 (6.66)	34.57 (4.51)
Dysfunctional Problem Solving	Negative Orientation	Problem	10.68 (1.60)	12.20 (1.91)	10.69 (2.02)	9.93 (1.41)	12.62 (2.64)	11.91 (1.97)
	Impulsivity/Carelessness Style		12.04 (1.42)	15.50 (3.31)	13.79 (2.35)	13.64 (2.40)	15.15 (3.32)	17.48 (1.87)
	Avoidance Style		10.68 (1.40)	16.10 (3.07)	13.37 (2.75)	11.50 (2.11)	16.15 (3.24)	17.36 (2.92)
	Dysfunctional Solving	Problem	33.40 (3.04)	43.80 (6.51)	37.86 (5.95)	35.07 (4.14)	43.92 (7.25)	46.75 (4.45)

As seen above, the means of the constructive and dysfunctional problem-solving variables and their subscales in the two groups of women with PTSD and addiction for more than one year and non-addicted women with PTSD for less than one year are very close.

To examine the main research question of whether there is a difference in problem-solving variables between addicted and non-addicted women with PTSD, a hypothesis was proposed. Multivariate Analysis of Variance (MANOVA) was used to test the hypothesis.

Table 2. Multivariate Analysis of Variance for Overall Constructive Problem-Solving among Groups

Variable	Statistic	F Value	Hypothesis df	Error df	Significance
Overall Problem	Pillai's	0.44	9.58	10.00	336.00
	Wilks'	0.56	10.88	10.00	334.00
	Hotelling's	0.73	12.20	10.00	332.00
Dysfunctional Problem	Pillai's	0.66	9.49	15.00	504.00
	Wilks'	0.42	11.16	15.00	458.65
	Hotelling's	1.16	12.78	15.00	494.00

According to the information in Table 2, there was a significant difference in problem-solving among all six groups. The data show that all three test statistic criteria for group differences in the studied variable are significant at the 0.001 level.

This finding means that the groups differ in at least one variable. Therefore, to specify the details of this difference, the analysis presented in Table 3 was carried out.

Table 3. Multivariate Analysis of Variance for Constructive and Dysfunctional Problem-Solving among Groups

Dependent Variable	Sum of Squares	df	Mean Square	F	Significance
Positive Problem Orientation	188.58	5	37.71	9.03	0.001
Rational Problem Solving	1960.95	5	392.19	20.84	0.001
Constructive Problem Solving	3284.95	5	656.99	23.63	0.001
Negative Problem Orientation	167.17	5	33.43	8.15	0.001
Impulsivity/Carelessness Style	508.73	5	101.74	15.53	0.001
Avoidance Style	1079.18	5	215.83	29.39	0.001
Dysfunctional Problem Solving	5442.16	5	850.83	27.92	0.001

Based on the information in Table 3, there is a significant difference among all three variables: Positive Problem Orientation, Rational Problem Solving, and total Constructive Problem-Solving scores for the six groups. Additionally, significant differences exist in all three subscales of Dysfunctional Problem Solving and its overall score. To determine which groups differ, the Bonferroni test was used for pairwise comparisons.

The pairwise comparison findings showed significant differences among the various research groups. Considering the complexity of the findings and the significant differences among addicted women with PTSD for less than one year, the data were detailed for the research groups with an emphasis on this specific group:

The pairwise comparison results indicated significant and clear differences between this research group and other groups. Particularly, there were significant differences in all dimensions of Constructive and Dysfunctional Problem-Solving between addicted women with PTSD for less than one year and those with PTSD for more than one year, except for one instance where there was no significant difference in Negative Problem Orientation (women with PTSD for more than one year, non-addicted; $P > 0.34$, $SE = 1.45$, $I-J = -4.910$). In other words, the mean scores of addicted women with PTSD for less than one year were significantly lower in all dimensions of problem-solving, both Dysfunctional and Constructive, compared to those with PTSD for more than one year.

Comparing the mean scores of addicted women with PTSD for less than one year with non-addicted women with PTSD also showed significant differences. This group of women showed significant differences in problem-solving dimensions compared to non-addicted women with PTSD for less than one year: Positive Problem Orientation ($P > 0.04$, $SE = 0.55$, $I-J = -1.67$), Dysfunctional Problem Solving ($P > 0.05$, $SE = 1.51$, $I-J = -4.46$), and Avoidance Style ($P > 0.001$, $SE = 0.74$, $I-J = -2.69$).

Additionally, addicted women with PTSD for less than one year only showed a significant difference in Impulsivity/Carelessness Style compared to those with PTSD for more than one year who were also addicted ($P > 0.001$, $SE = 0.76$, $I-J = -3.46$).

In contrast, the comparison of addicted women with PTSD for more than one year showed no significant difference with other PTSD groups. Similarly, the comparison of women with PTSD for less than one year showed no significant difference with other groups, except for a significant difference in Negative Problem Orientation compared to the group with PTSD for more than one year ($P > 0.001$, $SE = 0.59$, $I-J = -2.27$).

The comparison of addicted women with PTSD for less than one year showed the most difference with addicted individuals. This group of women with PTSD for less than one year showed the most significant differences with addicted individuals in all problem-solving dimensions: Positive Problem Orientation ($P > 0.001$, $SE = 0.52$, $I-J = -2.17$), Rational Problem Solving ($P > 0.001$, $SE = 1.12$, $I-J = -7.36$), Constructive Problem Solving ($P > 0.001$, $SE = 1.35$, $I-J = -9.53$), Negative Problem Orientation ($P > 0.001$, $SE = 0.51$, $I-J = -1.93$), Impulsivity/Carelessness Style ($P > 0.001$,

$SE = 0.65$, $I-J = -3.11$), Avoidance Style ($P > 0.001$, $SE = 0.69$, $I-J = -5.47$), and Dysfunctional Problem Solving ($P > 0.001$, $SE = 1.41$, $I-J = -10.52$).

Both groups of women with PTSD (less than one year and more than one year) showed significant differences in Avoidance Style, Dysfunctional Problem Solving, and Constructive Problem Solving. Women with PTSD for less than one year also showed significant differences with the addicted group in Positive Problem Orientation and Rational Problem Solving.

Discussion and Conclusion

The present study aimed to compare two groups of women with PTSD, addicted and non-addicted, in terms of social problem-solving. The hypothesis that women with PTSD and addiction perform worse in problem-solving compared to the non-addicted group was examined. Additionally, the research question of whether there is a difference in problem-solving between addicted and non-addicted PTSD patients with less than one year and more than one year of PTSD was also investigated.

The results of the multivariate analysis of variance for overall constructive problem-solving showed significant differences between the groups. Pairwise comparisons revealed that the duration of PTSD plays an important role. The findings indicated that addicted PTSD patients with less than one year of PTSD scored significantly lower in all dimensions of problem-solving compared to non-addicted PTSD patients with more than one year of PTSD. In contrast, addicted PTSD patients with more than one year of PTSD showed no significant differences with other PTSD groups and addicted individuals. It is possible that the severity of PTSD symptoms may be higher in these patients, leading them to use substances to

alleviate symptoms according to Khantzian's self-medication hypothesis. The lower scores in problem-solving among this group could support the self-medication hypothesis, suggesting that poor problem-solving skills and severe symptoms may drive them towards substance use.

Importantly, addicted PTSD patients with less than one year showed significantly lower scores in positive problem orientation, avoidance problem-solving style, and dysfunctional problem-solving compared to non-addicted PTSD patients with less than one year of PTSD. This suggests that the use of more dysfunctional problem-solving methods might have promoted substance use as a solution.

The above findings align with research on the moderating role of problem-solving in the relationship between life stressors and subsequent psychological distress. Individuals with poor problem-solving skills significantly experience higher levels of psychological distress, such as depression (Brack et al., 1992; Cheng, 2001; D'Zurilla et al., 1998; Frye & Goodman, 2000; Galor & Hentschel, 2012; Gibbs et al., 2009; Goodman et al., 1995; Kasckow et al., 2012; Londahl et al., 2005; Miner & Dowd, 1996; Nezu et al., 1986; Nezu & Ronan, 1988; Siu & Shek, 2010) and anxiety (Londahl et al., 2005; Miner & Dowd, 1996; Nezu, 1986; Reich et al., 2015; Siu & Shek, 2010) or substance use (Dreer et al., 2004), and most importantly, suicide (Chang, 1998; D'Zurilla et al., 1998; Gibbs et al., 2009).

Studies also show that when an individual's attitude towards the problem is negative, they doubt their ability to successfully solve the problem (poor self-efficacy in problem-solving), and quickly experience helplessness and worry when facing problems (D'Zurilla et al., 2002), they will

experience serious consequences. Considering this for a subject who has recently experienced trauma and possibly turned to substance use due to the severity of symptoms and frequent, intense trauma, their attitude towards the problem is unlikely to be positive. Under such conditions, the subject must have a history of strong problem-solving skills to view the situation as a challenge.

A very important point is that addicted PTSD patients with less than one year of PTSD had weaker problem orientation compared to addicted PTSD patients with more than one year. This is particularly aligned with findings that an individual's attitude towards a problem plays an important role in their cognitive, emotional, and behavioral functions in maintaining PTSD symptoms (Stoll, 2005; Nezu & Nezu, 2013). Additionally, two meta-analyses have shown that focusing on individuals' problem orientation and training in this area is more effective compared to focusing on other problem-solving constructs (Bell & D'Zurilla, 2009; Malouff et al., 2007). Therefore, it seems that if problem-solving training is to be provided to PTSD patients, it is better to focus on individuals' general beliefs, attitudes, and emotional responses to real-life issues (Nezu, 1986; Nezu & Carnevale, 1987; Nezu et al., 2012; Nezu et al., 1986; Nezu & Ronan, 1988; Ouimette & Brown, 2003). Moreover, the present findings are consistent with the majority of research that differentiates problem-solving methods between these two groups and some studies have shown that maladaptive problem-solving aspects, including negative problem orientation, impulsive/careless style, and avoidance style, predict more severe PTSD symptoms, with negative problem orientation being the strongest

predictor of PTSD severity (Nezu, 1986; Nezu & Carnevale, 1987; Nezu et al., 2012; Nezu et al., 1986; Nezu & Ronan, 1988).

The findings of this study highlight the critical need for early attention to PTSD to prevent substance use. It appears that groups with more severe symptoms and weaker problem-solving skills may turn to substance use to alleviate symptoms, especially those using more avoidance styles. A significant finding of this research is that addicted PTSD patients with less than one year had substantial differences compared to other PTSD groups and addicts. In contrast, no significant differences were observed between addicted PTSD patients with more than one year and other PTSD groups or addicts. This suggests that following substance use or the chronic condition of the PTSD group with more than one year, their problem-solving skills might have reached the level of other non-addicted PTSD groups. The non-addicted PTSD group showed a significant difference in negative problem orientation, with the mean of the PTSD patients with more than one year being lower than that of the PTSD patients with less than one year. This significant difference may indicate the role and importance of problem orientation. One reason for chronic illness may be a negative problem orientation. Various studies have highlighted the importance of attitude towards problems in adaptation (Malouff et al., 2007; Nezu & Carnevale, 1987; Nezu et al., 2012; Nezu et al., 1986). Overall, the findings of this study show that addicted PTSD patients with less than one year suffer from specific deficits in problem-solving that are more severe than those in addicted PTSD patients with more than one year, non-addicted PTSD patients, and even addicts.

Limitations and Suggestions

Like any research, this study faced limitations, including the diverse incidents leading to PTSD, years of PTSD, the diversity of substance users in terms of the type of substance used, years of substance use, and concurrent use of multiple substances. Based on the research findings, it is recommended that addiction treatment centers and PTSD treatment centers pay attention to the simultaneous occurrence of both disorders. It is also suggested that PTSD treatment centers emphasize the necessity of providing rapid interventions for these patients and the importance of monitoring substance use during this critical period. Additionally, given the serious deficits, particularly in addicted PTSD patients with less than one year, there is a strong emphasis on the necessity of problem-solving skills training, with special attention to problem orientation. Special therapy sessions, especially those based on the nature of trauma and PTSD, are emphasized.

Ethics

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

Acknowledgement

The cooperation of all participants in the research is thanked and appreciated.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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