



Three Months Assessment of Co-Morbid Post Traumatic Stress Disorder in Women with Substance Use Disorders in a Residential Treatment Center in Karaj

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Abstract

Background: Previous studies show high rates of trauma and post-traumatic stress disorder (PTSD) among women seeking treatment for substance use disorders (SUDs). Comorbid PTSD can adversely influence and complicate the clinical profile of SUD patients, and have implications for management and treatment of patients with SUD.

Objectives: To investigate the prevalence of comorbid PTSD, rate and nature of traumatic experiences in a sample of Iranian women with SUD, and to compare clinical profile of SUD patients with and without comorbid PTSD.

Methods: A cross-sectional study was conducted with 72 patients in a residential treatment center in Karaj (Vardavard) since January to March 2017. Measures included the trauma history questionnaire (THQ), PTSD check list (PCL), brief symptom inventory (BSI), and addiction severity index (ASI). Data analysis was done through *t*-test and Chi-square test.

Results: A total of 93.5% of patients reported at least one traumatic event in their life, and the prevalence of current PTSD was 30.5%. Women with PTSD/SUD showed significantly more psychological symptoms in seven dimension of BSI ($P < 0.05$). They also had significantly higher scores in several subscales of ASI including psychiatric ($P < 0.001$), family relationship ($P < 0.003$), as well as legal and substance/alcohol use ($P < 0.05$). Multiple drug use was also higher in women with SUD/PTSD ($P < 0.01$).

Conclusions: This study highlights the importance of considering trauma and PTSD in assessment and treatment plan of women with SUDs in general, and those with complicated clinical profile and psychiatric comorbidities in particular.

Keywords: Comorbidity, Post-Traumatic Stress Disorder, Substance Use Disorders

1. Background

It is well recognized that substance use disorders are generally associated with a wide range of physical and mental health detriments including short and long term health problems (1), comorbid psychiatric disorders (2), crime (3), and risky behaviors such as sexual activity (4), which cause a public health burden.

Previous researches also indicate the high incidence of trauma exposure in patients with substance use disorders (SUD) and particularly women. In SUD treatment settings, studies showed high rates ranging from 55% to 99% of women reporting at least one lifetime traumatic event such as partner violence, sexual assault, and serious accident (5, 6). Up to 80% of women with SUD report lifetime histories of physical and/or sexual assault (7), and prevalence rate of post-traumatic stress disorder (PTSD) in

women seeking treatment for SUD ranges from 25.3% to 49% (8-12).

These results highlight the critical status of women with SUD as a group, which require special attention for comorbid PTSD screening, assessment, and treatment, since this comorbidity can complicate the clinical profile and adversely influence treatment of both SUD and PTSD.

History of trauma has been associated with more severe psychiatric symptoms, decreased psychosocial functioning (e.g., more unemployment, separation or divorce), diminished family/social status, and lower level of daily functioning (13).

Co-occurring PTSD and SUD is also associated with more medical problems, increased disability, and poorer treatment adherence for women with both disorder compared to those with either of them alone (14). In addition, women with SUD and co-occurring PTSD are more likely

to be diagnosed with a mood disorder, and report higher rates of depressive symptoms compared to those without PTSD (15). Using less effective coping strategies such as emotional discharge is also common in these patients and they report more positive expectancies of substance use and anticipate fewer benefits from quitting (16).

Despite this well-established literature, cultural differences, and special situation of Iran in terms of drug availability and accessibility due to adjacency with main drug producer countries, which can influence both psychological profile and drug use pattern of Iranian population, it may hinder generalizing results of other studies to Iranian population and necessitate local studies. This is the first study that investigates the prevalence and nature of trauma exposure and PTSD in a SUD treatment seeking population of women in Iran.

The aims of this study are to investigate: (a) The prevalence of comorbid PTSD in a population of Iranian SUD women in residential treatment centers and identify the severity and types of trauma; and (b) to compare SUD women with and without comorbid PTSD on substance abuse and psychological status. Based on research literature it was hypothesized that women with both PTSD/SUD will be more impaired than those with only SUD.

2. Objectives

To investigate the prevalence of comorbid PTSD, rate and nature of traumatic experiences in a sample of Iranian women with SUD, and to compare clinical profile of SUD patients with and without comorbid PTSD.

3. Materials and Methods

A cross-sectional study design was applied to compare a sample of women with a comorbid diagnosis of SUD and PTSD with a sample with SUD without PTSD, established by research interview conducted by a PhD psychology student. The assessment took approximately 2 h to complete. The data were collected through individual interviews, which make it possible to clarify vague information such as, whether the reported PTSD symptoms were associated with an index traumatic event, which is defined as experiencing, witnessing, or learning about one or more event in trauma history questionnaire (THQ), to which one has reacted with intense fear and/or helplessness. For this study, ethical approval code of IR.IUMS.REC 1396.29932 was given by the Research Ethics Board at the Iran University of Medical Science.

3.1. Participants

Participants were recruited from a residential treatment center for women in Vardavard, Karaj, Iran. Patients were provided with an explanation about the study and then a written consent was obtained preserving the right for the participants to decline or stop participation at any point of the study without affecting their treatment. They were also made ensured that their information will not be available for treatment center staff and the study is not a part of their treatment. Exclusion criteria included: Psychotic mental illness, brain damage, or other organic impairment. Patients resided in the center for various periods of time, ranges from 10 days up to 2 months. All patients had the 10 days of detoxification during which they were not allowed to participate in any program. Therefore, all patients in the center who had finished their detoxification period were being interviewed since November 26, 2016 up to March 8, 2017, and only those that met the exclusion criteria were not included. Since the researcher had no previous knowledge about the histories of patients, the patients interviewed were representative of the population of the center in general.

3.2. Measures

Demographic details were obtained from all patients. Trauma exposure, PTSD, substance use and psychological distress were assessed using standardized measures as follows:

3.2.1. Trauma History Questionnaire (17)

This measure consists of 24 items addressing a range of trauma events in three areas: (a) Crime-related events (e.g. robbery, mugging); (b) general disaster and trauma (e.g. injury, disaster, witnessing death); and (c) unwanted physical and sexual experiences. One item of THQ asks about other stressful situations not mentioned in provided items; therefore, we categorized the answers to this item as other stressful events. The patients indicate whether they have had the traumatic experience, frequency, and age of occurrence. After completing the THQ, participants were also asked to identify the most distressing trauma event for them. This measure has been used in the Iranian population and good psychometric properties have been reported (18).

3.2.2. PTSD Checklist-Civilian (PCL-C) (19)

This is a 17-item self-administered measure designed to assess PTSD somatology using a five-point Likert scale ranging from "Not at all = 1" to "Extremely bothered = 4". The total score is calculated by summing all responses. The score

of 44 or greater corresponds to a diagnosis of PTSD (19). Several studies have evaluated the reliability, validity, sensitivity, and specificity of the PCL, demonstrating that the PCL is a psychometrically sound self-report screening tool for PTSD and associated with a diagnosis of PTSD (20, 21). The Persian version of PCL-C is validated by Goodarzi (22) with alpha Cronbach's as 0.93.

3.2.3. Addiction Severity Index (ASI) (23)

This is an interview designed to assess the severity of potential treatment problems in six areas (medical, employment/support, drug/alcohol use, legal status, family/social relationships, and psychiatric) commonly affected by alcohol and drug dependence. Persian version of ASI has good reliability and validity (24). Since participants were in the center for different duration of time, data about drug use, occupation status, and family relationships were provided for the month before entering treatment center.

3.2.4. Brief Symptom Inventory (BSI) (25)

This is a 53-item self-report symptom inventory designed to assess the psychological symptom status of psychiatric and medical patients. It consists of nine primary symptom dimensions of somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. We applied the score of global severity index as an indicator of psychological distress. The psychometric properties of the Persian version of BSI were assessed by Mohamadkhani (26) and high validity and reliability was reported.

3.3. Data Analysis

All analysis was conducted using SPSS for Windows, version 19. Associations between variables were investigated by using Chi-squared test for categorical variables (and Fisher's exact test when convenient), and independent *t*-test for scaled variable. Non-parametric procedures were used for data that violated assumptions of normality and homogeneity.

4. Results

4.1. Demographic Data

A total of 72 patients were interviewed. The mean age of patients was 31.92 (SD. 8.96), ranging from 17 to 51. Of the samples, 18 (25.4%) were never married, 22 (40%) were married or remarried, 22 (40%) were widowed or divorced, and 9 (12.7%) were in temporary marriage. Three patients (4.2%)

were illiterate, 13 (42.3%) had finished elementary and guidance school, 28 (39.4%) had finished high school, and 10 (14%) had at least 2 years of college. There were 39 (54.1%) who had some qualifications in a trade, skill, or profession. Forty-three (60.6%) were unemployed, 24 (33.8%) had been in full or part-time employees in the previous three years, and four (5.6%) were students. There were no significant differences between groups in demographic variables.

4.2. PTSD-Trauma History

Five patients (6.9%) reported no criterion A event during their life. Twenty-seven (37.5%) reported only one criterion A event, and 40 (55.6%) reported multiple criterion A event. There were a total of 22 patients (30.5%) who had current PTSD diagnosis and 9 (12.5%) had partial PTSD diagnosis where that they had at least one criterion A event and their score in PCL was more than 35. For subsequent analysis, 'PTSD group' merely consists of those with a current diagnosis of PTSD, and the 'non-PTSD' group consists of those without diagnosis of PTSD, and those with partial diagnosis. Twenty-three patients (32%) reported frequent and continuous physical assault (more than 10 event) from partner, and family members (e.g. father or brother) but only five (21.7%) reported these events as traumatic. A total of 52 (72.2%) reported more than two general traumatic event (disaster, traumatic death, being in dangerous situation), however, there were no significant differences between PTSD and non-PTSD group. Fifty-Two patients (72.2%) reported no sexual assault, 10 (13.9%) reported only one event, and 7 (9.8%) experienced multiple sexual events. Three patients (4.2%) were sex workers and had experienced frequent and continuous sexual assault and all of them reported these experiences as traumatic. Significantly more of the PTSD group than the non-PTSD group reported sexual assaults (PTSD 8/22, non-PTSD 12/51, $\chi^2 = 13.64$, $DF = 6$, $P < 0.05$). The PTSD group also had significantly more multiple index trauma compared to non-PTSD group (17/21 vs. 23/51, $\chi^2 = 12.95$, $DF = 6$, $P < 0.05$). The mean numbers of different types of trauma were also significantly more in the PTSD group ($z = 3.56$, $P < 0.01$).

A total of 26 patients (36%) mentioned events like separation from spouse or partner, infidelity of partner, and separation from child as the most distressing life event causing or influencing the severity of substance use. Results are shown in Table 1.

4.3. Substance Diagnosis and Addiction Severity

As shown in Table 1, PTSD group reported significantly more multiple use during last month ($\chi^2 = 12.95$, $DF = 1$, $P < 0.01$). They also had higher means of use of all substances except a tranquilizer; however, no significant differences

Table 1. Trauma History, PTSD Severity, Substance Diagnosis (N = 72)^a

| Variable | PTSD (N = 22) | Non-PTSD (N = 50) | Total Sample (N = 72) |
|--|---------------------------|----------------------|------------------------|
| Trauma history-PTSD severity | | | |
| At least one traumatic event | 22 (100) ^b | 45 (90) ^b | 67 (93.5) ^b |
| Mean number of different types of trauma | 12.86 (7.57) ^c | 6.82 (4.98) | 8.67 (6.47) |
| Trauma symptom severity | 49.69 (4.49) ^c | 23.30 (10.26) | 31.36 (15.11) |
| Criminal events | 77.27 (17) | 56 (28) | 62.5 (45) |
| General traumatic events | 95.4 (21) | 92 (46) | 93 (67) |
| Physical assault | 86.3 (19) | 74 (37) | 77.7 (56) |
| Sexual assault | 40.9 (9) ^d | 22 (11) | 27.7 (20) |
| Other traumatic events | 40.9 (9) | 34 (17) | 36 (26) |
| Substance diagnosis | | | |
| Alcohol use disorder | 9.6 (2) | 2 (1) | 4.1 (3) |
| Heroin | 40.9 (9) | 22 (11) | 27.7 (20) |
| Cocaine | 13.6 (3) | 2 (1) | 5.5 (4) |
| Opioid | 18.1 (4) | 14 (7) | 15.2 (11) |
| Cannabis | 36.3 (8) | 16 (8) | 22.2 (16) |
| Tranquilizer and sedative | 18.1 (4) | 24 (12) | 22.2 (16) |
| Amphetamine | 77.2 (17) | 62 (31) | 66.6 (48) |
| Multiple use | 72.7 (16) ^d | 38 (19) | 48.6 (35) |

^aValues are expressed as mean (SD) unless otherwise indicated.

^bValues expressed as No. (%).

^cP < 0.005.

^dP < 0.05.

were found between PTSD and non-PTSD groups. In addiction severity index, significant differences were found in areas of family relationships, psychiatric status, legal status, as well as alcohol and drug use indicating worse status of PTSD group in these areas compared to non-PTSD group. Results are shown in [Table 2](#).

4.4. Psychological Distress

There were significant differences between PTSD and non-PTSD groups in seven dimensions of BSI including: Anxiety, depression, phobic anxiety, obsessive compulsive, somatization, interpersonal sensitivity, and hostility. However, no significant difference was found in global severity index, paranoid ideation, and psychoticism. Results are presented in [Table 3](#).

5. Discussion

The results of this study showed the prevalence of 30.5% of current PTSD in women with substance use disorders in residential treatment centers, which is consistent with some previous studies in UK and United States

(12, 27, 28). High prevalence of reported traumatic experiences indicates that trauma is common in this population, and an almost high percent of multiple criterion “A” traumas (55.5%) suggests that severe traumatic experiences are prevalent in this group, which raises the importance of assessing and addressing trauma in this special population. The high prevalence of physical assaults from partner or family member in the population of women with substance use disorders is another considerable point. This finding is consistent with previous literatures, which identify the physical assault as a common event in this population (13), however, as mentioned above, although 23% of our sample experienced repeated physical assault, most of them did not consider it as a problem, which may imply a kind of cultural approval of violence among addict women who deserve themselves of their own beatings, and consequently do not seek help. However, further investigations with large sample sizes are needed to examine this hypothesis. Given the well-established literature showing the harmful and reciprocal association between drug use and violence against women representing a vicious cycle, which in turn is associated with more severe mental, physical, and emotional health of women (29-31), our results em-

Table 2. Addiction Severity Index: Means and Group Differences

| Addiction Severity Index Composite Scores | PTSD (N = 20) ^a | Non-PTSD (N = 32) ^a | z | P Value |
|---|----------------------------|--------------------------------|-------|---------|
| Medical | 0.310 (0.364) | 0.190 (0.316) | 1.47 | 0.142 |
| Employment | 0.816 (0.243) | 0.795 (0.263) | 0.195 | 0.845 |
| Alcohol | 0.035 (0.130) | 0.016 (0.113) | 1.92 | 0.054 |
| Drug | 0.400 (0.131) | 0.346 (0.086) | 1.94 | 0.052 |
| Legal | 0.108 (0.208) | 0.022 (0.101) | 2.49 | 0.031 |
| Family | 0.613 (0.194) | 0.418 (0.230) | 3.06 | 0.003 |
| Psychiatric | 0.498 (0.189) | 0.340 (0.179) | 3.21 | 0.001 |

^aValues are expressed as mean (SD).

Table 3. Brief Symptom Inventory Raw Scores: Means and Group Differences

| Symptom Dimension ^h | PTSD (N = 22) ^a | non-PTSD (N = 50) ^a | t | df | P Value |
|--------------------------------|----------------------------|--------------------------------|----------|----|---------|
| Anxiety | 2.39 (1.11) | 1.55 (1.12) | 2.90 | 70 | 0.005 |
| Depression | 2.81 (0.97) | 1.99 (1.31) | 2.60 | 70 | 0.011 |
| Paranoid ideation | 2.53 (0.88) | 2.24 (1.06) | 1.11 | 70 | 0.270 |
| Phobic anxiety | 2.26 (1.38) | 1.17 (1.21) | 3.37 | 70 | 0.001 |
| Obsessive compulsive | 2.39 (1.28) | 1.36 (0.99) | 3.67 | 70 | 0.000 |
| Somatization | 2.15 (0.92) | 1.53 (1.14) | 2.25 | 70 | 0.027 |
| Psychoticism | 2.37 (1.26) | 2 (1.17) | 1.20 | 70 | 0.232 |
| Interpersonal sensitivity | 2.80 (0.99) | 1.86 (1.16) | 3.29 | 70 | 0.002 |
| Hostility | 2.29 (1.25) | 1.47 (1.41) | 2.34 | 70 | 0.022 |
| Global severity index | 0.85 (.22) | 0.97 (.43) | Z = 0.47 | - | 0.633 |

^aValues are expressed as mean (SD).

phasize on the necessity of considering these issues in order to provide more appropriate assessment and intervention for women.

In line with the previous research, our study shows that women with comorbid SUD and PTSD experience greater levels of psychological distress across a number of domains compared to those without PTSD (15, 27, 32). Scores for seven primary dimensions of the BSI was significantly higher in PTSD group, although, in general symptom severity index, no significant differences were found between groups. These findings suggest that both groups are experiencing high levels of psychological distress, however, the PTSD group experience significantly more interpersonal problems, depression, and anxiety symptoms. Results in addiction severity index as well showed this difference in psychiatric status between PTSD and non-PTSD group.

In contrast with previous literature, no differences were found in medical status of PTSD and non-PTSD group, which might be due to a small sample size and limited data in this area. Considerable finding in employment/occupation status is that only half of the sample

(54.1%) had some kind of skill in order to get a job, among whom only half (53.84%) had some kind of occupation; there were no significant differences between the groups. This finding implies that occupational skill training and occupational consultation generally might be of some benefit for this population.

PTSD diagnosis was also significantly associated with higher levels of legal status. Almost all legal problems reported by our sample included criminal charges such as possession or sale of drugs, stealing, and illegitimate activities related to drug use. Therefore, more severe alcohol and drug use status of PTSD group, including multiple use, may be associated with increased level of legal problems in this group, however, further investigation is needed to clarify this association. These findings are congruent with existing literature showing more severe clinical profiles in dually diagnosed females compared to females with only one of the two disorders (32) and highlight the importance and necessity of improved assessment and treatment within this population. Further studies are needed to build a more informative picture regarding the relationship be-

tween PTSD and SUDs. This study had some limitation including cross-sectional design, which does not allow for conclusions about causality or directionality of association between PTSD, SUD, and other psychological symptoms. Small sample size of women in residential treatment center also limit the generalizability of results to other gender and treatment settings.

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Footnotes

Authors' Contribution: Solmaz Joekar and Fahime Fathali Lavasani designed the Study. Solmaz Joekar and Sanaz Joekar gathered the data. Solmaz Joekar and Sanaz Joekar has done data analysis and interpreted the data. Solmaz Joekar drafted the manuscript. Solmaz Joekar, Fahime Fathali Lavasani and Behrouz Birashk revised the study and criticized the manuscript for important intellectual content. Solmaz Joekar and Fahime Fathali Lavasani administrated technical and material support and supervised the study. All authors read and approved the final manuscript.

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