




# Traumatic Events Exposure and Post Traumatic Stress Disorder in Caregivers of Patients with Bipolar Disorder, Bipolar Disorder and Comorbid Post Traumatic Stress Disorder and Multiple Sclerosis

Alaleh Bahramian\*<sup>1</sup> , Amir Shabani<sup>1</sup>, Morteza Naserbakht<sup>1</sup>, Fatemeh Hadi<sup>2</sup>

Received: 30 May 2022

Published: 8 Feb 2023

## Abstract

**Background:** Chronic diseases affect the lives of the patient and caregiver. Caring for a patient with a chronic psychiatric illness, such as bipolar disorder, is a stressful and challenging activity. Caregivers of severe psychiatric patients are the primary victims of violence by patients. Caring for these patients can be very stressful for the caregiver to the extent of experiencing post-traumatic stress symptoms. This study compares the frequency of trauma exposure and PTSD in the caregivers of patients with bipolar disorder type I (BD-1), bipolar disorder type 1, comorbid post-traumatic stress disorder (BD-1+PTSD), and multiple sclerosis (MS). The MS group served as the control group.

**Methods:** This cross-sectional study with convenient sampling was conducted at three hospitals in Tehran, Iran, from April 2020 to January 2022. One hundred eighty caregivers answered a clinical demographic questionnaire. We then used the Trauma History Questionnaire (THQ) to assess the frequency of exposure to different types of trauma. Then, the Persian version of the SCID-5, a valid and reliable instrument for psychiatric diagnoses, was used to diagnose PTSD. Chi-square was used for analyzing data.

**Results:** Exposure to trauma has a significant difference between the groups. BD-1 + PTSD patients' caregivers were exposed to more physical assaults than others ( $P < 0.0001$ ). There was a significant difference between sexual harassment in the MS group ( $P = 0.010$ ). There was a significant difference between the three groups in the development of PTSD ( $P = 0.003$ ). PTSD prevalence in the BD-1 + PTSD caregiver group is more than in other groups. In the caregivers of BD-1+PTSD, the caregiving experience caused traumatic exposure and the development of PTSD in all caregivers.

**Conclusion:** This study shows that the prevalence of exposure to traumatic events and PTSD is higher in the caregivers of BD-1 patients, especially if the patient has comorbid PTSD. Detecting these symptoms early and using intervention can make the caregiving burden more tolerable.

**Keywords:** PTSD, Bipolar Disorder, Traumatic Events, Caregiver, Multiple Sclerosis

**Conflicts of Interest:** None declared

**Funding:** None

\*This work has been published under CC BY-NC-SA 1.0 license.

Copyright© Iran University of Medical Sciences

**Cite this article as:** Bahramian A, Shabani A, Naserbakht M, Hadi F. Traumatic Events Exposure and Post Traumatic Stress Disorder in Caregivers of Patients with Bipolar Disorder, Bipolar Disorder and Comorbid Post Traumatic Stress Disorder and Multiple Sclerosis. *Med J Islam Repub Iran.* 2023 (8 Feb);37.4. <https://doi.org/10.47176/mjiri.37.4>

## Introduction

Chronic diseases affect the lives of the patient and caregiver. The experience of caring for a patient with a chronic illness is accompanied by chronic and severe stressors that

are usually unpredictable, uncontrollable, and permanent and often cause the caregiver to ignore many of their needs

**Corresponding author:** Dr Alaleh Bahramian, [Alalebahramian92@gmail.com](mailto:Alalebahramian92@gmail.com)

<sup>1</sup> Mental Health Research Center, Department of Psychiatry, School of Medicine, Iran University of Medical Science, Tehran, Iran

<sup>2</sup> Psychiatrist, Tehran, Iran

### ↑What is “already known” in this topic:

Caring for a patient with a chronic psychiatric illness, such as bipolar disorder (BD), is a stressful and challenging activity and usually requires considerable time, energy, and expense. Additionally, caregivers of severe psychiatric patients are the primary victims of violence by patients.

### →What this article adds:

The prevalence of exposure to traumatic events and PTSD is higher in the caregivers of BD-1 patients, especially if the patient has comorbid PTSD. Detecting these symptoms early and using intervention can make the caregiving burden more tolerable.

(1). This issue became important in psychiatry after deinstitutionalization and the involvement of

more families in caregiving (2, 3). About 50-90% of patients with chronic psychiatric illnesses are cared for by their family or friends (4). Caring for a patient with a chronic psychiatric illness, such as bipolar disorder (BD), is a stressful and challenging activity and usually requires considerable time, energy, and expense (5). In addition, caregivers of severe psychiatric patients are the primary target of violence by patients (6). Caring for these patients can be very stressful for the caregiver to the extent of experiencing post-traumatic stress symptoms (7). For example, although psychosis is not a medically life-threatening condition, even stigma or the possibility of suicide may be interpreted as a potentially threatening condition (8), and studies have shown that a person's cognitive assessment of an event alone can elicit significant trauma-related responses in individuals (9).

Bipolar disorder type 1 (BD-1) is one of the severe and chronic psychiatric disorders. Its prevalence varies between 1.3% and 3.8% (10, 11). Their caregivers experience significant distress, especially during the manic episode (12). Violence against caregivers with bipolar disorder is one of the most stressful causes of distress and happens more in manic episodes (13, 14). They were the target of 70% of patients' acts of violence (15).

Post-traumatic stress disorder (PTSD) is the result of exposure to a traumatic or stressful event (16); its prevalence varies from country to country (17), and in the United States, its prevalence in the general population is about 8% (16, 18). It is a common comorbidity in patients with bipolar disorder. According to a review study, its prevalence in patients with bipolar disorder is about 16%, twice the prevalence in the general population (18). There is some evidence that impulsive and violent behavior increases if the patient with bipolar disorder has comorbid PTSD (19). Trauma itself can affect the interpersonal relationship with caregivers negatively (20).

Multiple sclerosis (MS) is the most common disabling neurological disease in young adults (21). The disease is progressive, and as it progresses and the disability increases, their need for caregivers increases (21, 22). Caregivers experience a high level of stress, low quality of life, and depressive symptoms (23). Psychiatric comorbidities, especially mood disorders and anxiety disorders, are common in MS patients (24-26), and MS diagnosis can also cause PTSD in patients (27). However, we do not know much about PTSD in these caregivers.

We designed this study given the difference between the clinical features of patients with BD in Iran (28) and the paucity of knowledge about its effect on trauma exposure and PTSD in caregivers. The second group is caregivers of patients with BD and comorbid PTSD. PTSD affects the course and clinical presentation of bipolar disorder in numerous ways (18, 29) and we wanted to investigate if this comorbidity also affects caregivers. Caregivers of MS patients served as a control group a group with chronic medical conditions who needed caregiving.

We think that detecting PTSD symptoms early and appropriate interventions can make the caregiving burden

more tolerable. Therefore, this study compares the frequency of trauma exposure and PTSD in the caregivers of patients with BD-1, BD-1, and comorbid PTSD (BD-1+PTSD) and MS.

## Methods

### Study Population

This is a cross-sectional study with convenient sampling conducted at three hospitals in Tehran, Iran, from April 2020 to January 2022: Bipolar cases were collected from the Iran Psychiatric hospital clinic. BD-1+PTSD cases were collected from veterans of the Iran-Iraq war at Sadr Hospital, and the MS cases were collected from the MS clinic of Sina Hospital. Inclusion criteria were 1) Diagnosis of BD-1 and PTSD in a patient based on the diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria and diagnosis of multiple sclerosis based on McDonald's criteria 2) The daily caregiver should deal with the patient and be his primary caregiver. 3) The caregiver is responsible for caring for at least one year. 4) The severity of multiple sclerosis in the patient should be such that she needs care. Exclusion criteria were 1) Dissatisfaction of caregivers and patients to participate in the study, 2) existence of physical illness requiring care in patients with BD-1 and patients with BD-1 and PTSD, 3) existence of bipolar disorder or schizophrenia spectrum disorders in patients with multiple sclerosis. We interviewed some samples with video or phone calls because of the COVID-19 pandemic and quarantine situation.

### Measures

After obtaining informed oral or written consent, caregivers answered a clinical, demographic questionnaire (including age, sex, level of education, employment status, marital status and number of hospitalizations, and duration of caregiving). We then used the Trauma History Questionnaire (THQ) to assess the frequency of exposure to different types of trauma. This tool is designed to assess the history of exposure to traumatic events in 1996 and has been used in many clinical studies in different cultures and it can be used both online and in person (30). The self-administered questionnaire has 24 items, including four categories of traumatic events: crime-related events, General Disasters, and physical and sexual experiences (31). We used a Persian version of the questionnaire, and its reliability was confirmed before ((32-34) and had good psychometric properties in the Persian version (35). Then, the Persian version of the SCID-5, a valid and reliable instrument for psychiatric diagnoses (36), was used to diagnose PTSD. This measure can also be used over the phone call (36).

### Ethical Issues

The Ethics Committee of Iran University of Medical Sciences approved this study (ethical code: IR.IUMS.FMD.REC.1399.273). Informed written or oral consent was obtained from all participants.

### Data Analysis

The data were entered into the SPSS (22) software. The

frequency of trauma and stress-related disorders in caregivers of patients with BD-1 and BD+PTSD and patients with MS with different demographic characteristics, which are nominal or qualitative, was performed by Chi-square analysis. A p-value less than 0.05 is considered statistically significant.

## Results

This study surveyed 180 caregivers in three groups, BD-1, BD-1+PTSD, and MS. The mean age was  $47.33 \pm 14.11$  in the BD-1 group,  $45.65 \pm 12.28$  years old in BD-1 and PTSD group, and  $44.37 \pm 12.24$  years old in the MS group. The mean duration of care was  $10.3 \pm 7.11$  years in the BD-1 group,  $19.77 \pm 11.18$  years in the BD-1 + PTSD group, and  $8.22 \pm 6.12$  years in the MS group.

Using the ANOVA test, there was no significant difference in the mean age of the three groups ( $P = 0.452$ ), but for the variable duration of care, the difference between the three groups was significant so that the mean length of care for the BD1 and PTSD group was significantly higher than the other groups ( $P \leq 0.0001$ ). Demographic variables are shown in Table 1.

Using the chi-square test, there is a significant difference between the groups in the employment variable, so caregivers of BD-1 and MS patients were mostly employed, while caregivers of BD-1 patients with comorbid PTSD were mostly non-employed; there is also a significant difference in the education variable. In MS patients, caregivers had a

higher educational level ( $P = 0.001$ ).

Using the chi-square test, exposure to traumatic events in the sub-categories of crimes, sexual harassment, and physical assaults showed a significant difference between the groups. Caregivers of MS patients faced more crimes and sexual harassment. However, BD-1 + PTSD patients' caregivers were exposed to more physical assaults than others (Table 2). There was a significant difference between the three groups in the development of PTSD ( $P = 0.003$ ). The disorder prevalence in the BD-1 + PTSD caregiver group was higher than that in the other groups. In the caregivers with BD-1+PTSD, the caregiving experience was the main contributor to the development of PTSD in all caregivers. However, in other groups, caregiving experience caused the developing PTSD in about 57.14% of cases in the BD-1 group and 0% in the MS group ( $P < 0.001$ ) (Table 2).

We used the Kruskal-Wallis test to compare the three groups. The number of times caregivers were exposed to stressors varies ( $P < 0.001$ ). BD-1 and MS groups are close to each other in the mean rank, and this significant difference is due to the group BD-1 + PTSD. BD-1 + PTSD caregivers were far more exposed to life-threatening events than other groups (46 people), and the questionnaire score was much higher than other groups.

## Discussion

In this study, we investigated traumatic life event exposure with the THQ. Exposure to the general disaster was the

Table 1. Demographic and clinical variables of the three groups.

Variable		BD	BD-1+PTSD	MS	P
		N (%)	N (%)	N (%)	
Gender	Male	29 (48.3%)	13 (21.7%)	31 (51.7%)	0.001
	Female	31 (51.7%)	47 (78.3%)	29 (48.3%)	
Marital Status	Single	10 (16.7%)	13 (21.7%)	8 (13.3%)	0.643
	Married	50 (83.3%)	46 (76.7%)	51 (85%)	
Relationship	Parent	17 (28.3%)	4 (6.7%)	12 (20%)	0.001
	Spouse	16 (26.7%)	36 (60%)	29 (48.3%)	
	Sibling	19 (31.7%)	6 (10%)	9 (15%)	
	Child	6 (10%)	12 (20%)	7 (11.7%)	
	Other	2 (3.3%)	2 (3.3%)	3 (5%)	
Psychiatric Hospitalization	No	60 (100%)	59 (98.3%)	58 (96.7%)	0.362
	Yes	0	1 (1.2%)	2 (3.3%)	
Employment	Yes	41 (68.3%)	22 (36.7%)	44 (73.3%)	0.00
	No	19 (31.7%)	38 (63.3%)	16 (26.7%)	
Level of education	Illiterate	3 (5%)	4 (6.7%)	1 (1.7%)	0.00
	Elementary	8 (13.3%)	12 (20%)	2 (3.3%)	
	Middle School	11 (18.3%)	13 (21.7%)	24 (40%)	
	Highschool	17 (28.3%)	18 (30%)	22 (36.7%)	
	Bachelor	12 (20%)	11 (18.3%)	22 (36.7%)	
	MA	5 (8.3%)	2 (3.3%)	7 (11.7%)	
	PhD and above	4 (6.7%)	0	4 (6.7%)	

Table 2. Traumatic Events (Crimes, General Disasters, Sexual harassment, and Physical Assault) & PTSD diagnosis in three groups:

Variable / group	BD	BD+PTSD	MS	P
Crimes				
Yes	16 (26.66%)	13 (21.66%)	28 (46.66%)	0.008
General Disasters				
Yes	55 (91.66%)	56 (93.33%)	56 (93.33%)	0.920
Sexual harassment				
Yes	0 (0%)	1 (1.66%)	6 (10%)	0.010
Physical assault				
Yes	17 (28.33%)	46 (76.66%)	10 (16.66%)	<0.0001
PTSD Diagnosis				
Yes	7 (11.66)	17 (28.33%)	4 (6.66)	0.003

highest prevalence in the three groups, and there was a significant difference between sexual harassment in the MS group and physical assault in the BD-1+PTSD group compared to others. Also, the difference was statistically meaningful; the prevalence of sexual assault even in the MS group was only 10%, and in the BD-1 and BD-1+PTSD groups, 0%, and 1.66%, respectively. This significant difference perhaps can be explained by their higher level of education, which causes more awareness of sexual harassment instances. In a review article by Holam et al. people with a higher level of education degree had the lowest levels of stigma and highest levels of mental health literacy (37). Also, we did not study stigma and mental health literacy that could be an explanation for the higher reports of sexual assault in caregivers of MS patients. In a study by Kessler et al. on associations of trauma type with PTSD in the World Mental Health (WMH) surveys in 14 countries, the most prevalent trauma exposures were those that either occurred to a loved one or were witnessed (35.7% of respondents), accidents (34.3%), unexpected death of a loved one (31.4%) followed by physical violence (22.9%) and intimate partner sexual violence (14.0%) (38). As far as we know, there is not much information about the trauma exposure prevalence in the general Iranian population. In a study by Malek et al. on the Iranian population in which respondents ranked 50 stressful life events, the death of a child was ranked the most stressful life event. However, there was no report of the prevalence of traumatic life event exposure (39). The highest exposure to a general disaster in our study is consistent with the WMH survey's top three exposures. Nevertheless, the lower prevalence of exposure to sexual harassment in our study can be explained by the shame and taboo associated with sexual issues in Iranian culture that make people uncomfortable talking about these issues (40). Physical assault exposure was higher in our study's mental illness caregivers than in the MS group. This result agrees with other studies on caregivers with severe mental illness that have found that violence against them occurs more (41-43). There is also a significant difference between the BD-1 group and BD-1+PTSD group in facing physical assault in our study. It may be because the BD-1 + PTSD patients in our study were veterans of the IRAN-IRAQ war, and most of the caregivers were their spouses. Other studies also show that individuals with PTSD are at particularly increased risk of intimate partner violence and aggressive behavior, especially when they have experienced combat traumas (44-46), which is consistent with our findings.

There was a significant difference between the three groups in this study in PTSD prevalence. The disorder prevalence in the BD1 + PTSD caregiver group was higher than in the other groups (28.33%), and caring was the main cause of exposing to trauma and developing PTSD in this group. In a review article by Carmassi et al. about the prevalence of PTSD in caregivers of severe medical illness patients, PTSD prevalence rates ranged from 4.17% to 54% (47). In the study by Rady et al., which investigated PTSD among severe mental illness caregivers compared with cardiovascular disease caregivers, the prevalence of PTSD in severe mental illness caregivers was 15.7% (48). In another

study by Laughland et al., PTSD was diagnosed in 52% of caregivers of patients with psychosis who have experienced moderate to severe aggression (49). This is compatible with our study in which the BD-1+PTSD group was far more exposed to life-threatening events than other groups (76.66%). Different prevalence rates may be due to cultural and diagnostic measures among studies (48).

In a survey by the World Health Organization (WHO), which was a cross-national epidemiologic data from Thirty-four thousand six hundred seventy-six respondents, about traumatic experience type and PTSD, the risk was elevated after traumatic experiences involving repeated physical assaults (50). In another study by Kessler et al., interpersonal violence had the highest risk of developing PTSD. (38) This is consistent with our study in which BD-1+PTSD caregivers were exposed to physical assault more than other groups, and the PTSD prevalence was also significantly higher.

In the review article of Otto et al., the significant impact of PTSD on the course of bipolar disorder has been shown. Lower likelihood of recovery, more substance use disorder, elevated rates of suicide attempts, more emotional lability and aggression, and chronic overarousal were seen in bipolar disorder comorbid with PTSD compared with bipolar patients without PTSD (18). These factors increase caregiver distress (51-53) and explain the significant difference between the PTSD prevalence between two groups of BD-1 and BD1+PTSD in our study. Most caregivers who developed PTSD were females. This is consistent with other studies that the female gender is more vulnerable to PTSD (54). Furthermore, caregivers of BD-1+PTSD duration of care was significantly higher than the other groups, similar to the Rady et al. study findings, which linked duration of care to PTSD (48).

Our study has some limitations that need to be addressed in future studies. Our sample was small, and we cannot generalize it to all caregivers.

We suggest further studies with larger populations and investigating other aspects of PTSD, such as secondary traumatization, protective factors, and treatment strategies for this vulnerable group.

## Conclusion

This study shows that the prevalence of exposure to traumatic events and PTSD is higher in the caregivers of BD-1 patients, especially if the patient has comorbid PTSD. It is important to ask about PTSD symptoms and trauma exposure when interviewing caregivers of patients with severe mental illness. Detecting these symptoms early and using intervention can make the caregiving burden more tolerable.

## Acknowledgments

We are grateful to Dr. Abdolreza Naser Moghadasi, Dr. Neda Zia, Mr. Aliakbar Miraabi, the Iranian MS society, the Iran Psychiatry Hospital, Sadr Hospital, and the Sina Hospital staff for their generous cooperation.

### Ethical approval

The Ethics Committee of Iran University of Medical Sciences approved this study (ethical code: IR.IUMS.FMD.REC.1399.273).

### Authors' contributions

All authors provided critical feedback and helped shape the research, analysis and manuscript.

### Conflict of Interests

The authors declare that they have no competing interests.

### References

- Swartz K, Collins LG. Caregiver care. *Am Fam Physician*. 2019;99(11):699-706.
- Reinares M, Bonnin C, Hidalgo-Mazzei D, Sánchez-Moreno J, Colom F, Vieta E. The role of family interventions in bipolar disorder: A systematic review. *Clin Psychol Rev*. 2016;43:47-57.
- Harvey K, Catty J, Langman A, Winfield H, Clement S, Burns E, et al. A review of instruments developed to measure outcomes for carers of people with mental health problems. *Acta Psychiatr Scand*. 2008;117(3):164-76.
- Gater A, Rofail D, Tolley C, Marshall C, Abetz-Webb L, Zarit SH, et al. "Sometimes it's difficult to have a normal life": results from a qualitative study exploring caregiver burden in schizophrenia. *Schizophr Res*. 2014;2014.
- Schulz R, Martire LM. Family caregiving of persons with dementia: prevalence, health effects, and support strategies. *Am J Geriatr Psychiatry*. 2004;12(3):240-9.
- Labrum T, Solomon PL. Rates of victimization of violence committed by relatives with psychiatric disorders. *J Interpers Violence*. 2017;32(19):2955-74.
- Kingston C, Onwumere J, Keen N, Ruffell T, Kuipers E. Posttraumatic stress symptoms (PTSS) in caregivers of people with psychosis and associations with caregiving experiences. *J Trauma Dissociation*. 2016;17(3):307-21.
- Struening EL, Perlick DA, Link BG, Hellman F, Herman D, Sirey JA. Stigma as a barrier to recovery: The extent to which caregivers believe most people devalue consumers and their families. *Psychiatr Serv*. 2001;52(12):1633-8.
- Jackson C, Knott C, Skeate A, Birchwood M. The trauma of first episode psychosis: the role of cognitive mediation. *Aust N Z J Psychiatry*. 2004;38(5):327-33.
- Müller-Oerlinghausen B, Berghöfer A, Bauer M. Bipolar disorder. *Lancet*. 2002;359(9302):241-7.
- Wells JE, Oakley Browne MA, Scott KM, McGee MA, Baxter J, Kokaua J, et al. Te Rau Hinengaro: The New Zealand mental health survey: Overview of methods and findings. *Aust N Z J Psychiatry*. 2006;40(10):835-44.
- Mousavi N, Norouzpour M, Taherifar Z, Naserbakht M, Shabani A. Bipolar I disorder: a qualitative study of the viewpoints of the family members of patients on the nature of the disorder and pharmacological treatment non-adherence. *BMC Psychiatry*. 2021;21(1):1-11.
- Amore M, Menchetti M, Tonti C, Scarlatti F, Lundgren E, Esposito W, et al. Predictors of violent behavior among acute psychiatric patients: clinical study. *Psychiatry Clin Neurosci*. 2008;62(3):247-55.
- Currier GW, Allen MH. Emergency psychiatry: physical and chemical restraint in the psychiatric emergency service. *Psychiatr Serv*. 2000;51(6):717-9.
- Raveendranathan D, Chandra PS, Chaturvedi SK. Violence among psychiatric inpatients: a victim's perspective. *East Asian Arch Psychiatry*. 2012;22(4):141-5.
- Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry*. 1995;52(12):1048-60.
- Burri A, Maercker A. Differences in prevalence rates of PTSD in various European countries explained by war exposure, other trauma and cultural value orientation. *BMC Res Notes*. 2014;7(1):407.
- Otto MW, Perlman CA, Wernicke R, Reese HE, Bauer MS, Pollack MH. Posttraumatic stress disorder in patients with bipolar disorder: a review of prevalence, correlates, and treatment strategies. *Bipolar Disord*. 2004;6(6):470-9.
- Kotler M, Iancu I, Efroni R, Amir M. Anger, impulsivity, social support, and suicide risk in patients with posttraumatic stress disorder. *J Nerv Ment Dis*. 2001;189(3):162-7.
- Quarantini LC, Miranda-Scippa A, Nery-Fernandes F, Andrade-Nascimento M, Galvão-de-Almeida A, Guimarães JL, et al. The impact of comorbid posttraumatic stress disorder on bipolar disorder patients. *J Affect Disord*. 2010;123(1-3):71-6.
- Kersten P, McLellan D, Gross-Pajou K, Grigoriadis N, Bencivenga R, Beneton C, et al. A questionnaire assessment of unmet needs for rehabilitation services and resources for people with multiple sclerosis: results of a pilot survey in five European countries. *Clin Rehabil*. 2000;14(1):42-9.
- Khan F, Pallant J, Brand C. Caregiver strain and factors associated with caregiver self-efficacy and quality of life in a community cohort with multiple sclerosis. *Disabil Rehabil*. 2007;29(16):1241-50.
- Petrikis P, Baldouma A, Katsanos AH, Konitsiotis S, Giannopoulos S. Quality of life and emotional strain in caregivers of patients with multiple sclerosis. *J Clin Neurol*. 2019;15(1):77-83.
- Marrie RA, Reingold S, Cohen J, Stuve O, Trojano M, Sorensen PS, et al. The incidence and prevalence of psychiatric disorders in multiple sclerosis: a systematic review. *Mult Scler*. 2015;21(3):305-17.
- Shabani A, Atari MJ, Panaghi L, Sedghi A. Anxiety disorders in multiple sclerosis: significance of obsessive-compulsive disorder comorbidity. *J Res Med Sci*. 2007.
- Atari Moghadam J, Shabani A, Panaghi L. The Frequency of Mood Disorders in Patients with Multiple Sclerosis. *Adv Cogn Sci*. 2005;6(3-4):-.
- Chalfant AM, Bryant RA, Fulcher G. Posttraumatic stress disorder following diagnosis of multiple sclerosis. *J Trauma Stress*. 2004;17(5):423-8.
- Jolfaei AG, Ghadamgahi P, Ahmadzad-Asl M, Shabani A. Comparison of demographic and diagnostic characteristics of Iranian inpatients with bipolar I disorder to western counterparts. *Iran J Psychiatry Behav Sci*. 2015;9(2).
- Carnassi C, Bertelloni CA, Dell'Oste V, Foghi C, Diadema E, Cordone A, et al. Post-traumatic stress burden in a sample of hospitalized patients with Bipolar Disorder: Which impact on clinical correlates and suicidal risk? *J Affect Disord*. 2020;262:267-72.
- Stamm B. Measurement of stress, trauma, and adaptation: The Sidran Press; 1996.
- Green B. Trauma history questionnaire. Measurement of stress, self-report trauma, and adaptation. 1996:366-9.
- Jobson L, Moradi AR, Rahimi-Movaghar V, Conway MA, Dalgleish T. Culture and the remembering of trauma. *Clin Psychol Sci*. 2014;2(6):696-713.
- Sakine K, Ahmad M. The Mediating Role of Cognitive Emotion Regulation and Spiritual Coping in the Relationship between the History of Trauma and Symptoms of Borderline Personality. *J Res Behav Sci*. 2019;17(1):1-11.
- Joekar S, Joekar S, Lavasani FF, Birashk B. Three Months Assessment of Co-Morbid Post Traumatic Stress Disorder in Women with Substance Use Disorders in a Residential Treatment Center in Karaj. *Iran J Psychiatry Behav Sci*. 2018;12(4).
- Moradi AR, Rahimi-Movaghar V, Miraghaei A, Parhon H, Mirzaei J. The autobiographical remembering, appraisals of trauma & self definition among individuals with posttraumatic stress disorder. *J Psychol*. 2013.
- Shabani A, Masoumian S, Zamirinejad S, Hejri M, Pirmorad T, Yaghmaeezadeh H. Psychometric properties of Structured Clinical Interview for DSM-5 Disorders-Clinician Version (SCID-5-CV). *Brain Behav*. 2021;11(5):e01894.
- Holman D. Exploring the relationship between social class, mental illness stigma and mental health literacy using British national survey data. *Health*. 2015;19(4):413-29.
- Kessler RC, Aguilar-Gaxiola S, Alonso J, Benjet C, Bromet

- EJ, Cardoso G, et al. Trauma and PTSD in the WHO world mental health surveys. *Eur J Psychotraumatol*. 2017;8(sup5):1353383.
39. Malek A, Dadashzadeh H, Poorafkary N. Ranking of stressful life events in general population of Tabriz-Iran. *Med J Tabriz Univ Med Sci*. 2009;30(4):73-80.
40. Motamedi M, Shahbazi M, Merghati-Khoei E, Salehi M, Hajebi A, Rahimi-Naghani S, et al. Perceived Barriers to Implementing Sexual Health Programs from the Viewpoint of Health Policymakers in Iran: A Qualitative Study. *Sex Res Soc*. 2021;1-13.
41. Labrum T, Zingman MA, Nossel I, Dixon L. Violence by Persons with Serious Mental Illness Toward Family Caregivers and Other Relatives: A Review. *Harv Rev Psychiatry*. 2021;29(1):10-9.
42. Labrum T, Solomon P. Safety fears held by caregivers about relatives with psychiatric disorders. *Health Soc Work* 2018;43(3):165-74.
43. Madathumkovilakath NB, Kizhakkeppattu S, Thekekunnath S, Kazhungil F. Coping strategies of caregivers towards aggressive behaviors of persons with severe mental illness. *Asian J Psychiatr*. 2018;35:29-33.
44. Taft CT, Watkins LE, Stafford J, Street AE, Monson CM. Posttraumatic stress disorder and intimate relationship problems: a meta-analysis. *J Consult Clin Psychol*. 2011;79(1):22.
45. Orth U, Wieland E. Anger, hostility, and posttraumatic stress disorder in trauma-exposed adults: a meta-analysis *J Consult Clin Psychol*. 2006;74(4):698.
46. Birkley EL, Schumm JA. Posttraumatic stress disorder, aggressive behavior, and anger: Recent findings and treatment recommendations. *Curr Treat Options Psychiatry*. 2016;3(1):48-59.
47. Carmassi C, Foghi C, Dell'Oste V, Bertelloni CA, Fiorillo A, Dell'Osso L. Risk and protective factors for PTSD in caregivers of adult patients with severe medical illnesses: a systematic review. *Int J Environ Res Public Health*. 2020;17(16):5888.
48. Rady A, Mouloukheya T, Gamal E. Posttraumatic Stress Symptoms, Quality of Life, and Stress Burden in Caregivers of Patients With Severe Mental Illness: An Underestimated Health Concern. *Front Psychiatry*. 2021;12:431.
49. Loughland CM, Lawrence G, Allen J, Hunter M, Lewin TJ, Oud NE, et al. Aggression and trauma experiences among carer-relatives of people with psychosis. *Soc Psychiatry Psychiatr Epidemiol*. 2009;44(12):1031-40.
50. Liu H, Petukhova MV, Sampson NA, Aguilar-Gaxiola S, Alonso J, Andrade LH, et al. Association of DSM-IV Posttraumatic Stress Disorder With Traumatic Experience Type and History in the World Health Organization World Mental Health Surveys. *JAMA Psychiatry*. 2017;74(3):270-81.
51. Chessick CA, Perlick DA, Miklowitz DJ, Dickinson LM, Allen MH, Morris CD, et al. Suicidal ideation and depressive symptoms among bipolar patients as predictors of the health and well-being of caregivers. *Bipolar Disord*. 2009;11(8):876-84.
52. Ólafsdóttir J, Orjasniemi T, Hrafnisdóttir S. Psychosocial distress, physical illness, and social behaviour of close relatives to people with substance use disorders. *J Soc Work Pract*. 2020;20(2):136-54.
53. Lee AMR, Simeon D, Cohen LJ, Samuel J, Steele A, Galynker II. Predictors of Patient and Caregiver Distress in an Adult Sample With Bipolar Disorder Seeking Family Treatment. *J Nerv Ment Dis*. 2011;199(1):18-24.
54. Christiansen DM, Berke ET. Gender-and sex-based contributors to sex differences in PTSD. *Curr Psychiatry Rep*. 2020;22(4):1-9.