



Prevalence of Post-Traumatic Stress Disorder (PTSD) in Iranian Population Following Disasters and Wars: A Systematic Review and Meta-Analysis

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Abstract

Context: Post-traumatic stress disorder (PTSD) is a chronic psychiatric disorder that occurs as a result of an accident or life-threatening event. The purpose of our study was to examine the prevalence of PTSD in the Iranian population from 2000 to 2015 through a meta-analysis of the published studies to review the epidemiologic evidence of PTSD after disasters and wars and to examine PTSD determinants.

Evidence Acquisition: The electronic databases including PubMed, Embase, Web of Science, Magiran, etc. were explored to find related papers. Two authors independently reviewed and extracted data via an extraction sheet, and disagreements were resolved by holding a meeting with a third author. Meta-analysis was performed using “metaprop” command in STATA 11 software. Studies with < 25 participants were excluded from our analysis.

Results: Ultimately, 47 studies were included in this meta-analysis. Primary PTSD was investigated in 44 studies and secondary PTSD in six studies. Forty studies investigated natural PTSD and five studies technical PTSD. PTSD related to childbirth, job, earthquake, war, burn, accident, and rape events were investigated in seven, six, nine, nine, two, two, and two studies, respectively, and their pooled prevalence were 25%, 30%, 58%, 47%, 40%, 11%, and 74%, respectively.

Conclusion: The results revealed that the burden of PTSD among the Iranian population exposed to wars and disasters is high. PTSD was correlated with a range of factors including demographic and background factors and characteristics of the event exposure.

Keywords: Disasters, Iran, Post-traumatic Stress Disorder, Prevalence, War

1. Context

The high prevalence of trauma and disaster exposure, as well as their subsequent complications, for both survivors and community as a whole highlights the need for the secondary prevention of (post-traumatic stress disorder) PTSD (1).

Traumatic events have a different distribution of incidence in the world. However, in several geographical regions, specific populations are frequently exposed to trauma experiences such as combats, organized violence, terrorism, and natural disasters (2, 3). Studies on PTSD suggest different trajectories in different populations due to the various types of traumatic events, living situations, psychological agents, and methodological differences (4-6).

According to the literature, the prevalence of possible traumatic experiences is greater in the USA than in Europe (7). Indeed, while the PTSD prevalence in the USA has been reported about 10% for women and 5% for men (7, 8), it is between 2.0 and 3.5% in the European population (9, 10). It is worth mentioning that PTSD is related to various mental and physical distress, as well as high economic burden (9, 10).

Iran was unfortunately invaded for eight years, during 1980 - 1988, by neighboring countries. Besides, it was exposed to several natural disasters such as the Bam earthquake in 2003 that resulted in more than 40,000 deaths. Therefore, it would be of great importance to study various aspects of PTSD in this country (11, 12), as adverse mental

health effects in Iran are mostly noted in times of war and natural disasters along with PTSD as the main outcome (13).

2. Evidence Acquisition

2.1. Data and Source Search Strategy

The purpose of the study was to carry out a meta-analysis of published studies reporting the prevalence of PTSD in the Iranian population from 2000 to 2015. This study was approved by the joint council of the centers for neuroscience study in 2015. Indeed, it was reviewed by the Research Committee of Baqiyatallah University (No., 421) in 2015 and all protocols were approved.

We estimated the prevalence of PTSD in the Iranian population with a comprehensive systematic review and a meta-analysis of the literature and evidence, followed by integrating the data and analyzing the findings. We included all published studies evaluating the prevalence of PTSD in the Iran population, irrespective of their publication status or language.

2.2. Search Strategy

The purpose of the study was to determine the PTSD prevalence in the population at risk based on the obtained data from Iranian patients' society. Therefore, we observed both national and international databases. In October 2015, the following libraries and electronic databases were searched for potentially relevant studies: PubMed, MEDLINE via OVID, Wiley, EMBASE via OVID, ProQuest dissertations and thesis, ISI Web of knowledge, Scopus, Magiran, SID, Google Scholar, and Noormags. Notably, the terminologies used to identify these articles included: PTSD, stress disorder, post-traumatic, posttraumatic neuroses, chronic post-traumatic stress disorder, delayed-onset post-traumatic stress disorder, acute post-traumatic stress disorder, post-traumatic stress disorders, Iran. Besides, we used a suitable combination of terminologies as mentioned above for searching. We also manually checked the references of all included studies to recognize any new study.

2.3. Types of Outcome Measures

We labeled PTSD diagnosed patients according to the standard questionnaires and interviews (diagnostic and statistical manual of mental disorders (DSM-IV), Mississippi scale, PTSD symptom scale (PSS-I), posttraumatic stress disorder checklist (PCL), questionnaires, and interviews for PTSD based on various criteria) implemented by clinicians or trained interviewers and individuals in these studies to recognize PTSD.

2.4. Inclusion Criteria

All patients exposed to horrifying and traumatic events such as earthquakes, wars, childbirth, job, and others were included.

Notably, articles were published from 2000 to 2015. The outcome was the point prevalence of PTSD defined according to the standard tools. All of the contributors were Iranian people and had PTSD following natural or unnatural events taking place in Iran.

2.5. Exclusion Criteria

Studies with < 25 participants were excluded because the risk of recruitment bias was high.

2.6. Selection of Studies

Two reviewers independently assessed the titles and abstracts of all articles found by the searching strategy outlined above for inclusion based on predefined inclusion and exclusion criteria. Disagreements were resolved through discussion. If it was not helpful, a third review author was addressed in order to handle very disagreements.

2.7. Data Extraction

Two reviewers independently extracted data via a tested extraction sheet and disagreements were resolved through a joint meeting with a third reviewer.

Information was categorized regarding the study characteristics (year of publication, place of the study, study method quality), participants' characteristics, the cause of PTSD, accession percentage, diagnosis tool, age range, and study population.

2.8. Statistical Analysis

Meta-analysis was performed using "metaprop" command in STATA 11 software. This command calculates the pooled estimate after arcsine stabilizes the estimations. According to the existence of heterogeneity between studies, data were pooled using a fixed or random effects model. The heterogeneity of studies was assessed by the Cochran Q statistic. We planned to test the statistical heterogeneity with the Q test (χ^2 , I^2 , and Tau-squared statistics). The findings were considered heterogeneous if the P value was less than 0.1. Moreover, I^2 was utilized to provide a model of the degree of inconsistency between the results of the studies. A value of 0% indicated no observed heterogeneity, whereas larger values showed increasing heterogeneity.

3. Results

Our initial search retrieved 59024 studies of PTSD following traumatic events and disasters, which had been published from 2000 to 2015 (Figure 1). However, 16111 papers were eliminated because of duplication among databases. Then, 42913 studies were included in the primary screening.

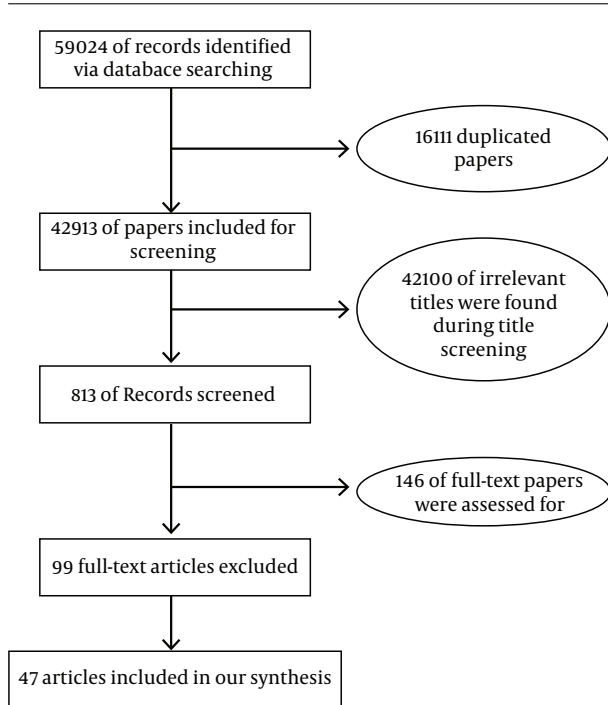


Figure 1. Systematic literature review process. The flow diagram describes the systematic review of the literature.

Upon screening the titles and abstracts, 186 studies were identified for full-text reviewing.

Finally, we scrutinized the total number of 186 full texts. In the end, after applying the inclusion/exclusion criteria, 47 studies were selected (Table 1).

3.1. Articles' Descriptive Characteristics

Table 1 provides a summary including the lead author, year of publication, study design, population research, subjects' roles (e.g., disaster workers), time of data collection, PTSD tool, and the main findings.

The number of participants in all studies was 16546. Based on the year, the studies were done in various years as follows: 2001 to 2005: 3 studies, 2006 to 2010: 20 studies, and 2011 to 2015: 24 studies.

Eight studies only included male participants; nine studies only female participants, and 30 studies both male and female participants. Primary PTSD was investigated in 44 studies and secondary PTSD in four studies. Forty studies investigated natural PTSD and five studies technical PTSD.

The instrument for diagnosing PTSD was divided into five categories:

- Diagnostic and statistical manual of mental disorders (DSM-IV)
- Mississippi scale
- PTSD Symptom Scale (PSS-I)
- Questionnaires and interviews for PTSD based on various criteria
- Posttraumatic stress disorder checklist (PCL)

We categorized studies according to the following PTSD causes as war, earthquake, childbirth, and job; then, we reported the prevalence of PTSD in each category.

3.2. PTSD Prevalence Based on the Cause of PTSD

3.2.1. Childbirth

Seven studies investigated PTSD following childbirth. Based on testing heterogeneity ($\chi^2 = 274.98$, chi-square DF = 6, $P \leq 0.001$) and heterogeneity indices ($I^2 = 97.82\%$ and tau-squared = 0.13), we used a random-effects model to calculate the prevalence. The pooled prevalence of PTSD in these studies was 25% [95% CI (14 - 37)]. Moreover, Begg's test [$z = 0.75$, P value = 0.453] showed that there was no publication bias in results. Figure 1 depicts the prevalence of PTSD in all included studies.

3.2.2. Job

Six studies investigated job-related PTSD. Based on the test of heterogeneity ($\chi^2 = 919.57$, chi-square DF = 6, $P \leq 0.001$) and heterogeneity indices [$I^2 = 99.35\%$ and tau-squared=0.98], we used a random-effects model to calculate the prevalence. The pooled prevalence of PTSD in these studies was 30% [95% CI (4 - 66)]. Moreover, Begg's test ($z = 1.65$, P value = 0.1) showed that there was no publication bias in results. Figure 2 depicts the prevalence of PTSD in all included studies.

3.2.3. Earthquake

Nine studies investigated PTSD following earthquakes. Based on testing the heterogeneity ($\chi^2 = 974.7$, chi-square DF = 9, $P \leq 0.001$) and heterogeneity indices ($I^2 = 99.08\%$ and tau-squared = 0.32), we used a random-effects model to calculate the prevalence. The pooled prevalence of PTSD in these studies was 58% [95% CI (41 - 75)]. Moreover, Begg's

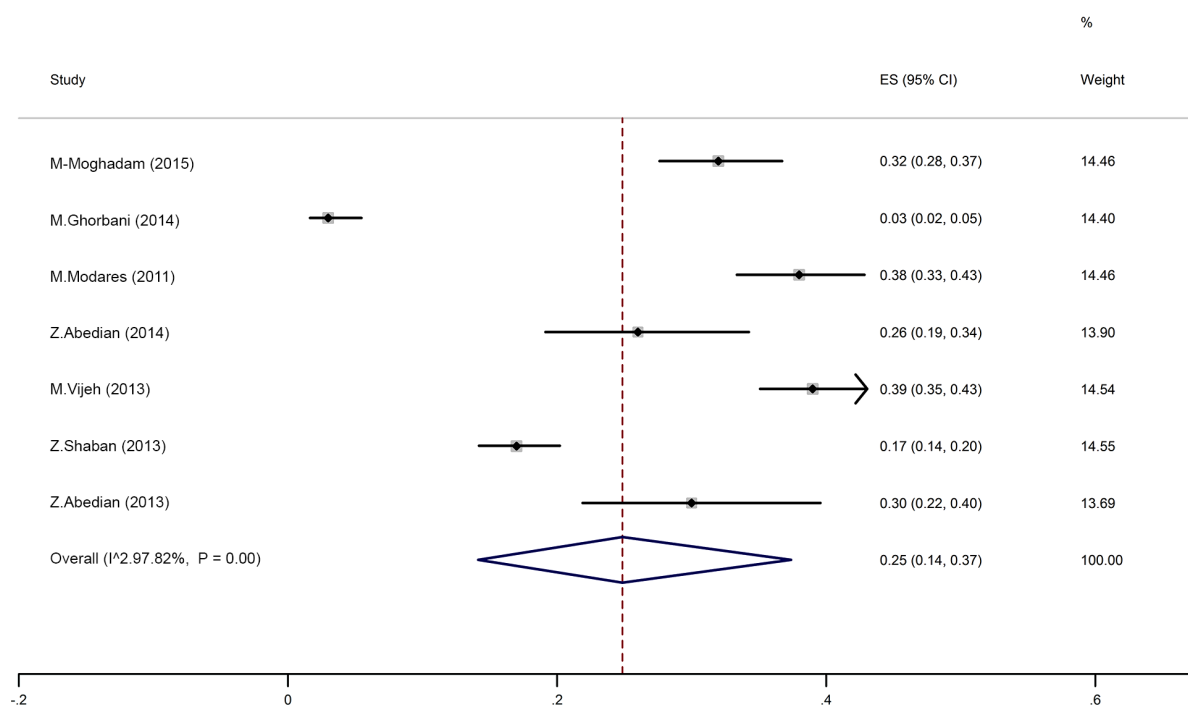


Figure 2. Forest plot for the prevalence of PTSD following childbirth

test ($z = -0.8$, P value = 0.42) showed that there was no publication bias in results. Figure 3 depicts the prevalence of PTSD in all included studies.

3.2.4. War

Nine studies investigated PTSD following the war. Based on the test of heterogeneity ($\chi^2 = 772.9$, chi-square $DF = 9$, $P \leq 0.001$) and heterogeneity indices ($I^2 = 98.84\%$ and tau-squared = 0.25), we used a random-effects model to calculate the prevalence. The pooled prevalence of PTSD in these studies was 47% [95% CI (32 - 63)]. Moreover, Begg's test ($z = 0.45$, P value = 0.65) showed that there was no publication bias in results. Figure 4 depicts the prevalence of PTSD in all included studies. In addition, among these studies, the prevalence of PTSD in four studies (one study reported two prevalence rates) related to the war veterans was 46% [95% CI (27 - 66)] and in three studies related to the civilians was 30% [95% CI (14 - 48)].

3.2.5. Others

Two studies were related to burns and its prevalence was 40% [95% CI (32 - 49)]. Two studies were related to accidents with the prevalence of 11% [95% CI (5 - 21)] and two

studies were related to rape victims with the prevalence of 74% [95% CI (67 - 80)].

4. Discussion

In the current research, the highest prevalence of PTSD was found among earthquake survivors (58%). An earthquake with a magnitude of 6.3 on the Richter scale struck Bam city in Iran on December 27, 2003, that was one of the worst disasters of the century. It was disastrous and left more than 40,000 dead and about 30,000 injured people (22, 39, 42, 52). In some studies on adults survived after a disaster, the PTSD prevalence was reported between 30 and 60% (60-62). The results of our study are in agreement with these results.

According to a study by Dai et al. while the reported incidence of PTSD in survivors recognized < 9 months after an earthquake was 28.76%, the incidence of PTSD was 19.48% for survivors evaluated > 9 months after the earthquake for PTSD (63).

Sex and education level are also explanatory variables for the onset of PTSD after earthquakes. Women and those of low education level were more expected to develop PTSD, less expected to use strategies against distress, more

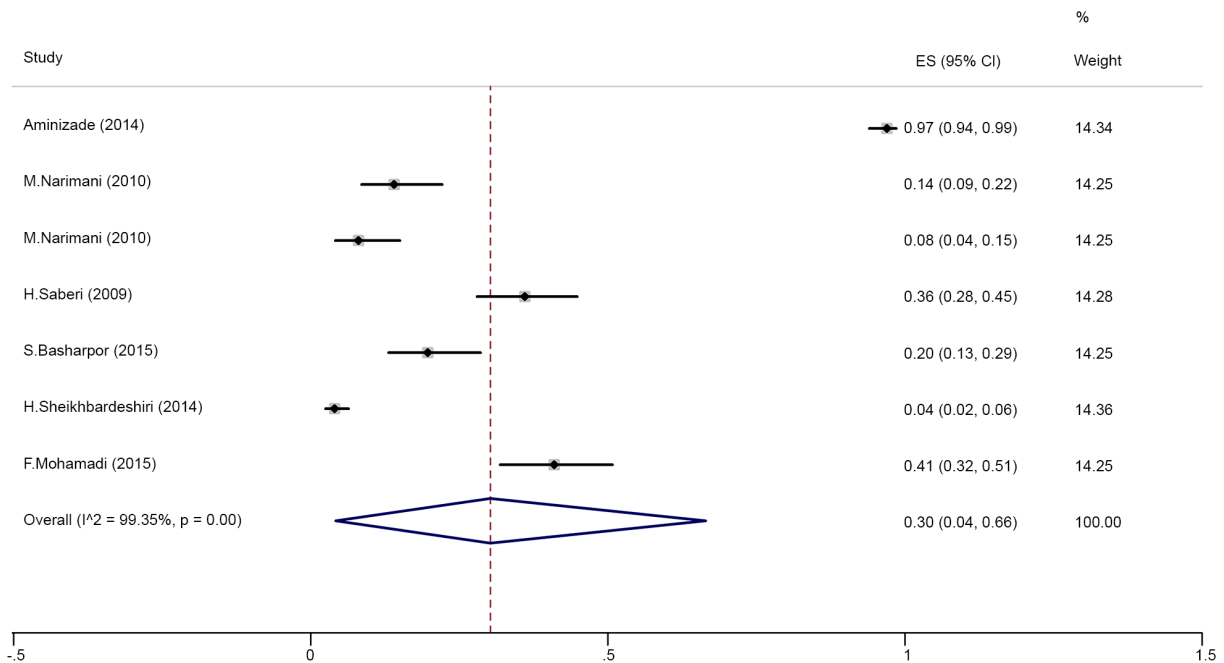


Figure 3. Forest plot for the prevalence of job-related PTSD

susceptible to threats, and more expected to evaluate disasters more negatively (63, 64).

In the current study, there were nine studies associated with wars that reported a prevalence of 47%. Furthermore, PTSD in war veterans was 46% and in the civilians was 30%. The Iran-Iraq War continued from September 1980 to August 1988, with air attacks and heavy artillery fire (37, 53). Exposure to air attacks and massive artillery fire were devastating as they were irregular and people could not avoid or predict its devastating consequences (65). In addition, based on a systematic review in Lebanon during several wars between 1975 and 2006, reported PTSD rates were between 3.7 and 35% (65). According to the mentioned studies, PTSD rates have been increased with time, which is in line with our results.

The rate of PTSD in US military veterans following the Vietnam War varied between 2 and 17% (66). The PTSD prevalence in Australian Vietnam veterans was estimated at 21% in the lifetime and 12% at present (67).

Another study reported that the PTSD rate was 21.6% in the grapes of Wrath War in 1996 and ranged from 15.4 to 35.0% in July 2006 (65). Some of these variations may be associated with the approval of various measures based on various DSM diagnostic measures for PTSD. The gap be-

tween exposure to war violence and data gathering, exposure to different types of war events, and the severity of such exposures can be considered as other factors.

In our study, the prevalence of job-related PTSD was 30%. Our literature review showed that the prevalence of PTSD in rescue workers, in general, ranged from 14% to 36%. In addition, we observed higher PTSD rates in studies carried out among ambulance workers. This is consistent with other studies (68). Several studies have confirmed that rescue operations have a higher risk of PTSD incidence (69, 70). These observations confirm that rescue workers comprise a susceptible group for the incidence of PTSD (71, 72).

According to another study, various occupational groups had different rates of risks for PTSD incidence (68, 73). However, the current study confirms the results of previous studies that ambulance workers have the highest PTSD rates among the occupational population of rescuers (68). The very high rate may be because ambulance workers are exposed to higher anxiety at work compared to other rescue groups (74). A study reported that rescuers from Asia, at least partially, have a higher PTSD prevalence compared to the European counterparts (68).

In our study, seven studies investigated PTSD follow-

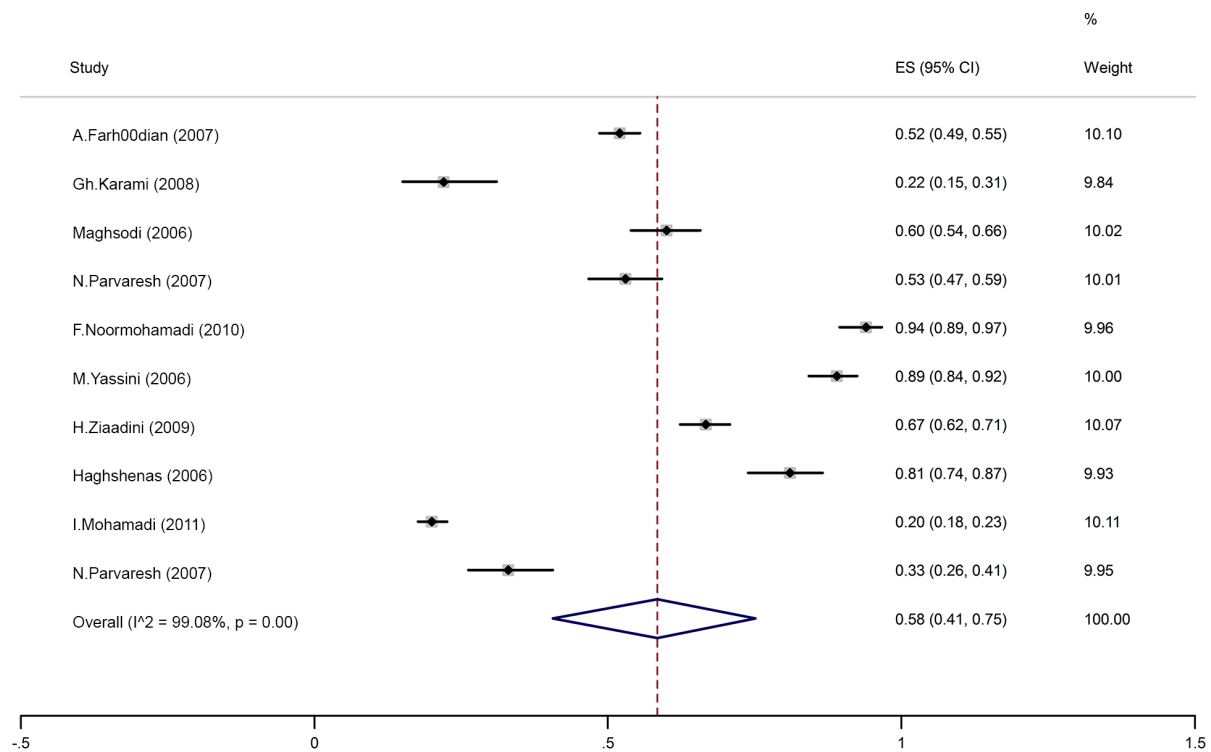


Figure 4. Forest plot for the prevalence of PTSD following earthquakes

ing childbirth and the prevalence of PTSD in these studies was 25%. PTSD after childbirth was first defined by Bydlowski and Raoul-Duval (75) with painful experiences during labor leading to tocophobia and recurrence of tension, nightmares, and flashbacks towards the end of the next pregnancy. Numerous authors afterward suggested that PTSD may occur after distressing labor or delivery (76, 77).

A difficult or traumatic birth may be an important stressor, similar to the known stressors such as violence or war causing PTSD symptoms. The stressful experience is often a pain but loss of control and fear of death can also be a kind of pain (78). Studies accomplished in the USA, Sweden, Germany, the UK, Australia, and Canada have reported a prevalence ranging from 0.9 to 5.6%. There is a meaningful relationship between the creation of PTSD and the control source, the level of social support, and the previous experience of injuries in these studies (75).

In the current study, two studies were related to burn cases, and the reported prevalence was 40%. In other studies, the pain was also associated with PTSD incidence in injured patients including burn patients (79, 80). Moreover, in our study, two studies were related to accidents with the

prevalence of 11% and two studies were related to rape victims with the prevalence of 74%.

Post-traumatic stress disorder in events that cause significant damage should be checked as this disorder develops especially two months after the accident. Driving accidents are responsible for more than 50% of deaths worldwide at the age of 15 - 44 (81). In Iran, driving accidents are the second leading cause of death (82). In a systematic review by Olofsson et al. which examined 12 studies on post-traumatic stress disaster related to accidents, 29% of post-traumatic stress was reported to reduce to 13% after 3 - 6 months of injury (83).

Violence and sexual harassment are of important issues that are considered in many perspectives such as psychological, social, cultural, demographic, political, and health viewpoints, and are observed in all countries and all social, cultural, and religious groups as they affect thousands of women every year. However, it is believed that over 80% of sexual harassment cases are not reported and the actual incidence is higher than what is now reflected (21). The results of a study by Zinzow et al. showed about 30% to 50% of victims developed PTSD after the onset of

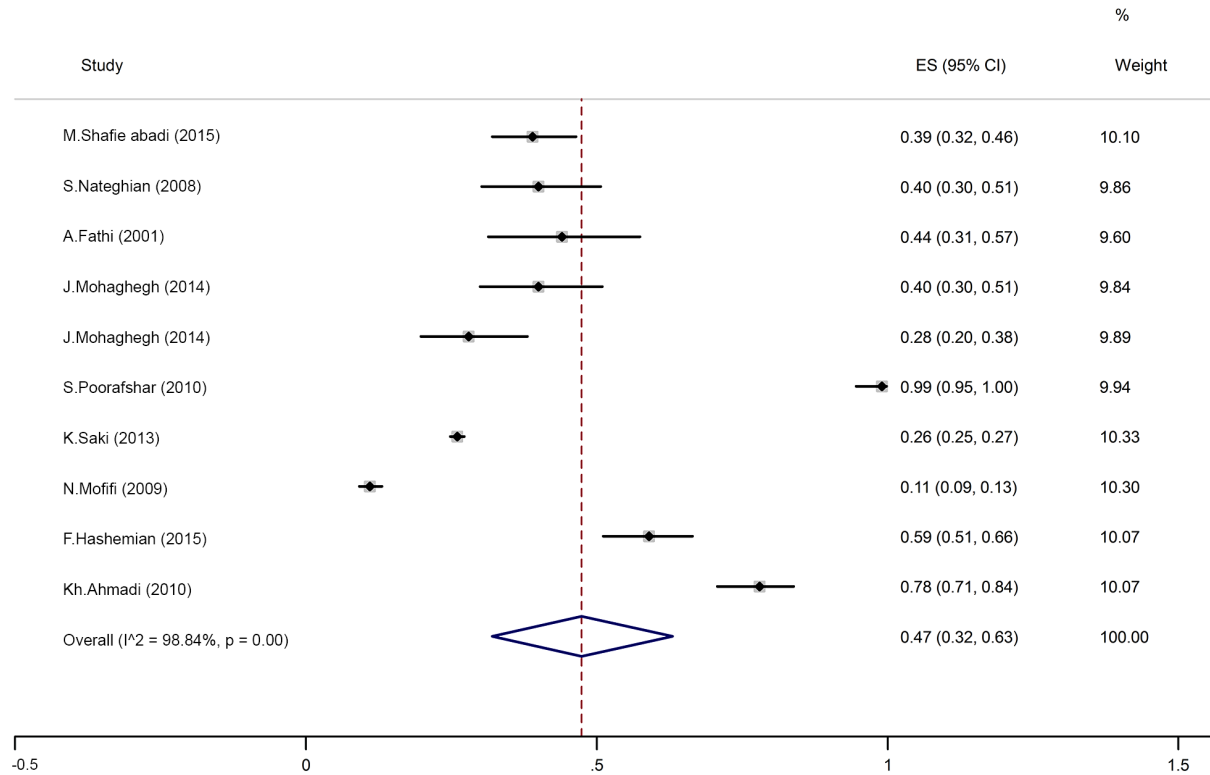


Figure 5. Forest plot for the prevalence of PTSD following the war

PTSD symptoms (84). In addition, in a study by Alynch, the prevalence of PTSD was reported to follow completely different rates. In victims with less experience of sexual harassment, this rate was 4%, and in those with a higher degree of sexual harassment, it was 80% (85).

In this study, our purpose was to carry out a systematic review of the evidence regarding PTSD following the war and disasters that might recommend a direction for research and intervention. Arguably, the available information is sufficient to suggest plausible ranges of PTSD prevalence that can be expected after war and disasters, within the particular exposure groups.

The current study had some limitations. We opted to include a wide range of PTSD studies, with differences in methodologies. In addition, this meta-analysis only included cross-sectional studies, making to understand the temporal order of correlations between explanatory variables and PTSD. This study has several strengths including the fact that this is the first systematic review of PTSD prevalence in the Iranian population.

5. Conclusions

The results suggest that the burden of PTSD among Iranian populations exposed to war and disasters is substantial. PTSD is correlated with a range of factors including sociodemographic and background factors and event exposure characteristics. It is suggested that counseling and treatment services at hospital and community levels be provided to improve the deleterious consequences of war and disasters in these vulnerable groups in the Iranian population.

Footnotes

Authors' Contribution: All the authors contributed to the design, analysis, and writing of the draft. All authors have approved the final manuscript.

Declaration of Interest: The authors have no conflicts of interest to disclose.

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Table 1. Characteristics of Studies

First Author (Ref.)	Year	Year of Event	Duration of Identification	Total Sample Size	Male Sample Size	Female Sample Size	Prevalence	Primary/Secondary PTSD	Natural/Technical PTSD	Age Range	Study Population	PTSD Cause	Tools
Firoozkoobi Moghadam (14)	2015	-	6 to 24 weeks after delivery	400		400	0.33	P	N		Women with childbirth	Childbirth	PSS-I
Naderi (15)	2012	2009-2010	-	256			0.2	S	N	29-75	Parents of children with cancer	Disease	PTSD standard questionnaire according to DSM-IV
Sadeghi-Bazargani (16)	2011	2009-2010	3.5 after event	53			0.31	P	N	16-65	Burn patients	Burn	PCL-DSM-IV-TR
Khajeh Moghahi (17)	2008	2008	3 months after bombing	62	42	20	0.63	P	T	4-6	Children near bombing place	Explosion	Questionnaire for people under 6 years based on DSM-IV
Aminizadeh (18)	2014	2011	-	240	171	79	0.97	P	N		Emergency staff	Job	Mississippi scale
Ghorbani (19)	2014	2011	2 months after childbirth	328	164	164	0.03	P	N	28.2	Woman with preterm and term pregnancy	Childbirth	DSM-IV
Shafiee Kamalahadi (20)	2015	1980-1988	26 years after the war	172	172		0.39	P	N		Veterans	War	Mississippi scale
Kharamin (21)	2013	2011-2012	-	70		70	0.91	P	N	7-40	Victims of rape	Rape	PTSD checklist-clinical interview
Farhoudian (22)	2007	2004	8 months after the earthquake	786			0.52	P	N	15-75	Earthquake survivors	Earthquake	CIDI
Donyavi (23)	2008	2005	-	355	335		0.15	P	N	20-68	Army staff in Tehran	Explosion and Accident	DSM-IV-TR criteria by psychiatrists
Modares (24)	2011	2008	6 to 8 weeks after childbirth	400		400	0.38	P	N	25-30	Pregnant women	Childbirth	PSS-I-DSM-IV
Karami (25)	2008	2004	16 days after event	100	55	45	0.22	P	N	14-32	Earthquake survivors	Earthquake	Interview based on questionnaire
Narimani (26)	2010	2008	-	100	18	82	0.14	P	N		Emergency staff	Job	Mississippi scale
Narimani (26)	2010	2008	-	100	90	10	0.08	P	N		Firefighter staff	Job	Mississippi scale
Khodadadi (27)	2015	2010	1 month after event	89			0.023	P	T	18-65	Victims of road accident	Accident	SIS-PTSD
Saberi (28)	2009	2008	-	121	121		0.36	P	N		Emergency staff	Job	PTSS-10-DSM-IV, IES-15-DSM-IV
Haji Maghsoudi (29)	2016	2004	A few months after the earthquake	259			0.6	P	N	17-18	Earthquake survivors	Earthquake	CPS-DSM-IV
Vasegh Rahimpour (30)	2015	2012-2013	6 weeks after rape	130		130	0.62	P	N	20-30	Rape victims	Rape	PSS-I
Andy (31)	2007	2005	-	80	80		0.47	P	N	20-40	Burn patients	Burn	PSS-I-DSM-IV
Abedian (32)	2014	2013	-	127		127	0.26	P	N		Women with pre-eclampsia	Childbirth	Prenatal Posttraumatic Stress
Parvareh (33)	2007	2003	4 months after the earthquake	243	175	68	0.53	P	N	Under 15	Born students	Earthquake	PPQ
Nateghian (34)	2008	1980-1988	20 years after the war	84	42	42	0.4	P	N	Men:40-49, women:30-39	Spouses of veterans with PTSD	War	Mississippi scale
Fathi Ashtiani (35)	2011	1980-1988	14 years after the war	52	52		0.44	P	N		Psychological war veterans	War	Davidian questionnaire based on semi-structured interviews
Mohaghegh Motlagh (36)	2014	1980-1988	25 years after the war	80	80		0.4	P & S	N		Chemically injured veterans	War	PCLM [U+0648] IES-R
Mohaghegh Motlagh (36)	2014	1980-1988	25 years after the war	89	89		0.28	P	N		No-chemically injured veterans	War	PCLM [U+0648] IES-R
Azampour Afshar (37)	2010	1980-1988	Yearlong	100	100		0.99	S	N		Spouses of veterans	War	Mississippi scale

Vazeh (38)	2013	-	6 to 8 weeks after childbirth	572	0.39	P	N	16-43	Women with childbirth	Childbirth	PSS-I
Noor Mohammadi (39)	2010	2008	-	174	0.94	P	N	15-55	Earthquake survivors	Earthquake	IES-R
Attari (40)	2005	2003	-	200	0.52	S	N	7-11	Students who have seen a suicide	Execution	DSM-IV
Nohi (41)	2007	-	-	100	0.46	P	N	16-60	Aggressive patients	Aggression	DSM-IV
Yassini (42)	2006	2004	3 months after the earthquake	226	0.89	P	N	-	Earthquake survivors	Earthquake	SIP
Said (43)	2013	1980-1988	25 years after the war	510	0.26	P	N	Upper 25	Whole population of Iran	War	New questionnaire specific to war-induced PTSD
Saberi (44)	2013	2012-2013	Road accident yearlong	385	0.19	P	T	35-40	Drivers with more than one-year experience	Road accident	PCL-C
Hemmati (45)	2015	-	years after the war	78	0.25	P	T	9-18	Victims of mine explosion	Mine explosion	DSM-IV
Mirzamani (46)	2007	2005	-	39	0.74	P	T	17-70	Survivors of airplane crash	Airplane crash	PSS
Mofidi (47)	2009	1980-1988	-	1000	0.11	P & S	N	Men 7-50, women 16-55	Population of Kurdistan-Iran	War	PCL
Shaban (48)	2013	2009-2010	6 to 8 weeks after childbirth	600	0.17	P	N	25-30	Women with childbirth	Childbirth	PSS
Abedian (49)	2013	-	-	100	0.3	P	N	Upper 18	Multiparous women with preclampsia	Childbirth	PPQ
Sadat (50)	2015	2014	-	332	0.482	P	N	Men 16-70, women 13-50	Patients discharged from hospitals	Heart disease	PCL
Anirizan (51)	2008	2004-2007	-	100	0.78	S	N	25-35	People seen a suicide	Seeing suicide	DSM-IV-TR
Ziaaddini (52)	2009	2010	10 years after the earthquake	466	0.667	P	N	15-18	Earthquake survivors	Earthquake	DSM-IV-TR
Hashemian (53)	2015	1980-1988	16 years after the war	153	0.59	P	N	18-61	Civilian population	War	CAPS-5
Bashapoor (54)	2015	-	-	100	0.197	P	N	37-53	Emergency staff	Job	Mississippi scale
Sheikhsardiri (55)	2015	2013	-	400	0.04	P	N	-	Emergency staff	Job	Mississippi scale
Hagh-Shenas (56)	2006	2004	40 days after the earthquake	145	0.81	P	N	20-40	Earthquake survivor	Earthquake	PSS
Mohammadi (57)	2015	2015	-	100	0.41	P	N	21-42	Nurses	Job	PCL-C
Haji Maghsoudi (58)	2015	2004	5 months after the earthquake	259	0.6	P	N	17-18	Students	Earthquake	PTSD questionnaire
Ahmad (58)	2010	1980-1988	20 years after the war	150	0.78	P	-	-	Chemically injured veterans	War	Mississippi scale
Mohammadi (59)	2011	2005	10 months after the earthquake	1000	0.2	P	N	13-9 (11-16)	Earthquake survivors	Earthquake	PSS-I
Parvareh (63)	2007	2014	4 months after the earthquake	160	0.33	P	N	Upper 15	Bam city students	Earthquake	Watson PTSD questionnaire

Abbreviations: CAPS-5, clinician-administered PTSD scale for DSM-5; CDI, composite international diagnostic interview; CPSS, child PTSD symptom scale; IES-15, impact of event scale; IES-R, impact of event scale-revised; PCL, PTSD checklist; PCL-C, PTSD checklist-civilian; PCL-M, PTSD checklist-military; PCL-DSM-IV-TR, PTSD checklist-diagnostic and statistical manual of mental disorders-fourth edition-text revision; PPQ, patient pain questionnaire; PSS-I, PTSD symptom scale-interview; PSS, posttraumatic stress disorder symptom scale; PTSS-10, post trauma symptoms scale; PTSD, perinatal post-traumatic stress disorder; SIP, structured interview for PTSD; SIS, PTSD, self-rating scale for PTSD; SIS-PTSD, self-rating scale for post-traumatic stress disorder.