Original Article

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Prevalence of Post-Traumatic Stress Disorder among Civilian Volunteers and Military Soldiers in War against ISIS from Basra City

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ABSTRACT

Background: Violence and aggression rates have been high in Iraq, where people have been subjected to many traumatic events for the past decades [acts of terrorism, explosions, kidnapping, systematized violence, and aggression], and for the past three years (with the advent of ISIS), all that has made them susceptible to posttraumatic stress disorder (PTSD), especially in case of people experiencing trauma at the frontlines (soldiers and civilian volunteers).

Objective: To determine the prevalence of PTSD among civilian volunteers (CV) and military soldiers (MS) participating in the war against ISIS.

Patients and Methods: a cross sectional study done in two major hospital in Basra city, with a sample of 200 subject, 100 from military soldiers and 100 from civilian volunteers. The candidates subjected first to GHQ, then to a special questionnaire for PTSD. P value < 0.05 considered statistically significant.

Results: The prevalence of PTSD was found to be 21% and 47% among CV and MS respectively.

Conclusion: PTSD prevalence is higher among military soldiers than among civilian volunteers.

Keywords: PTSD, civilian volunteers, military soldiers, religious belief.

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INTRODUCTION

Posttraumatic stress disorder [PTSD] is characterized by feelings of sadness, stress, and anxiety most of the time following the subjection to a traumatic event [(1)]. Exposure to traumatic events can involve experiencing or witnessing an event that invokes the feelings of fear and being in danger, such as terrorist attacks [(2)], natural disasters, automobile or airplane crashes, kidnapping, physical and sexual abuse, family and community violence, or being diagnosed with life threatening disease [(1-3)]. In areas where the violence and aggression rates are high, as in Iraq, where people have been subjected to many traumatic events for the past decades [(terrorism, explosions, kidnapping, systematized violence and aggression) [(4, 5)], and which have intensified in the past three years with the Islamic State of Iraq and Syria (ISIS); all this makes the population vulnerable to PTSD. However, few studies has been conducted in Iraq to examine the prevalence of PTSD in Iraq [(4)].

The symptoms of the disorder can be summarized as the following [(1, 6)].

Hyperarousal state characterized by unresolved physiological arousal, which gets manifested by irritability, nervousness, and bursts of anger [(6)].

Avoidance of places, events, and objects which remind the person of the painful experience.

Intrusion, which involves re-experiencing traumatic events.

Flashbacks [reliving the incident, with physical symptoms like sweating, dyspnea, or increased heartbeat] and nightmares or frightening thoughts while awake.

Numbness of emotions, anhedonia, trouble remembering the traumatic event or the surrounding events, and possible dissociation [(1,6)].

The predisposing (vulnerability) factors for PTSD include childhood trauma, personality disorder (borderline dependent, paranoid, or antisocial), inadequate family or peer support, recent stressful life event(s), genetic susceptibility to psychiatric diseases, perception of an external locus of control (natural cause) rather than a human one, excessive alcohol intake, gender [(1)],war zone exposure, peri-traumatic dissociation, depression [(7)].

The protective factors from PTSD include high school degree or college education, higher age at the time of fighting a war (when part of the military), higher socioeconomic status, positive paternal relationship (pre-military factors), social support at returning home, and Japanese/American ethnicity. In addition, soldiers who believe in their cause and anticipate their injuries are less likely develop PTSD than those who do not [(8)].

THE AIM OF THE STUDY

1. To determine the prevalence of PTSD among Iraqi soldiers and the civilian volunteers in the war against ISIS.

2.To examine the relationship between PTSD and influencing variables, such as age, educational level, residence, marital status, and presence of physical trauma).

SUBJECTS AND METHODS

A cross sectional study was conducted in two major hospitals in Basra city: the Al Basra General Hospital, ward of civilian volunteers in war against ISIS and the outpatient psychiatry clinic and second the Al Fayhaa General Hospital, the military ward and the outpatient psychiatry clinic. Over seven months (from March to September 2017), 100 candidates of

civilian volunteers (CV) in war against ISIS, and 100 candidates of military soldiers (MS) of the Iraqi army whom served in the war against ISIS were selected randomly, as we included patients in the civilian volunteers ward and military ward without any exclusion criteria; all participants had been in service for at least 6 months. Informed consent was taken first, and the interview was conducted by the author. Daily visits were made to the wards during the daytime to include new inpatients in the study. Patient turnover was low as they needed surgical intervention and recovery. The outpatient clinics of both hospitals were visited two days per week, and CVs and MSs were included if they were visiting the clinic.

The candidates were subjected to an initial interview with the general health questionnaire (GHQ) which was used to detect probable cases of psychiatric morbidities among the community. It was a self-rating questionnaire consisting of 30 items. We used the Arabic version of GHQ-30 of Goldberg (1972) translated by a group of psychiatrists at the Al Rashid Military Hospital and then retranslated by Assistant Professor R. Alazzawi to the Arabic language [(9)].

The four GHQ response categories were the following:

• Code 1: not all – score zero.
• Code 2: not more than usual – score zero.
• Code 3: rather more than usual – score one.
• Code 4: much more than usual – score one.

Thus, the range of the scores was from zero to thirty.

Codes 3 and 4 considered cases and patients who scored >5 out of 30 questions; these were identified, as per the General Health Questionnaire, as probable cases of psychiatric disorder.

The candidates were then interviewed using a special questionnaire form developed for the purpose of this study, which is the self-rating inventory for PTSD; it was used in its 22-item diagnostic version to differentiate subjects with probable PTSD from those without it as per a cutoff of 6 questions [(10)].

The items reflected the 17 PTSD core symptoms according to the B, C, and D criteria in DSM IV [(1)].

All items were scored on a four point scale, measuring the intensity of each symptom, where codes 3 and 4 considered affirmative measures. If at least one item from criterion B (intrusion), 3 items from criterion C (avoidance), and 2 items from criterion D (hyperarousal) applied, the candidates were identified as probable PTSD cases. A second assessment was done whenever it was necessary with a second interview to clarify the PTSD symptomatology.

All the subjects experienced war conditions and were at the frontline during the battle, and some of them were subjected to physical trauma in addition to the psychological trauma.

Additionally, demographic data were obtained (age, residence, educational level, and marital status) along with the presence of physical trauma also reported.

Statistical Package of Social Science Version 11 (SPSS 11) was used to analyze the data. Chi-square test was used to determine the association between different variables and a P value < 0.05 was considered to be statistically significant.

RESULTS

The 200 participants in the study were selected by simple randomization: 100 from MS and 100 from CV from the wards of two major hospitals in Basra city.

There were 21 candidates (21%) of the CV who fulfilled the symptoms criteria for PTSD and were regarded as cases of PTSD and 79 (79%) were considered non cases.
Among the MS, there were 47 (47%) who were found to be valid cases and 53 (53%) were non cases. (Table 1). The difference in the prevalence of PTSD among CV and MS was statistically significant (chi square=15.062, df=1, P-value=0.0001).

While the GHQ predicted that 18 and 38 candidates to had psychiatric problems from CV and MS respectively, 21 and 47 of CV and MS respectively had PTSD according to the PTSD questionnaire (Table. 2).

Relation of the prevalence of PTSD with demographic characteristic
The prevalence of PTSD is linked to the following demographical data including age, marital status, educational level, residency, and presence of serious physical illness.
1. Age
The age of the sample ranged from 17–45 years, with the mean being 31±2 years.
The highest percentage of PTSD prevalence among the CV was in the age group of 17– 25 years with 10 candidates (47.6%) compared to 9 (11.45%) of non-cases, and it is also the age group with highest prevalence among MS with 22 candidates (46.8%) compared to 14 (26.4%) of non-cases. The lowest prevalence of PTSD was in the age group of 36–45 years in both groups. According to GHQ, 8 and 20 candidates of CV and MS respectively in the age group 17–25 years were possibly suffering from psychiatric disorders.
The association between age and development of PTSD was statistically significant for the CV group (chi-square= 15.156, df=2, P value =0.001), but statistically, no difference for MS (chi-square=4.524, df=2, P value=0.104). (Table. 3) was obtained.

2. Marital status
Among the CV, the number of single candidates was 9 and 6 (28.6%) of them were found to be cases, while the number of married candidates was 88, and 13 (62%) of them were cases; the GHQ had predicted 10 married candidates to have psychiatric disorders. The number of divorced candidates was 2, and 1 (4.7%) of them was a case; the number of separated candidates was 1 and the candidate was a case, while there were no widowed candidates among the civilian volunteer group.
Among the MS, the number of single candidates was 28, and 21 (44.7%) of them were cases; the number of married candidates was 66, and 20 (42.6%) of them were cases; the number of divorced candidates was 2, and both were cases; the number of widowed candidates was 1 and it was a case; and the number of separated candidates was 3, and they were all cases. GHQ found that married candidates cases were higher than single ones in contrast to the findings of the PTSD questionnaire (Table 4).
Statistical association between marital status and PTSD was significant (chi-square=18.146, df=3, P value=0.0001) for CV and for MS (chi-square=19.581, df=4, P value=0.001).

3. Educational level
Among CV, the number Of literate candidates was 20 and 2 (9.5%) of them were cases compared to 18 (22.8%) non-cases; the number of primary school graduates was 39, and 11 (52.4%) of them were cases, which is the highest prevalence of PTSD among CV compared to 28 (35.4%) non-cases. GHQ found 9 cases to probably have psychiatric disorders. The number of secondary school graduates was 36, and 8(38.1%) of them were cases compared to 28 (35.4%) of non-cases, and the number of university graduates was 5, out of which none of them was a case.
Among the MS, 15 subjects were just literate, 5 (10.6%) of them were cases compared to 10 (18.9%) non-cases; 39 were primary school graduates, and 25 (53.2%) of them were cases compared to 14 (26.4%) non-cases, while GHQ

found 22 cases to possibly have psychiatric issues, which is the highest prevalence of PTSD in relation to educational level (Table. 5)
The association between educational level and PTSD was statistically significant for MS (chi-square=8.542, df=3, P value=0.03), but it was of no significance statistically for CV (chi-square=4.041, df=3, P value=0.257).

4. Residency
Among CV, 68 were from a rural area, 13 (62%) of which were cases, and 32 were from an urban area, 8 (38%) of which were cases. GHQ predicted 12 and 6 cases from rural and urban areas respectively to have psychiatric disorder.
Among MS, 53 were from rural areas, 28 (59.6%) of which were cases, whereas 47 were from urban areas, 19 (40.4%) of which were cases. GHQ predicted 24 and 14 cases from rural and urban areas respectively to have psychiatric issues (Table. 6)
Statistically, the association between residency and PTSD was of no significance.

5. Exposure to Serious Physical Injury
Fifty five CV candidates were exposed to serious physical injury, and 17 (81%) of them were found to be cases of PTSD, while GHQ predicted that 16 candidates probably had psychiatric problems; 57 MS candidates were subjected to serious physical injury, and 35 (74.5%) of them were cases of PTSD, while GHQ predicted 32 to have psychiatric issues (Table. 7).
The connection between exposure to serious physical trauma and subsequent development of PTSD was statistically significant.

Table 1: The difference in PTSD prevalence among the candidates of the study

PTSD	Civilian volunteers		Military soldiers	
	NO	%	NO	%
With	21	21	47	47
Without	79	79	53	53
Total	100	100 %	100	100%

(chi-square=15.062, df=1, P value=0.0001)

Table 2: The validation assessment between GHQ and the PTSD questionnaire

GHQ	PTSD questionnaire			
	Civilian volunteers		Military soldiers	
	cases	non cases	cases	non cases
Probable cases	18 (true +ve)	15 (false +ve)	38(true +ve)	10 (false +ve)
Non probable cases	3 (false -ve)	64 (true -ve)	9 (false-ve)	43 (true-ve
Total	21	79	47	53

Table 3: The prevalence of PTSD according to age group among CV and MS

Age group	CV					MS				
	Total	GHQ		PTSD Questionnaire		Total	GHQ		PTSD Questionnaire	
		cases	Non	Cases	Non		cases	Non	cases	Non
17–25yrs	19	8 44.4%	11 13.4%	10 47.6%	9 11.4%	36	20 52.6%	16 25.8%	22 46.8%	14 26.4%
26–35yrs	31	6 33.3%	25 30.5%	6 28.6%	25 31.6%	35	10 26.3%	25 40.3%	14 29.8%	21 39.6%
36–45yrs	50	4 22.2%	64 56.1%	5 23.8%	45 57%	29	8 21.1%	21 33.9%	11 23.4%	18 34%
Total	100	18 100%	82 100%	21 100%	79 100%	100	38 100%	62 100%	47 100%	53 100%

CV (chi-square=15.156, df=2, P value =0.001) MS (chi-square=4.524, df=2, P value=0.104)

Table 4: The prevalence of PTSD among the civilian volunteers according to marital status

Marital Status	CV					MS				
	Total	GHQ		PTSD Questionnaire		Total	GHQ		PTSD Questionnaire	
		cases	Non	Cases	non		cases	non	Cases	non
Single	9	5 27.8%	4 4.9%	6 28.6%	3 3.8%	28	17 44.7%	11 17.7%	21 44.7%	8 15.1%
Married	88	10 55.6%	78 95.1%	13 62%	75 95%	66	18 47.4%	48 77.5%	20 42.6%	45 84.9%
Divorced	2	2 11.1%	0 0%	1 4.7%	1 1.2%	2	1 2.6%	1 1.6%	2 4.2%	0 0%
Widowed	0	0 0%	0 0%	0 0%	0 0%	1	0 0%	1 1.6%	1 2.1%	0 0%
Separated	1	1 5.5%	0 0%	1 4.7%	0 0%	3	2 5.3%	1 1.6%	3 6.4%	0 0%
Total	100	18 100%	82 100%	21 100%	79 100%	100	38 100%	62 100%	47 100%	53 100%

CV=(chi-square=18.146, df=3, P value=0.0001). MS=(chi-square=19.581, df=4, P value=0.001)

Table 5: The prevalence of PTSD among CV and MS according to educational level

Educational level	CV					MS				
		GHQ		PTSD Questionnaire		Total	GHQ		PTSD Questionnaire	
	Total	cases	non	cases	non		cases	non	cases	non
Literate	20	2 11.1%	18 22%	2 9.5%	18 22.8%	15	4 10.5%	11 17.7%	5 10.6%	10 18.9%
Primary school	39	9 50%	30 36.6%	11 52.4%	28 35.4%	39	22 57.9%	17 27.4%	25 53.2%	14 26.4%
Secondary school	36	6 33.3%	6 33.3%	8 38.15	28 35.4%	37	10 26.3%	27 43.5%	15 32%	22 41.5%
University	5	1 5.56%	4 4.8%	0 0%	5 6.3%	9	2 5.2%	7 11.3%	2 4.2%	7 13.2%
Total	100	18 100%	82 100%	21 100%	79 100%	100	38 100%	62 100%	47 100%	53 100%

MS group (chi-square=8.542, df=3, P value=0.03), CV group (chi-square=4.041, df=3, P value=0.257).

Table 6: The prevalence of PTSD among CV and MS according to residency

Residency	CV					MS				
	total	GHQ		PTSD Questionnaire		total	GHQ		PTSD Questionnaire	
		cases	non	cases	non		cases	non	cases	non
Rural	68	12 66.7%	56 68.3%	13 62%	55 69.6%	53	24 63.1%	29 46.8%	28 59.6%	25 47.2%
Urban	32	6 33.3%	26 31.7%	8 38%	24 30.4%	47	14 36.9%	33 53.2%	19 40.4%	28 52.8%
Total	100	18 100%	82 100%	21 100%	79 100%	100	38 100%	62 100%	47 100%	53 100%

CV=(chi-square=0.454, df=1, P value=0.5), MS=(chi-square=1.539, df=1, P value=0.2)

Table 7: The prevalence of PTSD among CV and MS in relation to exposure to serious physical injury

Physical trauma	CV					MS				
	total	GHQ		PTSD Questionnaire		total	GHQ		PTSD Questionnaire	
		cases	non	cases	non		cases	non	Cases	Non
With	55	16 88.9%	39 47.6%	17 81%	38 48.1%	57	32 48.2%	25 40.3%	35 74.5%	22 41.5%
without	45	2 11.1%	43 52.4%	4 19%	41 51.9%	43	6 15.8%	37 59.7%	12 25.5%	31 58.5%
Total	100	18 100%	82 100%	21 100%	79 100%	100	38 100%	62 100%	47 100%	53 100%

CV group (chi-square=7.234. df=1, P value=0.007), MS group (chi-square=11.040, df=1, P value=0.001)

DISCUSSION

Our study found that the prevalence of PTSD among the sample CV was 21%, while among the MS, it was 47%. The difference between the two groups can be attributed to the following reasons: the CV took part in war against ISIS by choice due to their strong belief in their cause, and this factor may not be present in the MS, and it could be a protective factor against PTSD. The moral and religious belief that the CV hold (in their different factions), which is a cornerstone in the formation of the civilian volunteer organization, is not present in MS to that extent and might play a role as a protective factor for the CV. Overall, the mass effect and the social role along with social perceptions of CV (which drove them to play the role of what was expected of them) and the longer period of service for MS, which could have subjected them to more traumas cumulatively, are all factors that could have contributed to the lowered prevalence of PTSD in CV compared to MS, although the former were subjected to the same circumstances in the war against ISIS.

In this study, we found that the prevalence of PTSD among the civilian volunteers and military soldiers was 21% and 47%, respectively, which is higher than the results of a study conducted by Faraj among Kurdish soldiers in the Iraqi army, presenting a prevalence of PTSD about 13.4% [(3)]. Another study conducted by Hines et al [(11)], revealed a prevalence of PTSD (14.4%) in American soldiers deployed in Iraq. Our study results were to an extent similar to that of Fawziya et al. study on Kuwaiti soldiers in terms of prevalence, which was found to be 31.5% [(12)].

According to age, the prevalence of PTSD was higher among the age group 17–25 years old in both groups: 47.6% in CV and 46.8% in MS, which is consistent with the results of another study done by Yousif [(13)] and another in US [(14)], which found that this age group was more vulnerable to trauma and hence PTSD.

The study found that the subjection to serious physical trauma was of great influence on the development of PTSD, since the prevalence was 81% among CV and 74.5% among MS, which reveals that the occurrence of both psychological and physical trauma will increase the likelihood of PTSD; this is consistent with the results of a study done by Pietrzak et al. [(14)].

The highest prevalence of PTSD was among the married (62%) in CV group, followed by the single (28.6%), while among MS, the single group showed the highest prevalence (44.7%) followed by the married group (42.6%). A study done by Carlos Osório et al. revealed an increased percentage among the single 64.4% [(15)]. This difference of results might be due to the fact that the majority of the sample of the civilian volunteers were married as per the social norm of the Iranian society.

The highest percentage of PTSD was among primary school graduates in both groups, which is consistent with the results of another study done in the US [(15)]. In our study we didn't find a statistical significance between educational level and PTSD.

This study revealed a higher prevalence of PTSD among subjects from rural areas in both groups: 62% and 59.6% in CV and MS respectively, but we found no statistical significance between the residency and development of PTSD, similar to the findings in a study done by Erickson et al. [(16)]. However, another study done in China by Fan et al. [(17)] found a statistically significant relationship between the two, and this difference can be explained by the difference in the sampling process, because the majority of our subjects in the study were from rural areas.

We recommend further studies on CV and MS engaged in war against the ISIS to detect the development of delayed PTSD, which is common in those subjects. Increasing awareness and educating society about the symptoms of PTSD is necessary so subjects may seek psychiatric help more often. More attention should paid to the psychiatric needs of the subject deployed in combat situations along with a management plan for those in need of treatment and referral to specialized centers such as Sarah Centre for non-pharmacological treatment.

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