

PREVALENCE OF POSTTRAUMATIC STRESS DISORDER AMONG MEDICALSTAFF WHO WITNESSED NINEVEH CONFLICT

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ABSTRACT

Background: Post-Traumatic stress disorder (PTSD) is an anxiety disorder, persisting for at least one month in survivors of traumatic events. Unlike most other mental disorders, the diagnostic criteria for PTSD specifies an etiological factor namely the traumatic events. Objectives: The study is aiming to estimate the prevalence of PTSD among medical staff who witnessed Nineveh conflict between June 2014 and July 2017. Methods: A cross sectional study using online questionnaire which is sent anonymously to variant health care providers in Nineveh directorate of health who witnessed Nineveh conflicts during the period between June 2014 and July 2017. The study conducted over one month period from December 19th, 2019 to January 19th, 2020 Results: The total studied sample was 328 health personnel. One hundred eighty six of them were physicians and 142 were nurses and medical ancillary staff. Overall, PTSD diagnosis has been elicited in 62 out of 328 giving an overall prevalence of 19%, with no significant difference between physicians and other healthcare professionals. Conclusion: PTSD symptoms are highly prevalent among health staff who witnessed Nineveh conflict. PTSD was present in all medical specialties; therefore, it is important for governmental and non-governmental organizations to provide support for this population in particular.

KEYWORDS: Post traumatic stress disorders, Nineveh, Mosul, Iraq.

INTRODUCTION

War destroys communities and families and often disrupts the development of the social and economic fabric of nations.^[1] WHO estimated that the most common conditions are depression, anxiety and psychosomatic problems such as insomnia.^[2]

Medical staff working in an environment of armed conflict faces situations where patients have overwhelming injuries.^[3] There is often limited access to medical resources to provide treatment.^[4] and the medical staff themselves may be in danger.^[5] due to the security situation as well as the capacity to deal with other medical priorities.^[6] In such circumstances, treatment may not be technically or physically possible, and there may be no option to transfer care to other facilities.^[7]

Post-Traumatic stress disorder (PTSD) is an essential

manifestation of the brain's attempts to cope with trauma and failing to do so adequately. With PTSD in health personnel, the sufferer will often recall and re-experience the specific trauma of war; they will also react strongly to anything that reminds them of the trauma and begin to avoid anything they associate with it.^[8]

In addition to the conflict in Mosul (the capital of Nineveh governorate) being the major event leading to PTSD in those subjects.^[9] some other relevant risk factors may play role including,^[1] (being female gender),^[2] encountering longer duration of the traumatic event,^[3] experiencing violence at home,^[4] having a learning disability or mental disorder prior to the traumatic event, as well as.^[5] lack of social support.^[10]

PTSD is diagnosed at least one month after the time a traumatic event has occurred.^[11] Evaluation done by performing a complete medical history and physical exam.^[12] There are no laboratory tests to specifically

diagnose PTSD.^[13] Treatment of PTSD includes psychotherapy or medications, aiming to improve daily functioning, and to help the person better cope with the event that triggered the disorder.^[14] In Nineveh healthcare system, such support is not readily available.

There have been no earlier studies to look at the prevalence of PTSD among healthcare providers (HCP) who witnessed different wars/conflicts in Iraq. The aim of this study is to estimate the prevalence of PTSD among medical staffs who witnessed Nineveh conflict between June 2014 and July 2017 and to evaluate for possible contributing factors.

PATIENTS AND METHODS

A cross sectional study conducted at Nineveh Governorate, in which there are about 3.500.000 inhabitants. Using computer application called Survey Monkey; the questionnaire was especially designed. The survey was sent online via (Facebook messenger application) directed to members of different Facebook groups of medical staff in Nineveh. All those witnessed Mosul conflicts during the period between June 2014 and July 2017 to respond to the questionnaire.

Data collection was done over one month period between December 19th, 2019 to January 19th, 2020.

The survey was especially designed to provide information on the Post traumatic stress disorders after thorough review of the literature.^[8-13] The questionnaire was composed of 2 parts, the first covered demographic information of participants including gender, age, marital status and educational level, site of work, medical specialty and duration of stay in Mosul during the events, as well as presence at time of Mosul liberation. The second part represented 45 of specific PTSD questions using the forth part of Iraqi version of the Harvard Trauma Questionnaire (HTQ).^[15] A score of 3 or 4 on at least 1 of 4 re-experiencing symptoms, and at least 3 of 7 avoidance and numbing symptoms, and at least 2 of 5 arousal symptoms were considered as diagnostic of PTSD.

Ethical approval was obtained from Nineveh health directorate. The questionnaire was anonymous and did not include any data on name / date of birth or other personal identifiers. Furthermore, the participation was voluntary with assuring the confidentiality of responses.

Data was analyzed using SPSS (Statistical Package for Social Sciences) software, version 20 (IBM, Chicago, Illinois, US). Number and percentage (%) of respondents in each group, as well as prevalence of PTSD in different specialties / other HCP's groups was calculated. Demographic characteristics were reported and compared between physicians and other HCPs using Chi-squared (χ^2) test. Contributing factors for positive PTSD diagnosis were evaluated using Chi-squared (χ^2)

test. A p value of < 0.05 was considered as statistically significant.

RESULTS

The total studied sample was 328 health personnel, 186 of them were physicians and 142 were nurses and medical ancillary staff (other HCP). Overall PTSD diagnosis was made in 62 out of 328 (19%). PTSD was diagnosed among 30 out of 186 physicians (16%) and 32 out of 142 other HCP (23%), with no significant difference in the prevalence between the two groups, $p=0.142$.

Demographic characteristics of those responded to the survey are shown in table 1, with differences between physicians compared to other HCP, physicians were significantly more likely to be females, older age, worked in a hospital, had shorter stay in Mosul during the conflict, and were present inside the city at time of liberation.

Prevalence of PTSD in physicians among different specialties is illustrated in table 2, ranging from 9%-10% in pediatric/medicine specialties to 42% in those working in laboratory. Among other HCP, 13 out of 54 nurses (24%) were meeting criteria for diagnosis of PTSD, as well as 9 out 36 (25%) of laboratory technicians.

Looking at different characteristics as contributing factors for PTSD (table 3), the only significant factor found was being female (32% of those found to have PTSD were females, compared to 20% females in non-PTSD group, $p=0.047$). There was a trend for being unmarried and for younger age ≤ 35 years to be contributing factors for PTSD ($p=0.052$ and $p=0.082$, respectively). Being female or unmarried were also found as significant contributing factors when compared in participants from other HCP (table 4), while there was no significant difference among those when compared in physicians participants (table 5). In addition, other HCP who had experience < 5 years were at more risk of having PTSD (64% compared to 41%, $p=0.022$).

Table 1: Demographic characteristics of those taking survey (N=328).

Characteristic	All (N=328)	Physicians N=186	Other HCPN=142	P value
PTSD diagnosis	62 (19%)	30 (16%)	32 (23%)	
Female sex	73 (22%)	51 (28%)	21 (15%)	0.007
Age: - < 25	11 (3%)	0 (0%)	11 (8%)	<0.001
• 25-34 years	167 (51%)	86 (46%)	81 (57%)	
• 35-44 years	113 (35%)	72 (39%)	41 (29%)	
• ≥ 45 years	37 (11%)	28 (15%)	9 (6%)	
Married	262 (80%)	143 (77%)	119 (84%)	0.121
Specialty				<0.001
• Medicine	33 (10%)	21 (11%)	12 (9%)	
• Pediatric	27 (8%)	22 (12%)	5 (4%)	
• Surgery	65 (20%)	45 (24%)	20 (14%)	
• OB/GYN	12 (4%)	6 (3%)	6 (4%)	
• Lab	48 (15%)	12 (7%)	36 (25%)	
• Other Major	12 (4%)	12 (7%)	0 (0%)	
• Other-multiple specialties	131 (40%)	68 (37%)	63 (44%)	
Physician level				NA
• Consultant		6 (3%)		
• Specialist		40 (22%)		
• Resident in training		69 (37%)		
• Senior house officer		32 (17%)		
• Intern		30 (16%)		
• Primary care		9 (5%)		
Job title				NA
• Lab tech			36 (25%)	
• Nurse			54 (38%)	
• Nursing assistant			9 (6%)	
• Pharm tech			4 (3%)	
• Radiographer			4 (3%)	
• Other			33 (23%)	
Location of Work				0.008
• Hospital inside Mosul	177 (54%)	111 (60%)	66 (47%)	
• Hospital outside Mosul	55 (17%)	28 (15%)	27 (19%)	
• Nineveh Health	19 (6%)	8 (4%)	11 (8%)	
• Primary care inside Mosul	34 (10%)	24 (13%)	10 (7%)	
• Primary care Outside	34 (10%)	13 (7%)	21 (15%)	
Thinks most dangerous placeis				<0.001
• ER	270 (82%)	172 (93%)	98 (69%)	
• Inside hospital / wards	29 (7%)	8 (4%)	21 (15%)	
• Operating theatres	17 (5%)	1 (1%)	16 (11%)	
• Primary care clinics	8 (2%)	3 (2%)	16 (11%)	
Duration of stay in Mosul				0.002
• < 1 year	104 (32%)	70 (38%)	34 (24%)	
• 1-2 years	23 (7%)	9 (5%)	14 (%)	
• > 2 years	197 (60%)	107 (58%)	90 (63%)	
Stay at Mosul freedom				0.001
• Inside Mosul – Left band	169 (52%)	108 (58%)	61 (43%)	
• Inside Mosul – Rightband	51 (16%)	60 (32%)	33 (23%)	
• Outside Mosul	108 (33%)	18 (10%)	48 (34%)	

HCP: Health care professionals

Table 2: Prevalence of PTSD among different specialties / health care professionals' groups (n=328).

Group	Total number	PTSD diagnosis	PTSD %
Physicians, n=186, PTSD in 30/186 (16%)			
Medicine	21	2	10%
Pediatric	22	2	9%
Surgery	45	7	16%
OBGYN	6	0	0%
Laboratory	12	5	42%
Other – multiple specialties	68	10	15%
Other healthcare professionals, n=142, PTSD in 32/142 (23%)			
Nurses	54	13	24%
Lab technician	36	9	25%
Nursing assistant	9	0	0%
Pharmacy tech	4	1	25%
Radiographer	4	1	25%
Others	46	9	20%

Table 3: Comparison between those with PTSD vs without PTSD among all participants in the survey (N=328).

Characteristic	No PTSD 266 (81%)	PTSD 62 (19%)	P value
Physicians, n (%)	156 (59%)	30 (48%)	0.142
Other healthcare professionals, n (%)	110 (41%)	32 (52%)	
Female sex, n (%)	55 (20%)	20 (32%)	0.047
Age <=35 years, n (%)	130 (49%)	37 (60%)	0.082
Unmarried, n (%)	48 (18%)	18 (29%)	0.052
Surgery Specialty, n (%)	53 (20%)	12 (19%)	0.919
Works in Hospital, n (%)	190 (71%)	42 (68%)	0.566
> 2 years stay in Mosul during events, n (%)	162 (61%)	35 (57%)	0.519
Stay inside Mosul during 2014-17, n (%)	181 (68%)	39 (63%)	0.438
Present in right band at Mosul freedom, n (%)	40 (15%)	11 (18%)	0.597

PTSD: post traumatic stress disorder

Table 4: Comparison between those with PTSD vs without PTSD among other healthcare professionals participated in the survey (N=142).

Characteristic	No PTSD 110 (77%)	PTSD 32 (23%)	P value
Female sex, n (%)	12 (10%)	11 (32%)	0.002
Age <=35 years, n (%)	61 (56%)	20 (63%)	0.479
Unmarried, n (%)	13 (12%)	10 (31%)	0.009
Surgery Specialty, n (%)	15 (14%)	5 (16%)	0.776
Works in Hospital, n (%)	75 (68%)	18 (56%)	0.211
> 2 years stay in Mosul during events, n (%)	70 (64%)	20 (63%)	0.907
Stay inside Mosul during 2014-17, n (%)	75 (68%)	19 (59%)	0.354
Present in right band at Mosul freedom, n (%)	27 (25%)	6 (19%)	0.494
Works as a Nurse, n (%)	41 (37%)	13 (41%)	0.731
Healthcare experience < 5 years, n (%)	46 (41%)	21 (64%)	0.022

PTSD: posttraumatic stress disorder

Table 5: Comparison between those with PTSD vs without PTSD among physicians participated in the survey (N=186).

Characteristic	No PTSD 156 (84%)	PTSD 30 (16%)	P value
Female sex, n (%)	43 (27%)	9 (30%)	0.745
Age <=35 years, n (%)	69 (44%)	17 (57%)	0.211
Unmarried, n (%)	35 (22%)	8 (27%)	0.615
Surgery Specialty, n (%)	38 (24%)	7 (23%)	0.904
Works in Hospital, n (%)	115 (74%)	24 (80%)	0.468
> 2 years stay in Mosul during events, n (%)	92 (59%)	15 (50%)	0.362

Stay inside Mosul during 2014-17, n (%)	106 (68%)	20 (67%)	0.891
Present in right band at Mosul freedom, n (%)	13 (8%)	5 (17%)	0.157
Resident in training, n (%)	59 (38%)	10 (33%)	0.641
Specialist or Consultant, n (%)	36 (23%)	10 (33%)	0.233

PTSD: posttraumatic stress disorder

DISCUSSION

Post-Traumatic stress disorder (PTSD) is an anxiety disorder, persisting for at least one month in survivors of traumatic events. Medical workers are at increased risk of PTSD. The prevalence found in this study is considered to be high.

In comparison to other study which was conducted in Mosul city in early 2012 among general population, where prevalence of PTSD was 21.70%.^[16] This difference may be due to personal characteristics of studied samples; such as different cultural levels and the fact that most respondents had witnessed other wars in Iraq.

On the other hand, a survey was conducted among US military veterans who witnessed Iraq war where the prevalence of PTSD was 3-6%.^[17] The differences in prevalence is likely due to sampling strategies; measurement strategies; inclusion and measurement of the *DSM-IV* clinically significant impairment criterion; timing and latency of assessment and potential for recall bias; and combat experiences. Prevalence rates are also likely affected by issues related to PTSD course, chronicity, and comorbidity; symptom overlap with other psychiatric disorders; and sociopolitical and cultural factors that may vary over time and by nation.^[18]

PTSD was present in physicians from all medical specialties, except in OBGYN physicians where it was 0%, however the number of respondents from OBGYN were only 6. Physicians working at laboratory had higher prevalence compared to others; however their number was relatively low as well (12 subjects only). Among other HCP, nurses were similarly affected as lab technicians, pharmacy technicians, or radiographers (PTSD ranging 24-25%).

Female gender is the only contributing factor for diagnosis of PTSD among all respondents. This is more significant when tested as a contributing factor of PTSD among other HCP. Other contributing factors such as being unmarried or of younger age had only a trend towards significance. This could be due to a relatively small sample. In other studies^[20] females are more prone to PTSD than males. Other risk factors included older age⁽²¹⁾, working in a hospital,^[22,23] having shorter stay in Mosul, and being inside the city at time of liberation.

This study has a number of limitations. Firstly, nonnational data exist on the mental health symptoms for Iraqi population in general or the health care professionals in particular. Secondly, although the Harvard Trauma

Questionnaire had been validated for Iraqi community, the instrument provides outcomes based on symptoms level only, not a clinical diagnosis. The other limitation is that we cannot draw conclusions about presence of other mental health symptoms (especially depression) and their relation to the trauma experienced. Finally and due to the shortage of time and sensitivity of this diagnosis, only 328 responded to the survey while it was sent to over 400 health care professionals.

CONCLUSION

PTSD symptoms are highly prevalent among health care staff. Many of the affected staff feel embarrassed to ask psychological aid. Hence, it is important for governmental and non-governmental organizations to provide support and special attention to this population.

All medical specialties were similarly affected by PTSD. Among those enrolled in this survey many had experienced traumatic events outside their work, or due to long history of armed conflict, repression and terrorism. Although many of those participants may get mental or psychological advices, the majority still needs more support to clean their memory of war nightmares.

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