

Case Report

The Rate of PTSD in Hospital-Based Psychiatric Healthcare Workers: A Descriptive Cross-Sectional Design Study

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• PTSD; Prevalence; Healthcare workers; Psychiatric Hospital; Healthy worker effect; Cross-sectional study

Abstract

Introduction: Psychiatric hospital healthcare workers are exposed to traumatic stress related to various forms of patient violence on a frequent basis. Published research suggests that the rate of posttraumatic stress disorder (PTSD) in this population of workers ranges between 0 and 10%. This study set out to measure the rate of PTSD in a sample of healthcare workers in a suburban New York psychiatric hospital.

Materials and Methods: A descriptive study using a cross-sectional design involving a convenience sample (N=172) of psychiatric nurses, nurses' aides, psychiatrists, social workers, counselors, and psychiatric rehabilitation specialists was performed. The PTSD Checklist, Civilian Version (PCL-C) was used to measure the symptoms of PTSD and the data was converted to determine a diagnosis of PTSD by subject, using the methodology described by the tool's developers.

Results and Discussion: The rate of PTSD was found to be 9.9%. This is consistent with much of the previously published research. However, the quality of the data indicated a highly skewed distribution possibly related to attrition from the workplace of traumatized workers, and variability in the patient acuity of the workplace. This suggests that the true prevalence of PTSD may actually be higher. It also indicates a need for standardized responses to traumatization of workers. The use of a standardized form of incident debriefing appears to have merit. **Conclusions:** The rate of PTSD in this study confirms prior research, but the data suggests that the rate may be under-reported. Attention to post-traumatic event interventions may be useful in reducing the rate of PTSD in psychiatric hospital healthcare workers.

INTRODUCTION

Post-traumatic stress disorder (PTSD) is a psychiatric diagnosis characterized by a variety of anxiety-related symptoms that are precipitated by an event or a series of events involving the witnessing of a death or seriously injurious event, or the experience of a threat of such an event [1]. Often disruptive to a person's daily life, the symptoms usually involve intrusive thoughts; avoidance of thoughts, feelings and places; negative thoughts or feelings; and hyper-arousal. In addition, the symptoms must persist beyond a thirty-day period from the triggering event in order for the diagnosis to be made [1].

The literature suggests that individuals who witness other people experiencing trauma can develop symptoms of PTSD as well. This is known as secondary trauma or secondary traumatic stress (STS) [2,3]. In the psychiatric hospital, healthcare workers are at risk for developing PTSD from assault by patients, frequent exposure to patient violence (STS), and threats of harm. As a result, it would be expected that the rate of PTSD among these workers would be higher than the prevalence rate in society.

A paucity of published studies exists with respect to the rate of PTSD among psychiatric hospital healthcare workers. There

are five published studies reporting the rates of PTSD in this population. Four studies reported the rate of PTSD out of the total group of workers [4-7] while the fifth study reported the rate among a subgroup of subjects who had been recently assaulted [8].

The rates of PTSD reported in these studies vary. In one study of the prevalence of PTSD among a sample of nurses (N=70) at a forensic psychiatric hospital in Sweden, none of the subjects met the criteria for a diagnosis of PTSD using the PTSD Checklist – Civilian Version (PCL – C) [4,9]. Similarly, a community survey of practicing psychiatric nurses in Canada (response rate was 29%) found a low rate of the disorder, i.e., only 4 out of 295 subjects met the criteria for PTSD (1.4%) [5]. Two studies of PTSD using samples of nurses at psychiatric hospitals (N ranged from 222 to 122) found substantially higher rates. In both studies, 10% of subjects met the criteria for a diagnosis of PTSD [6,7]. The fifth published study reporting the rate of PTSD within this population identified the presence of PTSD out of a small sample of subjects who had been recently assaulted by patients. Forty-six staff members (70% nurses, 30% physicians, social workers and housekeepers) from 9 state psychiatric hospitals in Germany were followed over six months following an assault. Using the PCL – C [9], a diagnosis of PTSD was determined in 11% of the

subjects 6-months following the assault [8]. By comparison, the general societal rates of PTSD in international and U.S. populations are reported as 4% and 3.5%, respectively [10,11].

The previously published research demonstrates inconsistencies with respect to the prevalence of PTSD in psychiatric hospital healthcare workers. In addition, they mainly focus on nurses and have not consistently utilized a standardized tool for determining the diagnosis. However, studies of other workers employed in stressful environments similarly identify a higher rate of PTSD than that found in the general population: police officers – 7.6% [12]; rescue workers 10% [13]; and emergency department personnel – 12% [14]. As a result, the purpose of this study was to provide data in quantifying the rate of PTSD among all hospital-based psychiatric healthcare workers in a suburban U.S. hospital using the same standardized measurement tool published in previous studies, and to attempt to clarify the causes for the inconsistencies observed in the previously published research.

MATERIALS AND METHODS

This study is based on the secondary analysis of data from a previously published study [15]. The purpose of the primary study was to identify factors that are predictive of traumatic stress symptoms in psychiatric hospital healthcare workers. With respect to this study, the purpose was to measure the prevalence rate of PTSD within the sample and compare it to previously published rates in psychiatric hospital healthcare workers.

Sampling

Following the approval of the hospital's Independent Review Board (IRB) and the IRB at the university where the principle investigator (PI) is employed, data collection was initiated in November 2011 and completed 7 months later. The subjects were clinical staff working at a 150-bed acute-care not-for-profit psychiatric hospital in a suburban region of a major metropolitan U.S. city. The hospital's patient population is distributed as follows: adult– 17%, child and adolescent– 39%, geriatric– 17%, drug and alcohol treatment – 27%.

A convenience sample of clinical staff members was obtained as a result of two trained research assistants approaching the staff in the work setting and inviting them to complete the research questionnaire. The inclusion criteria consisted of 1) a clinical staff member of the hospital, 2) work in an inpatient setting, and 3) have a direct patient care role. There were not any exclusion criteria. The research assistants approached staff members on various days of the week and hours of the day in order to attempt to obtain a representative sample of the hospital's clinical staff. They explained the study to the staff member, obtained written voluntary consent, and then the subjects were given the survey to complete. It consisted of 102-questions and the subjects were permitted up to 45-minutes to complete the questionnaires. To facilitate confidentiality, the subjects were instructed to place the completed questionnaires in a locked box only accessible by the PI. Out of 250 clinical healthcare workers on staff, 172 surveys were obtained resulting in a return rate of 69%. Although all of the subjects completed the PCL-C, 14 subjects left at least one question in the demographic survey unanswered. A pattern of

missing data was not observed and none of the subjects' data were removed from the analysis.

Statistical Analysis

To determine the presence of PTSD symptoms, the PTSD Checklist – Civilian version (PCL-C) for DSM – IV was used [9]. It is a 17-item survey employing a 5-point Likert scale format. It has good reported reliability with Cronbach alpha statistics above .90 [9,16], and good validity with a kappa of 0.64 as compared to the Structured Clinical Interview for DSM III-R (SCID) [16].

Subject specific PCL-C scores were converted into a diagnosis of PTSD according to the methodology prescribed by Weathers et al. who developed the tool [9]. Subjects were diagnosed with PTSD when they gave a moderate or higher response to at least 1 out of 5 questions related to intrusive thoughts and feelings; 3 out of 7 questions related to avoidance; and 2 out of 5 questions related to hyper-arousal. Demographic data was obtained through a semi-structured tool developed by the PI of this study. Of note, the work location, i.e., unit or patient population was not requested in the demographic questionnaire in order to assist in preserving subjects' confidentiality so as to promote their participation in the study. The distribution of the raw data for PCL-C scores (prior to converting them to a diagnosis of PTSD) was evaluated for normality and the proportion of subjects meeting the threshold for a diagnosis of PTSD was reported as a percentage of the total sample. The data was analyzed using IBM – SPSS Statistics, version 22™. Chi-square tests were used to determine significant relationships between the dichotomous variable of PTSD diagnosis and the individual demographic variables. Mann-Whitney U tests were used to determine a significant relationship between the frequency of verbal and physical assaults within the past 6 months and PTSD diagnosis. The alpha level was set at $p < .05$.

RESULTS AND DISCUSSION

The sample comprised 172 psychiatric healthcare workers and it predominantly consisted of nurse aides (41%) and nurses (32%). The majority were between the ages of 21 and 30 years (36.1%), were female (66.9%) and were Caucasian (42%). On average, 49.4% had more than 5 years of clinical experience, and 43.4% had 1 to 3 years of college education. Subjects reported an average of 15.7 verbal assaults and 2.0 physical attacks over the preceding 6-months. See Table 1 for more details about the demographics of the sample (Table 1).

The raw scores on the PCL-C were analyzed to determine the normality of the distribution. It was found to be skewed to the right with a mean of 25.4, median of 22 and mode of 17. Skewness was 1.328 and kurtosis was .943. The scores for each item were adjusted by subject to determine a diagnosis of PTSD. Out of the sample of 172 subjects, 17 (9.9%) were found to have met the threshold for the diagnosis of PTSD. The results of Chi-square tests on the variables PTSD diagnosis and demographic variables did not reveal any significant relationships, in part due to the small number of subjects meeting the diagnosis of PTSD resulting in few or absent numbers of subjects in each of the cells of the cross-tabulation tables. Significant relationships were not found with respect to the frequency of verbal or physical assault over the preceding 6-months compared to the diagnosis of PTSD,

Table 1: Demographic Characteristics of the Sample (N=173).

Title	% of Sample
RN	32
Nurse Aide	41
Social Worker	7
Physician	2.5
Counselor	6.3
Rehab. Therapist	1.3
Did not report title	9.9
Shift	
Day	47
Evening	28
Night	25
Support	
Married	52
Lives with others	34
Lives alone	14
Age (Years)	
<21	.6
21-30	36.1
31-40	18.3
41-50	20.7
51+	24.3
Gender	
Female	66.9
Male	33.1
Race/Ethnicity	
African American	29.6
Asian	0.6
Caribbean	13.6
Pacific Islander	1.2
Latino	6.5
White	42.0
Other	6.5
Years of Work Experience	
<1	7
1-2	20.3
3-4	22.7
5+	49.4
Highest Education Attained	
High School	13.4
1-3 Years of College	43.6
Bachelors Degree	27.3
Masters Degree	13.4
Doctoral Degree	2.3

($U = 958, p = .989$; and $U = 881, p = .977$, respectively). The rates of verbal assault and physical assault for the PTSD group compared to the non-PTSD group were: verbal assault - $M=16.9, SD=49.2$; $M=14.3, SD=32.9$, respectively; physical assault: $M=1.5, SD=2.9$; $M=4.1, SD=15.5$, respectively. A Post hoc power analysis suggests Power of 0.80 with $N = 172$ and $df = 4$. See Table 2 for the distribution of the diagnosis of PTSD among job titles (Table 2).

This study observed that the rate of PTSD in this sample was 283% greater than the general population in the U.S. (9.9% and 3.5%, respectively) [10]. The results are similar to three of the five other published rates of PTSD in this population [6-8] even though those studies only observed nurses, whereas this study reported PTSD among all members of the clinical team. This study's finding is in contrast to that of Lavrud, Nonstad and Palmstierna (2009) who did not observe a single case of PTSD among their subjects [4] and to that of Robinson, Clements and Land (2003) who found a rate of 1.4% [5]. Lavrud et al. (2009) suggest that the absence of a diagnosis of PTSD was an unexpected finding, and point to a number of possible reasons. They suggest it may be due to 1) attrition of nurses from the workplace due to PTSD symptoms, 2) avoidance of questions in the survey that trigger emotions related to traumatic experiences, 3) the protective effect of working in the highly structured environment of a forensic psychiatric hospital where their study took place, 4) less need for engagement with patients in a forensic setting and 5) high nurse - patient ratio (1:5) along with strong cohesiveness among the staff members [4]. With respect to the study by Robinson et al. (2003), the low response rate (29%), the self-selection nature of mailed surveys to all psychiatric nurses in a Canadian province, and the heterogeneity of the work settings for those nurses (not all may have worked in psychiatric hospitals) might have caused sampling bias resulting in a low reported rate of PTSD.

The existence of a possible relationship between attrition from the workplace for healthcare workers who have been traumatized and the rate of PTSD has been suggested in other published articles as well. In a systematic review of studies reporting the prevalence rates of PTSD in healthcare workers, Robertson and Perry (2010) noted substantial differences which they termed the "healthy worker effect" (p. 418) [17]. They suggest that the most stressed and least resilient healthcare workers seem to leave their jobs following a traumatic incident causing a bias towards more resilient employees. If this is true, the actual rate of PTSD among healthcare workers that have ever worked in psychiatric hospitals may be substantially higher than that reported in published studies to date.

Table 2: Distribution of PTSD according to title.

	N	Percent
nurse	3	17.6
nurse aide	4	23.5
counselor	2	11.8
MD	1	5.9
social worker	5	29.4
other	2	11.8
Total	17	100.0

The subjects experienced frequent exposure to verbal and physical assault. Although not significantly different, subjects diagnosed with PTSD reported a slightly higher rate of verbal assault and a lower rate of physical assault, as compared to subjects not diagnosed with PTSD. Not captured in the study was data related to secondary traumatic stress. This factor may have played a role in the diagnosis of PTSD and could have had a greater effect than physical assault.

In the present study's sample, the PCL-C raw scores are skewed suggesting that there are relatively high numbers of subjects with very few symptoms of PTSD. The difficulty with regard to identifying the characteristics of the more resilient healthcare workers is, in part, most likely due to the absence of data with regard to each subject's work location (type of patient population) which was not collected in order to protect the confidentiality of the subjects and facilitate participation in the study. There is the possibility that a relatively small group of subjects work with adult patients as compared to other types of psychiatric patients. The majority of patients in the hospital resided on geriatric, child and adolescent, and chemical dependency units (83%). This may have resulted in two different work environments for healthcare workers, with respect to safety; a higher acuity group (work on adult patient units) and a lower acuity group (work on all other units), and may explain the skewed distribution of the raw PCL-C scores. If this is true, the rate of PTSD among the subjects who work in the adult acute-care psychiatric units of the hospital may be substantially higher than the overall rate reported in this study.

The results of this study and the published literature suggest that the rate of PTSD in psychiatric hospital healthcare workers may be variable and dependent on a variety of factors. It suggests that 1) sample size, 2) sample selection methodology, 3) worker turnover, 4) acuity of the patient population, 5) relative amount of direct interaction with patients, 6) cohesiveness of the staff and support by co-workers, 7) relative degree of structure of the unit and in the delivery of care, and exposure to secondary traumatic events may be factors. Despite the variability, it appears likely that the rate of PTSD in this population of workers is substantially higher than that found in society and possibly higher than that reported in research, and requires attention with respect to the workers' health and safety.

In the least, there is a need to utilize strategies to minimize the effect of traumatic events on workers. There is a need for routine support and critical incident debriefing of all traumatic events. Campfield and Hills (2001) observed that Critical Incident Debriefing (CID) [18], a structured interview protocol, was effective in reducing symptoms of a traumatic event in civilian employees who were victims of a robbery, when it is conducted within 10 hours of the event. However, it was not effective when conducted more than 48 hours after the event [19]. The greater effectiveness of CID when it is administered within hours of a traumatic event was also found in a randomized study by Rothbaum et al. in a sample of patients to a medical center's emergency department who had experienced a trauma, most of which consisted of sexual assaults and motor vehicle accidents [20]. This research suggests that consistent debriefing in a timely manner, ideally the same day as the incident, using a standardized

protocol may be effective in reducing the incidence of PTSD.

An additional method for managing the development of PTSD in psychiatric hospital healthcare workers might involve the periodic rotation of staff to less stressful environments, permitting workers to avoid feeling overwhelmed by the frequency of traumatic events. Typically, adult psychiatry units tend to have the highest prevalence of severe traumatic events while geriatric, child/adolescent, and substance abuse units tend to have fewer cases. It may be in the interest of healthcare workers and hospitals, with respect to reducing the experience of emotional trauma and staff turnover, to develop schedules to rotate staff among higher and lower acuity services on a periodic basis.

LIMITATIONS OF THIS STUDY

Given the relatively small sample size, generalization of the results of this study to other healthcare organizations requires caution. The data in this sample was skewed and suggests a large proportion of the sample had lower than anticipated levels of posttraumatic stress symptoms. This is likely due to the heterogeneity of the patient population and the variable acuity of the hospital's patient care units. Also, it may have been influenced by individuals who had resigned from employment following a traumatic event and were not part of the sample, and possibly social desirability response bias. This would have resulted in bias in the data towards more resilient subjects. At the very least, the number of resignations due to injury or trauma would have been useful for data analysis. In addition, data with respect to subjects' non-work related traumatic experiences was not collected due to the sensitivity of collecting such data in a workplace setting. As a result, it is not possible to state with confidence that the observed PTSD rate is the result of workplace violence. Finally, this analysis did not include data related to secondary traumatic stress which has been suggested in the literature to contribute to the development of PTSD.

CONCLUSION

This study examined the rate of PTSD in a sample of psychiatric hospital healthcare workers. It observed that 9.9% of subjects met the criteria for PTSD using a standardized tool. This rate is consistent with 3 out of 5 studies of PTSD in similar populations. A concern in the study design is sampling bias related to possible attrition of workers that have been traumatized, variability in the acuity of settings in studies, and exposure to secondary traumatic events. The literature suggests that CID within hours of a traumatic event may be useful in mitigating psychological effects. Psychiatric hospitals may be able to reduce the rate of PTSD among its healthcare workers by utilizing this technique as a standard response to staff members' exposure to work place trauma.

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