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UK Post Traumatic Stress Disorder Cases Reported by Occupational Physicians in the THOR/OPRA Surveillance System 1996-2024

Green B¹

Fishwick D^{1,2,3}

Carder M¹

Thomas L¹

Byrne L¹

Daniel S¹

Gittins M¹

Zipporah Iheozor-ejiofor¹

Mchale G¹

Van Tongeren M¹

¹Centre for Occupational and Environmental Health, School of Health Sciences, Ellen Wilkinson Building, University of Manchester, Oxford Road, Manchester, UK

²The Department of Infection and Immunity, University of Sheffield, Sheffield, UK

³North Manchester General Hospital, Manchester University NHS Trust, Manchester, UK

Contact author; Professor Ben Green, Honorary Senior Lecturer / Consultant Psychiatrist

Centre for Occupational and Environmental Health, School of Health Sciences, Ellen Wilkinson Building, University of Manchester, Oxford Road, Manchester, UK

Email: Benjamin.green-2@manchester.ac.uk

Abstract

Post Traumatic Stress Disorder (PTSD) often has a significant occupational contribution to its causation. However, published data from real world clinical case-based national reporting schemes are uncommon.

Data were analysed from the UK based national scheme for Occupational Physicians Reporting Activity (OPRA), collected over a 28-year period (1996-2024 inclusive). Content analysis techniques identified the most frequent types of psychiatric trauma.

397 cases of International Classification of Diseases (ICD-10) PTSD were reported by occupational physicians enrolled in the THOR/OPRA study; from 1996-2024. The reports equated to 3301 estimated cases after correcting for reporter type and frequency. PTSD accounted for 1.5% of all OPRA reported conditions and 3.4% of all OPRA mental health cases. The mean age of the 315 PTSD cases with relevant information was 40.9 years and 68.3% (n=271) were male, in comparison to 41.8% of all mental health cases being male. The mean duration of PTSD symptoms before assessment was 30.6 months (SE = 3.1). Professions most frequently reported with PTSD were police (20.1%), military personnel (11.3%), general nurses (7.4%), social workers (5.0%) and train driver/rail (5.0%). Content analysis of the traumatic causes revealed the main causes were physical assault (21.9%), military trauma (16.8%), physical incidents such as electrocution or explosion (9.5%), and non-violent interpersonal conflict (9.5%). Cases of PTSD were often associated with comorbid depression and anxiety.

PTSD occurs across an array of specific exposures and jobs, with males being more likely than females to be reported as a case of PTSD. The most reported professions were military, police and healthcare. Measures designed to prevent PTSD caused by work remain important to develop, embed and sustain at work. Occupational physicians should ensure people with PTSD have access to senior, experienced mental health professionals able to source evidence-based psychotherapy and pharmacotherapy.

What's known already

PTSD is a disabling mental disorder that can be difficult to treat and rehabilitate. It is associated with hazardous occupations such as being in the military or police.

What this paper adds

This unique prospective study examines the prevalence of PTSD diagnosis across occupational physician reports during a 28-year period. In the UK, PTSD was more frequently found in military, police and healthcare professions. In contrast to what is found for the general population, primary care and outpatient studies most diagnoses of PTSD in occupational settings were in males rather than females. A mean duration of 30.6 months between symptom onset and occupational physician assessment suggests a need for swifter referral to enable prompt treatment and better rehabilitation.

Limitations

Further research is required on the duration of absence from work, severity of symptoms, associated disability and treatment.

Introduction

Post Traumatic Stress Disorder (PTSD) is a significant cause of morbidity, lost occupational productivity, absenteeism and difficulty in rehabilitation, with functional impairment in most areas of daily functioning [1]. In the US, the total costs of PTSD to the economy have been estimated at \$189.5 billion in the civilian population and \$42.7 billion in the military population [2].

Classic symptoms such as anxiety triggered by reminder cues and avoidance behaviours particularly affect rehabilitation and return to the workplace where the initial trauma was experienced. Difficulty with concentration along with impaired learning and verbal memory adversely affect productivity and increases the likelihood of errors [3]. Secondary symptoms such as irritability and sudden anger can particularly disable employees who are required to interface with the public, strain relationships with colleagues and supervisors and complicate rehabilitation with greater impairment directly linked to greater hostility [4,5]. Comorbid depression and anhedonia can affect quality of life and motivation [6].

Although treatments for PTSD exist, including pharmacotherapy with antidepressants and psychotherapies such as trauma focused cognitive behavioural therapy (tfCBT), there are enduring cases despite first line treatment [7]. Even with newer treatments, such as prazosin for persistent nightmares, treatment resistance affects rehabilitation in around 20% of cases [8].

Literature reviews have commented that there is a paucity of research on the prevalence, risk factors, and functional impact of PTSD in occupational settings [9].

The Health and Occupational Research (THOR) network is a UK-wide physician-reporting surveillance system that collects medically diagnosed incident case reports of all work-related ill-health seen during the usual clinical practice of the participating clinician [10]. THOR specifically includes reports from Occupational Physicians in the UK (OPRA) [11]. Data from 1st January 1996 to 30th June 2024 from OPRA were examined in this prospective cohort study.

Methods

Data were analysed from the UK based national reporting scheme, THOR [12]. Occupational physicians in the THOR network voluntarily report, (either monthly or for one randomly selected month each year), incident cases that they have assessed to have been wholly or partly caused or aggravated by work. Case reports were coded according to ICD-10 clinical guidelines. Ethics approval was by the Northwest (Haydock) Research Ethics Committee (22/NW/0082).

The actual reported cases were also used to calculate estimated cases for the entire reporter group, as reporters either report each month (core reporters) or one month every year (sample reporters). Estimated case numbers were calculated by factoring sample reporter cases by 12 (to correct one month of reporting to one year) and adding the number of actual cases. The detailed methodology relating to this is described elsewhere and typically used for THOR related analyses of other conditions such as, for example, inhalation accidents [13], irritant induced asthma [14] and hypersensitivity pneumonitis [15].

We extracted cases of PTSD (ICD F43.1, taken from any of the fields used to report diagnosis by the reporter) over the analysis time-period and descriptive analyses were undertaken using the following data from the OPRA database: year of diagnosis, sex, job, industry, suspected causative event, (containing brief free text about the case and index trauma) and co-morbid ICD 10 conditions. The duration of each case (time between symptom onset and reporting date) was calculated for each case in months.

Individual jobs were categorised initially using the Standard Occupational Classification (SOC) codes [16] associated with it and then grouped for further descriptive analysis into similar job functional groups.

The free text entries made by Occupational Physicians regarding causative traumas were also qualitatively analysed using content analysis (CA) techniques [17,18]. Themes that were identified from this analysis are summarised.

Comorbid conditions were identified using the relevant ICD code included by the reporting clinician.

Results

From 1996 – 2024 (Q2), the OPRA scheme received 397 actual case reports of PTSD (ICD-10) from a total of 26373 reported cases (1.5% of total cases). On average, there were 13.7 cases of PTSD reported per year. There was a peak in 2012; with 53 cases reported that year. The 397 reports equated to 3301 estimated cases, after correcting for reporter type and frequency of reporting, as shown in table 1, along with the overall number of OPRA reported total psychiatric reports, and all OPRA reports for each year. It is evident that number of total cases, and specifically PTSD cases, has been variable over time, with no clear trends evident. There was a fall in overall reporting activity during lockdown periods. The percentage of OPRA reported PTSD cases formed 3.4% of all OPRA reported psychiatric cases.

The mean age of the reported PTSD cases with relevant data (n=315) was 40.9 years (median 42 (SD= 9.7)) with a range of 46, (minimum 21 and maximum 67); 68.3% (n=271) of the PTSD cases were male. This male/female ratio compared with 50.2 % of all OPRA cases being male over the same time-period. Across all the mental ill health cases reported to OPRA also over the same time-period, 41.8% were male (n=4911).

There was information on the date of symptom onset for 234 of the reported cases. The mean duration of symptoms prior to assessment for all reported cases was 30.6 months (SE = 3.1).

Table 2 shows details of the occupations associated with the reported cases of PTSD. Whilst noting the predominance of expected roles including police and the military (police officers and military personnel formed the majority of occupations with PTSD (20.1% and 11.3% respectively)), there are a diverse set of other occupations represented, notably including nursing, social work and transport related work.

The top five Standard Occupational Codes (SOC 2010) were in order [from 1st to 5th ranking]; (i) SOC Code 3312 Police Officers (Sergeant and below) (n=60), (ii) SOC code 3311 Non-Commissioned Officers NCOs and other ranks (n=55), (iii) SOC code 2231 Nurses (n=28), (iv) SOC code 3313 Fire Service Officers (watch manager and below) (n=15), and (v) SOC code 3314 Prison Service Officers (below principal officers) (n=14).

Table 3 shows the top SOC 2010 codes with the mean duration in months from first symptoms to the OPRA report, along with the female to male ratio for each chosen code.

Table 4 details the types of occupational traumas associated with PTSD, as identified by the qualitative analysis of the free text supplied by the reporter. Whilst the majority related to a combination of either interpersonal conflict involving assault or military conflict, many other trauma types were reported including witnessing death, both in care and non-care environments, and experiencing threatened violence during robbery at the workplace.

The predominant single trauma associated with a diagnosis of PTSD was physical assault (21.9%), followed by military trauma (16.8%) and a physical incident or hazard at work such as a gas leak, explosion or electrocution (9.5%). Witnessing death, either through providing care or as a consequence of employment (e.g. a police officer attending a completed suicide), accounted for 11.3% of cases. Psychological threats affecting personal integrity implicit in bullying, harassment or disciplinary proceedings account for 9.5% of cases. Threat of violence during robbery (e.g. a betting shop or bank) was associated with PTSD in 3.5%. Suicides in railway settings (e.g. driver witnessing suicide in front of the train) accounted for 2.5%.

Table 5 shows the comorbid conditions reported in association with a reported PTSD diagnosis, identifying that this diagnosis was commonly associated with other psychiatric diagnoses. The three most common conditions were Major Depressive Disorder (n=21), other physical and mental strain related to work (n=12) and unspecified anxiety disorder (n=10).

Discussion

PTSD cases formed 3.4% of all psychiatric cases reported to OPRA. In community population studies the lifetime prevalence of PTSD has been found to be 1.3% [19], although the prevalence can vary between studies depending on variations in the design, sampling strategies, and method of diagnostic assessment [20]. For instance, Kessler et

al., found a lifetime prevalence of 7.8% [21]. Screening in one primary care study suggested that the prevalence of PTSD symptoms was 11.8% [22].

The sex ratio of the OPRA reported PTSD cases (68.8% Male:31.2% Female) differs from the sex ratio seen in outpatient clinic samples where other studies indicate that the diagnosis is around 2.8 times more common in females [23]. Other studies have found that, in the general population in the UK the prevalence of PTSD in females is 2.1 times that of males [24]. Generally, in OPRA, across most general psychiatric diagnoses, cases are more likely to be reported in females, but not for PTSD. The reasoning behind this finding is difficult to fully elucidate. It may well be that this reflects the population within the relevant sectors (see Table 3) but equally could reflect males being presented with more physically hazardous work or facing physical assaults contributing to a higher number of accidents or incidents that could lead to the development of PTSD. The National Comorbidity Survey found that males were more prone to experience at least one trauma and that they were more likely to have combat exposure and witnessing trauma to others [22]. Such physical violence through assault accounted for the majority of identified single causes in our study. Civilian workers in acute ambulance, hospital acute care and mental health settings as well as police officers were particularly at risk.

The mean duration of PTSD symptoms in our study was 30.5 months at assessment. This would suggest increased chronicity in PTSD cases seen by occupational physicians. In contrast, other studies indicate that roughly 50% of PTSD cases remit within six months [25], 83% of PTSD cases have resolved by 12 months [26], and by 95.8% have resolved at 72 months [27].

Reports of PTSD through exposure to military trauma did not include sufficient detail in the descriptor text to gauge whether this was a result of physical injury, physical conflict or psychological threat. Sexual assault was infrequent as a cause of PTSD, but this is probably an underestimate and may reflect other factors such as perceived barriers to disclosure.

The inclusion of workplace bullying as a trigger for PTSD by occupational physicians may be criticised by those who interpret the ICD10 clinical guidelines very strictly. They might contend that such bullying and harassment may not meet the following World Health

Organisation (WHO) diagnostic guideline for PTSD: “This arises as a delayed and/or protracted response to a stressful event or situation (either short- or long-lasting) of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost anyone (e.g. natural or man-made disaster, combat, serious accident, witnessing the violent death of others, or being the victim of torture, terrorism, rape, or other crime)” [28].

However, the guideline is precisely that, a guideline, and clinical practice may evolve with time, especially as the ICD10 guideline was published in 1992. There is published evidence that occupational medicine had heuristically incorporated the notion that bullying and harassment were reasonable causes of PTSD [29]. The position was however somewhat contentious with some authors noting that mental health problems were found among bullied persons which resembled the symptomatology of PTSD, but did not strictly meet diagnostic guidelines [30], and others adamant that non-violent bullying and harassment can lead to PTSD [31].

We found that 54 of the 397 people (13.6%) who were reported to have PTSD had comorbid conditions. Most of these were mental health conditions (n=48, 88.9%). This complex of mental health conditions would require that these employees have access to senior, and experienced mental health professionals.

Few reports mentioned the potential role of sexual harassment or assault as a trauma. This may reflect factors such as barriers to disclosure to an occupational physician, and fear of potential repercussions such as effects on promotion or career [32,33].

These findings have implications for practice, treatment and rehabilitation. The prognosis for those who develop workplace-acquired PTSD is problematic – a study found that 23% of the group needed vocational rehabilitation assistance and that only 43% returned to their previous workplace where the trauma occurred [34]. Early treatment is vital as even modest improvements in symptom severity may lead to employment gains [35]. In the future it, would be important in the future to gather information about symptom severity, duration of occupational disability and effective treatment for rehabilitation. A revision of occupational physician reporting could provide valuable information that might help develop positive change in the management of such cases. Beyond efficacious therapy

for existing cases, further research into interventions that could prevent traumas from occurring would seem a logical next step. This might include occupational initiatives to reduce incidence of PTSD based on above research e.g. teaching about managing conflict, conflict resolution, de-escalation to potentially reduce assaults, or alterations to the way whistleblowing, bullying or harassment are managed in organisations. Unfortunately, other forms of trauma maybe difficult or impossible to prevent, e.g. some police/emergency response activities, crowd control, military conflict.

The lengthy mean duration between onset of PTSD symptoms and occupational physician assessment and report to OPRA speaks to the chronicity and complexity of these PTSD cases. This lengthy duration between onset and assessment could justify earlier referral to occupational health to ensure earlier diagnosis and effective treatment to enable better rehabilitation [36].

Whilst based in the real world, and contributing to our understanding of occupationally related PTSD, this approach undoubtedly has significant limitations. There were likely changes in the nature of work and working populations of employment of over an analysis period which spanned more than a quarter century. Additionally, under reporting of cases of occupational ill health is probable [37]. Occupational physicians do not receive any uniform training in psychiatric diagnosis which may introduce variability in their interpretation of ICD 10 diagnostic guidelines, although we believe that there will be a heuristic validity to their mental health diagnoses [38]. Despite these limitations, we believe these data are vitally important given their real-world reporting scheme origins.

The collected data lack information on the duration of any absence from work, the severity of symptoms, associated disability and treatment. A refinement in the data collected might yield further information about effects on occupational function and societal impact. A refinement of the reporting procedure might also upgrade to ICD11 codes and clinical guidelines [39]. These and other topics could well be explored by future research into the occupational contributions to PTSD. In the interim, these findings have illuminated the various occupations and traumas associated with real world reported PTSD cases.

Table One: OPRA PTSD actual and estimated reports per year, along with actual and estimated total reports of all psychiatric cases by each year within the study time-period

Year	Actual PTSD cases	Total estimated PTSD cases	Actual psychiatric cases	Total estimated psychiatric cases
1996	9	97	118	1235
1997	16	192	178	1086
1998	14	168	206	1041
1999	8	96	236	1125
2000	7	84	280	1076
2001	15	180	390	1136
2002	16	192	405	1168
2003	11	132	396	1004
2004	32	109	978	2074
2005	29	117	875	2159
2006	20	53	895	1741
2007	15	103	910	1626
2008	10	32	795	1392
2009	11	55	758	1300
2010	15	114	698	1153
2011	6	39	385	635
2012	53	570	506	847
2013	9	75	547	859
2014	14	146	382	648
2015	9	86	294	536
2016	9	86	275	495
2017	16	170	378	621
2018	14	135	243	375
2019	12	122	223	378
2020	15	81	110	190
2021	3	3	76	134
2022	4	48	133	199
2023	4	15	57	94
2024	1	1	27	46
Total	397	3301	11754	26373

Table Two: Main occupations associated with PTSD diagnosis

Occupations	Number with PTSD (n, decreasing frequency)	Percentage of all PTSD cases (%)
Police Officer	80	20.1
Soldier	45	11.3
Nurse (non-mental health)	28	7.4
Social Work / Support	20	5.0
Train driver / rail	20	5.0
Ambulance/paramedic	18	4.5
Bus driver/ other driver	17	4.3
Prison Officer	16	4.0
Firefighter	15	3.8
Retail / cashier / banking	15	3.8
Health (telephonist/admin)	13	3.3
Teacher /teaching assistant	9	2.3
Doctor (non mental-health)	7	1.8
Mental health nurse	6	1.5
Electrician/ electrical industry	5	1.3
Factory/process worker	5	1.3
Mental health manager or team leader	<5	-
Ship industry	<5	-
Mental health psychiatrist/psychologist	<5	-
Forensic computer worker	<5	-
Refuse worker	<5	-
Docker	<5	-
Zoo-keeper	<5	-
NHS other	<5	-
Construction industry	<5	-
Army nurse	<5	-
Bar worker	<5	-
Midwife	<5	-
Vicar	<5	-
Mining	<5	-
Other	29	7.3
Total	397	

Table Three: Top Five SOC 2010 Codes – report frequencies, mean duration in months and gender ratio

Rank	SOC 2010 Code (n with duration data for analysis / total)	Occupation	Mean duration of PTSD (months)	SE	SD	Female: Male
1	3312 (n=37/60)	Police Officers (Sergeant and below)	49.8	11.1	67.3	17:43
2	3311 (n=53/55)	NCOs and other ranks	44.7	5.2	37.9	2:53
3	2231 (n=22/28)	Nurses	17.0	7.4	34.9	19:9
4	3313 (n=9/15)	Fire Service Officers (watch manager and below)	31.3	13.6	40.9	0:15
5	3314 (n=11/14)	Prison service officers (below principal officers)	16.4	4.1	13.4	5:9

Table Four: Types of occupational traumas associated with PTSD

Recorded Trauma Type	Frequency (n)	Percentage (%)
Interpersonal conflict involving assault	87	21.9
Military conflict	67	16.8
Physical incident or accident at work (e.g. exposure, explosion, electrocution)	38	9.5
Interpersonal conflict (non-violent, threat to integrity, bullying, whistleblowing)	38	9.5
Road Traffic Incident (direct involvement)	29	7.3
Witnessed death (non-care related)	24	6.0
Witnessed death while providing care	21	5.3
Threatened violence during robbery at work	14	3.5
Fatality in front of rail worker (e.g. suicide in front of driver)	10	2.5
Interpersonal boundary invasion (Sexual Assault)	<5	-
Other (including insufficient detail)	67	16.8
TOTAL	397	100

Table Five: Comorbid conditions reported in association with PTSD diagnosis

ICD 10 Code	Description	Frequency
F32.9	Major Depressive Disorder, Single Episode	21 DF: 23
Z56.6	Other physical and mental strain related to work	12 DF: 13
F41.9	Unspecified anxiety disorder	10 DF: 13
F41.2	Mixed anxiety and depressive disorder	3 DF: 4
F40.9	Phobic anxiety disorder	1 DF: 1
S68.1	Traumatic amputation of finger	1 DF: 1
H83.3	Noise effects on inner ear	1 DF: 2
M54.2	Cervicalgia	1 DF: 1
F31.9	Bipolar disorder	1 DF: 1
S09.9	Unspecified Injury of face and head	1 DF: 2
S39.9	Unspecified Injury of abdomen, lower back and pelvis	1 DF: 2
S99.9	Unspecified Injury of ankle and foot	1: DF: 1

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Conflicts of Interest

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