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Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder in U.K. Police Officers

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Abstract

Background: We investigated work-related exposure to stressful and traumatic events in police officers, including repeated exposure to traumatic materials, and predicted that ICD-11 Complex PTSD (CPTSD) would be more prevalent than PTSD. The effects of demographic variables on exposure and PTSD were examined, along with whether specific types of exposure were uniquely associated with PTSD or CPTSD.

Methods: An online survey covering issues about trauma management, wellbeing and working conditions was disseminated via social media and official policing channels throughout the U.K. 10,401 serving police officers self-identified as having been exposed to traumatic events. Measurement of PTSD and CPTSD utilised the International Trauma Questionnaire.

Results: The prevalence of PTSD was 8.0% and of CPTSD was 12.6%. All exposures were associated with PTSD and CPTSD in bivariate analyses. Logistic regression indicated that both disorders were more common in male officers, and were associated independently with frequent exposure to traumatic incidents and traumatic visual material, and with exposure to humiliating behaviours and sexual harassment, but not to verbal abuse, threats, or physical violence. Compared to PTSD, CPTSD was associated with exposure to humiliating behaviours and sexual harassment, and also with lower rank and more years of service.

Conclusions: CPTSD was more common than PTSD in police officers, and the data supported a cumulative burden model of CPTSD. The inclusion in DSM-5 Criterion A of work-related exposure to traumatic materials was validated for the first time. Levels of PTSD and CPTSD mandate enhanced occupational mental health services.

Keywords: Trauma, ICD-11; Criterion A; occupational health

In contrast to the voluminous research on serving members of the military and veterans, the prevalence of posttraumatic stress disorder (PTSD) has been rarely assessed in large samples of police officers. As well as the importance of understanding the mental health needs of this group of public servants, the high and sustained levels of exposure to traumatic events make the police a key group who can contribute to understanding the effects of trauma. Excluding studies of highly selected groups, officers responding to major incidents, or treatment-seeking samples, studies to date have included at most a few hundred officers and have found PTSD rates in the range 7% to 32% (Asmundson & Stapleton, 2008; Carlier, Lamberts, & Gersons, 1997; Chopko & Schwartz, 2012; Hartley, Violanti, Sarkisian, Andrew, & Burchfiel, 2013; Robinson, Sigman, & Wilson, 1997; Skogstad et al., 2013; Soames, 2018; Stephens & Miller, 1998). The wide variety of different types of trauma exposure, and the different roles involved in contemporary policing, mandate larger and more comprehensive studies.

The release of the 11th revision of the International Classification of Diseases (ICD-11) introduced for the first time a formal distinction between the diagnoses of PTSD and complex PTSD (CPTSD) (World Health Organization, 2018). In ICD-11 PTSD is a condition that is diagnosed from impairment in functioning and the presence of three core elements: re-experiencing the traumatic event(s) in the present, deliberate avoidance, and a continuing sense of threat. Compared to DSM-5 (American Psychiatric Association, 2013), this symptom profile is deliberately narrow and attempts to identify elements that distinguish it from other diagnoses. Although these symptoms must occur following a traumatic event, there is no formal definition of what such an event consists of, other than as an extremely threatening or horrific event or series of events.

In the trauma literature complex PTSD has previously been defined as a severe disorder arising from exposure to repeated or chronic traumatic stress (Courtois & Ford,

2013; Herman, 1992). The concept of complex PTSD was designed to capture many of the varied post-traumatic presentations that can arise following more extreme forms of exposure, particularly in childhood, and is closely associated with the diagnosis of 'disorders of extreme stress not otherwise specified' (DESNOS), which was included in the Appendix to DSM-IV (American Psychiatric Association, 2000). The DESNOS diagnosis has been operationalised using 48 possible symptoms (Pelcovitz et al., 1997) but there has been no formal requirement that the classic re-experiencing, avoidance and numbing, or threat/arousal symptoms associated with PTSD be present.

In ICD-11, by contrast, repeated or chronic trauma is a risk factor, not a requirement for CPTSD. The diagnosis requires that in addition to the three core elements that make up PTSD the person reports evidence of disturbances in affect regulation, negative self-concept, and difficulties in relationships (Maercker et al., 2013). Evidence collected on four continents supports the proposed factor structure of PTSD and CPTSD as well as the distinction between them. Childhood physical or sexual abuse, particularly within the family, is more strongly related to CPTSD than PTSD, and CPTSD is also associated with higher levels of psychiatric burden than PTSD, including greater depression and dissociation (Brewin, 2019). Initial findings suggest that the prevalence of PTSD and Complex PTSD combined is slightly lower than the prevalence of PTSD as measured in the DSM-5, and that comorbidity with depression is lower (Brewin et al., 2017).

The distinction between PTSD and CPTSD should be particularly relevant to highly trauma-exposed groups such as police officers. First, recommendations to mental health services indicate that, relative to PTSD, additional treatment sessions are likely to be required for CPTSD (National Institute of Health and Care Excellence, 2018). It is therefore very important to have reliable estimates of the prevalence of these two conditions to plan health provision within the emergency services. Second, whereas general population surveys have to

date reported an equal or greater prevalence of PTSD than CPTSD (Brewin, 2019), studies conducted in trauma-exposed samples have reported more CPTSD than PTSD (Karatzias et al., 2019; Vallieres et al., 2018). In addition to the expected excess of trauma-related disorders among members of the emergency services, there should be more CPTSD than PTSD in chronically exposed groups such as the police, increasing with years of service.

The limited sample size of previous studies has also made it difficult to determine whether specific forms of traumatic exposure account for unique variance in PTSD among police officers. In addition to witnessing death and serious injury, officers may be exposed to violent assault and sexual harassment. Other incidents such as abuse, threats, and attempts at humiliation are not typically regarded as traumatic within DSM-5 but, if repeated over a period of months or years, could cumulatively create the experience of a high level of threat that is required for PTSD and CPTSD in ICD-11. Consistent with this, there is evidence that stressors such as repeated bullying are associated with the onset of PTSD (Nielsen, Tangen, Idsoe, Matthiesen, & Mageroy, 2015).

In addition to these well-recognised forms of exposure recent developments in policing, such as the need to monitor websites involving online grooming of minors or disseminating images of beheadings, correspond to a new type of repeated exposure that was recognised for the first time in DSM-5 (American Psychiatric Association, 2013): "A4. Experiencing repeated or extreme exposure to aversive details of the traumatic event (e.g. first responders collecting human remains or police officers repeatedly exposed to details of child abuse). NOTE: Criterion A4 does not apply to exposure through electronic media, TV, movies, or pictures, unless this exposure is work related" (p. 271). The association between this type of repeated exposure to distressing visual materials, or the equivalent exposure to traumatic auditory material (e.g., via call-handling), and PTSD prevalence has not yet been empirically tested.

A final issue concerns the existence of associations between demographic factors and PTSD that may be different police officers than among the general population. Although women usually report greater rates of PTSD than men (Brewin, Andrews, & Valentine, 2000), these findings are based primarily on non-occupational forms of exposure (with the exception of military deployment and combat missions). In contrast, mixed results have been obtained in police samples (Beagley, Peterson, Strasshofer, & Galovski, 2018). It is important to determine whether gender differences exist and whether they are related to differences in the amount of traumatic exposure experienced by male and female officers. The theoretical and empirical link between repeated or chronic trauma and CPTSD suggests that higher rates of CPTSD will be found in officers who have more years of service. We considered this to be a more important variable than age, which is not a specific risk factor for PTSD (Brewin et al., 2000). Finally, lower social status has been associated with higher rates of PTSD (Brewin et al., 2000), suggesting that there will be an excess of PTSD and CPTSD among the lower ranks of police officers.

This article reports the findings of a large survey of U.K. police officers that assessed their exposure to various types of extreme stress, including abuse, threats, physical violence, sexual harassment, and repeated encounters with traumatic visual and auditory materials, as well as the one-month prevalence of PTSD versus CPTSD. We investigate gender differences in trauma exposure and in these disorders, and the effects of rank and years of service. Finally, we describe whether specific types of occupational exposure to stress and trauma are uniquely associated with PTSD or CPTSD, and whether these effects are relatively stronger in male or female officers.

Method

Participants

An online survey was hosted between 15 October and 16 December 2018 on the website of Police Care UK, a registered charity concerned with the physical and psychological welfare of former and serving police officers and staff, volunteers, and their families. The "Policing: The Job & The Life" survey, advertised as covering issues about trauma management, wellbeing and working conditions, was disseminated via social media and official communication channels within established UK policing networks. An attempt was made to minimise selection bias by neutrality in the advertising of the survey on social media and by omitting specific mention of mental health. The survey was targeted at the population of currently employed UK Police Force officers and staff of all ranks, including community support officers and special constables. As shown in Figure 1, a raw total of 18,185 respondents from the 43 territorial police services of England and Wales as well as from Police Scotland, Police Service of Northern Ireland, British Transport Police and the National Crime Agency took part in the research. After removal of retired or non-serving police, reported age outside 18-70 years old, reported length of service over 50 years, difference between years of service and age below likely limits (<16), duplicated entry, straight-line responses to questionnaire items, and omission of explicit consent for data to be used in research, the final sample was 16,857. Due to the sampling methods it is not possible to calculate a response rate, but the eventual sample equates to 7% of all UK police officers and staff as informed by official statistics[1].

For comparison with previous surveys the present report uses a base sample of 12,248 serving police officers. It includes patrol and office-based staff but excludes support staff in exclusively administrative roles as well as volunteer community support officers. Representation of police ranks was consistent with U.K. Home Office records. Government statistics indicate that 93.4% of officers are white[2] and ethnicity was not included as a

variable in the study. The study was approved by the Sociology Research Ethics Committee of the University of Cambridge, UK.

Measures

Officers were asked a general trauma exposure question ("In your work with the police, have you ever experienced events which were to some extent traumatic?") and, if they said Yes, about the time of the most disturbing event. Three questions enquired about the frequency of exposure to different kinds of event: Traumatic incidents (e.g. involving fatality, serious injury, children, etc.), traumatic visual material (e.g. graphic forensic imagery, online child sexual exploitation etc.), and traumatic auditory material (e.g. emergency call handling, radio communication). These were answered on 7-point scales ranging from 1 ('never') to 7 ('all of the time'). Five further questions enquired about specific exposure at work to verbal abuse, threats, or humiliating behaviours in the last month, and to physical violence or sexual harassment in the previous twelve months. The timeframes were selected to reflect the likely differing prevalence of these experiences. These were answered on dichotomous yes/no scales.

Officers answering Yes to the general trauma exposure question completed the International Trauma Questionnaire (ITQ) (Cloitre et al., 2018) in relation to their most troubling experience. The ITQ consists of two items measuring each of the three core elements of PTSD and the three additional core elements of Complex PTSD, as well as six items measuring functional impairment. Each item refers to the past month and is measured on a 5-point scale ranging from 0 "Not at all" to 4 "Extremely". A score of 2 "Moderately" is required for an item to count toward diagnosis. The measure is psychometrically robust, and its ability to distinguish between PTSD and CPTSD has been established using confirmatory factor analysis and latent profile analysis (Cloitre et al., 2018; Ho et al., 2020; Owczarek et

al., 2019; Tian et al., 2020). A PTSD diagnosis required endorsement of at least one item measuring each of the three core features plus functional impairment. Officers additionally endorsing at least one item measuring each of the three core CPTSD features plus functional impairment were assigned a CPTSD diagnosis.

Other questions in the survey were concerned with the specific nature of the worst traumatic event, or with wellbeing and working conditions, and are not analysed here.

Statistical Analysis

Data enabling us to assess the representativeness of our sample were only available for England and Wales. Unadjusted prevalence figures for PTSD and CPTSD among our respondents from England and Wales were recalculated weighting the sample for the distribution of gender, age, and rank in the entire England and Wales force as determined by Home Office figures[1]. We used a 'raking' technique whereby the sampling weights are iteratively adjusted until the marginal values of the selected variables converge with the known population totals. The prevalence of PTSD increased from 7.71% to 7.97% and the prevalence of CPTSD increased from 12.79% to 13.01%. A sensitivity analysis yielded no significant differences with the regression results obtained from the corresponding unweighted dataset. In order to have comparable data from the entire United Kingdom unadjusted estimates are used in the analyses. Further sensitivity checks investigated whether rates of PTSD were affected by the response rate of a particular police service or by whether responders completed the survey early or late, but these factors had a minimal effect on the results.

The structure of the survey meant that participants not completing a given page could not progress to later questions. Thus the number of missing values increased cumulatively throughout the survey and depended on the position of the item in the survey. Symptom items

occurred mid-survey. As a result, values on any specific item could be missing for three reasons: The respondent had already exited the survey through failing to answer a previous question, they specifically declined to answer that question, or they gave a don't know/prefer not to say response to the specific question. Table 1 reports these three missing value sources for each of the predictor variables in the study. The table shows that the great majority of missing values were associated with age and gender which came right at the end of the survey and consequently suffered from earlier drop-out.

The distribution of demographic variables and trauma exposure between those meeting criteria for PTSD or CPTSD relative to those receiving no PTSD diagnosis were compared individually using chi-squared tests. In order to determine which were unique predictors of disorder when controlling for all other variables, demographic characteristics and indices of trauma exposure were then simultaneously entered into multiple logistic regressions. All variables were entered with one exception. As age and length of service were very highly correlated ($r = .78$, $p < .001$), and the main focus of the study was on length of service, age was dropped from the regression analyses. Three separate regressions predicted (a) PTSD versus no PTSD, (b) CPTSD versus no PTSD, and (c) PTSD versus CPTSD. A set of interaction terms further explored whether any individual type of exposure was more strongly associated with PTSD among male than among female officers (or vice versa).

Multiple imputation is sometimes appropriate to compensate for missing values. However, it is recommended that values should only be imputed for predictors and not for dependent variables (von Hippel, 2007). The only remaining predictor with a significant number of missing values ($n = 688$) was gender. We opted to run the multivariate analyses with and without gender to investigate whether its inclusion affected the results.

Results

As shown in Figure 1, 12.5% of the base sample had discontinued their participation in the survey by the time they were asked whether they had encountered events that were to some extent traumatic. The great majority of the remainder (n = 10,401) agreed that they had. The modal time of occurrence of the most troubling event was 1-5 years previously (35.6% of respondents). The trauma-exposed group had a mean age of 41.1 years (*SD* 8.1 years) and a mean length of service of 15.8 years (*SD* 7.4 years).

The available subset of respondents who had not exited the survey at an earlier point or specifically declined to answer the symptom questions was 9,929. Of these, 8.0% were diagnosed with PTSD, 12.6% with CPTSD, and the remaining 79.4% did not meet criteria for either disorder. Table 1 describes the demographic characteristics and exposure to trauma in these three groups, as well as in the total sample. The variables are listed in order of their appearance in the survey, and the table reports the number and nature of any missing values. All variables were associated with an altered likelihood of PTSD, Complex PTSD, and no PTSD.

Given the importance both of trauma exposure and gender, we next compared the experiences of men and women officers. Men reported being more often exposed to verbal abuse, $\chi^2(1) = 58.12$, $p < .001$, threats, $\chi^2(1) = 235.00$, $p < .001$, humiliating behaviours, $\chi^2(1) = 34.76$, $p < .001$, and physical violence, $\chi^2(1) = 243.12$, $p < .001$, whereas women reported being exposed to more frequent traumatic incidents, $\chi^2(6) = 55.16$, $p < .001$, traumatic visual exposure, $\chi^2(6) = 49.28$, $p < .001$, and sexual harassment, $\chi^2(1) = 354.72$, $p < .001$. There were no reported gender differences in exposure to traumatic auditory material, $\chi^2(6) = 5.30$, $p > .50$.

Prior to conducting the logistic regressions we confirmed there was little evidence of multi-collinearity. The omission of age as a variable was supported by finding that there were

no independent effects of age when controlling for years of service. Outlier assessment found a small number of cases with standardised residuals lying outside +/-2.58 *SD,* but none were beyond +/-3 and they represented no more than 0.17% of the analysed sample. Frequency of traumatic incidents, and of exposure to traumatic visual and auditory material, were treated as continuous variables in all analyses. When we assessed all variables as predictors of PTSD vs. no PTSD the overall model was highly significant, $\chi^2(15) = 210.40$, $p < .001$, Nagelkerke $R^2 = .06$. As shown in Table 2, significant predictors of PTSD included higher frequency of exposure to traumatic incidents and traumatic visual material, exposure to humiliating behaviours and sexual harassment, and male gender. Interactions of gender with the different forms of exposure were tested separately in a second step but none were significant and they are excluded from the model reported here. When we excluded gender from the regression the results remained the same except that the OR for the effect of sexual harassment decreased from 1.34 to 1.25 and was no longer significant.

When predicting CPTSD vs. no PTSD the overall model was highly significant, $\chi^2(15) = 487.11$, $p < .001$, Nagelkerke $R^2 = .10$. As shown in Table 3, significant predictors of CPTSD included more years of service, lowest rank (constable), exposure to more traumatic incidents and to more traumatic visual and auditory material, exposure to humiliating behaviours and sexual harassment, and male gender. Exposure to verbal abuse had a slight protective effect. Interactions of gender with the different forms of exposure were tested separately in a second step, but none were significant and they are excluded from the model reported here. When we excluded gender from the regression the pattern of results did not change.

A final logistic regression assessed the predictors of PTSD vs. CPTSD. The overall model was significant, $\chi^2(15) = 25.53$, $p = .043$, Nagelkerke $R^2 = .02$. Individual predictors were: 20+ years of service' experience compared to the reference category of 0-4 years, OR =

1.66 [CI 1.09 – 2.54], p = .019, rank of inspector or above compared to the lowest rank, OR = 0.61 [CI .41 - .92], p = .017, exposure to humiliating behaviours, OR = 1.28 [CI 1.01 – 1.62], p = .040, and sexual harassment, OR = 1.32 [CI 1.00 – 1.74], p = .048. When we excluded gender from the regression the pattern of results did not change.

Discussion

The prevalence of mental ill health within the emergency services is likely to fluctuate over time due to changes in working practices and responsibilities, staffing levels, and societal developments that may impact on recruitment and the relationship between public and police. Such factors may also differentially impact police officers working in specific geographical areas or who undertake specific sorts of duty. With these caveats in mind, the current study provides the most comprehensive assessment of PTSD prevalence that has yet been reported among police officers. The combined prevalence of PTSD and CPTSD (20.6%) is high compared to the international average of 14.2% reported in a recent meta-analysis (Syed et al., 2020) although it falls well within the range identified by previous studies.

The one-month prevalence obtained is noticeably higher than in nationally representative population studies using ICD-11: In the United States rates of 3.4% (PTSD) and 3.5% (CPTSD) were reported (Cloitre et al., 2019); in Israel rates were 9.0% (PTSD) and 2.6% (CPTSD) (Ben-Ezra et al., 2018); in Germany rates were 1.5% (PTSD) and 0.5% (CPTSD) (Maercker, Hecker, Augsburger, & Kliem, 2018). More importantly, we found the excess of CPTSD in police officers predicted by its theoretical basis in exposure to chronic and repeated stress.

Although all variables were associated with a differential likelihood of PTSD, CPTSD, or not PTSD in bivariate analyses, consistent with previous research on traumatic exposure (Violanti et al., 2017), there were unique demographic and exposure-based

predictors of the two conditions. For PTSD and CPTSD, these included male gender and a high frequency of everyday exposure to traumatic events and visual material. Exposure to verbal abuse, threats, physical violence, or traumatic auditory material did not appear to confer unique additional risk, perhaps because these experiences were commonplace or regarded as an expected part of the job.

In contrast, exposure to humiliating behaviours in the past month and to sexual harassment in the past year were unique predictors. The impact of humiliating behaviours may reflect the well-documented association between PTSD and shame (Lopez-Castro, Saraiya, Zumberg-Smith, & Dambreville, 2019). Importantly, shame was found in one study to predict the development of PTSD over and above levels of initial symptoms, suggesting that such experiences continue to be toxic for months after they have occurred (Andrews, Brewin, Rose, & Kirk, 2000). One mechanism that could account for this is rumination, which is a predictor of PTSD symptoms such as intrusive memories both in naturalistic (Michael, Halligan, Clark, & Ehlers, 2007) and experimental (Ball & Brewin, 2012) studies. Sexual harassment, although sometimes not considered to be a traumatic stressor that meets criteria for a DSM PTSD diagnosis, has been shown to be more prevalent in traditionally male organisations (Sbraga & O'Donohue, 2000). It is strongly associated with PTSD symptoms (Avina & O'Donohue, 2002), including in military samples (Wolfe et al., 1998). This may also be because of its potential to induce shame (Yoon, Funk, & Kropf, 2010).

Unique predictors that differentiated CPTSD from PTSD were greater years of experience, lowest rank, and exposure to humiliating behaviours and sexual harassment. The implication is that within police samples there are relatively few specific categories of traumatic exposure that determine which disorder develops. The data support a cumulative burden model in which increasing years of continual exposure gradually reduce resistance. This pattern of developing PTSD gradually rather than in response to a single overwhelming

events has frequently been noted, for example in the literature on delayed-onset PTSD (Andrews, Brewin, Stewart, Philpott, & Hejdenberg, 2009). A number of biological mechanisms, for example sensitisation and kindling, have been put forward to account for this process (Post, Weiss, Smith, Li, & McCann, 1997; Yehuda, 1997). Given that CPTSD may increase the probability of retirement or medical discharge, it is possible that the effect of length of service is an underestimate. Our findings suggest that particular care should be taken to assess long-serving officers who have not been promoted for cumulative levels of trauma exposure and PTSD symptoms, as well as to monitor officers who have felt humiliated or sexually harassed.

There are a number of other occupational health implications for police forces. CPTSD is a newly defined condition and there are as yet no clinical trials evaluating interventions for its treatment. However, the NICE Guideline indicates that CPTSD may require longer and more intensive treatment than PTSD. The presence of sometimes severe difficulties in emotion regulation means that in some cases a phase-based approach to trauma treatment may be desirable in which these problems are addressed at the outset so that the person is better able to tolerate a specific focus on the traumatic events. One example is skills training in affect and interpersonal regulation (STAIR) (Cloitre et al., 2010). More generally health provision for CPTSD is likely to need a flexible, multi-modular approach that for some individuals will go beyond standard trauma-focussed treatment (Karatzias & Cloitre, 2019). Assessing the local prevalence of PTSD and CPTSD, and their relative frequency in different branches of police work, will be important for planning such interventions.

The primary limitation of the study was the unknown response rate which enjoins caution about the overall prevalence rates of trauma exposure and PTSD that were obtained. However, representativeness checks on the England and Wales data suggested prevalence rates were, if anything, slightly underestimated, and sensitivity checks did not indicate that

the response rate of a particular police service was associated with prevalence. It should also be noted that the mental health content of the survey was not advertised and the prevalence rate of PTSD fell well within previous estimates. There is less reason to be cautious about the effects of any selection bias on relative levels of PTSD and CPTSD, or on the associations with most of the risk factors that were documented. Other limitations include the difficulty in measuring the intensity of the different forms of trauma exposure with so many separate potential incidents, and the absence of measures of other types of traumatic stress and prior individual susceptibility to disorder.

Unusually, male officers were more at risk of PTSD and CPTSD, reflecting previous heterogeneity in gender differences for this disorder among police samples (Beagley et al., 2018). Our data suggested that this was partly due to a greater exposure to humiliating behaviours, one of the most toxic forms of experience. However, our reliance on self-report measures may have introduced some bias, and may have accounted for the particularly strong effect size associated with this variable. This is an important topic for further exploration. It also cannot be ruled out that there may have been selection biases operating either with entry to the survey or at various career stages.

These limitations notwithstanding, the survey provides the most comprehensive estimate to date of levels of PTSD within police officers, and is the first to assess ICD-11 diagnoses in an occupational group. It is also the first to validate the inclusion of repeated indirect exposure to traumatic material in an occupational context within DSM-5 Criterion A. The distinction between PTSD and complex PTSD introduced by ICD-11 was shown to be relevant to this highly trauma-exposed group, and it has important implications for mental health planning within the emergency services more generally.

Footnotes

1. The overall response rate was calculated over an estimate total of police officers and staff from England and Wales as of March 2018 (according to Home Office records available at www.gov.uk/government/statistics/police-workforce-open-data-tables), from Police Scotland as of May 2018 (according to Scottish Government records available at www.scotland.police.uk/access-to-information/freedom-of-information/disclosure-log/0/2018/may/18-0923) and from the Police Service of Northern Ireland as of April 2019 (according to PSNI records available at www.psni.police.uk/inside-psni/Statistics/strength-of-police-service-statistics).
2. Downloaded 08/28/2019 from https://www.ethnicity-facts-figures.service.gov.uk/workforce-and-business/workforce-diversity/police-workforce/latest#by-ethnicity

Conflicts of interest

None to declare

Ethics

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

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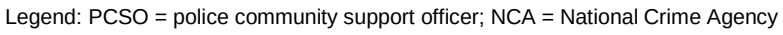
Figure 1

Case selection flowchart



Legend: PCSO = police community support officer; NCA = National Crime Agency

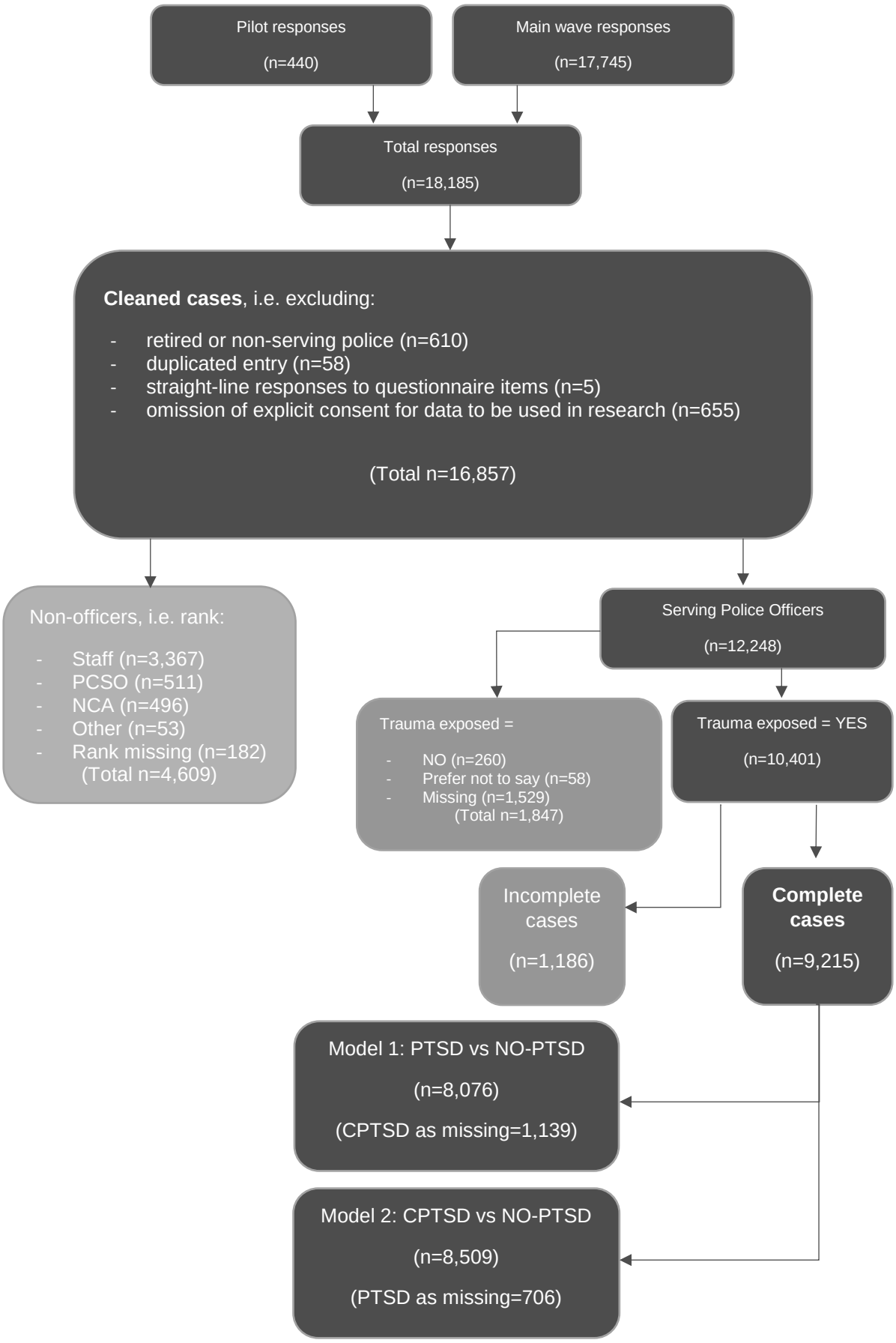

Pilot responses
(n=440)
Main wave responses
(n=17,745)
Total responses
(n=18,185)
Cleaned cases, i.e. excluding:
- retired or non-serving police (n=610)
- duplicated entry (n=58)
- straight-line responses to questionnaire items (n=5)
- omission of explicit consent for data to be used in research (n=655)
(Total n=16,857)
Non-officers, i.e. rank:
- Staff (n=3,367)
- PCSO (n=511)
- NCA (n=496)
- Other (n=53)
- Rank missing (n=182)
(Total n=4,609)
Serving Police Officers
(n=12,248)
Trauma exposed =
- NO (n=260)
- Prefer not to say (n=58)
- Missing (n=1,529)
(Total n=1,847)
Trauma exposed = YES
(n=10,401)
Incomplete cases
(n=1,186)
Complete cases
(n=9,215)
Model 1: PTSD vs NO-PTSD
(n=8,076)
(CPTSD as missing=1,139)
Model 2: CPTSD vs NO-PTSD
(n=8,509)
(PTSD as missing=706)

Table 1

Demographic Characteristics and Trauma Exposure by PTSD and CPTSD Status

Variable (total missing before that point in survey, number not answering specific item, number don't know/prefer not to say)	All trauma-exposed (*n*, row %)	PTSD (*n*, row %)	Complex PTSD (*n*, row %)	No PTSD (*n*, row %)	Pearson chi-square
Rank (0, 0, 0)					
Constable	7102 (100%)	597 (8.4%)	975 (13.7%)	5530 (77.9%)	$\chi^2(4) = 48.70$
Sergeant	1916 (100%)	141 (7.4%)	209 (10.9%)	1566 (81.7%)	$p < .001$
Inspector or higher rank	911 (100%)	55 (6.0%)	66 (7.3%)	790 (86.7%)	
Years of service (0, 0, 0)					
0-4	773 (100%)	61 (7.9%)	81 (10.5%)	631 (81.6%)	$\chi^2(6) = 14.88$
5-9	1124 (100%)	111 (9.9%)	148 (13.1%)	865 (77.0%)	$p = .021$
10-19	5013 (100%)	413 (8.2%)	637 (12.7%)	3963 (79.1%)	
20+	3019 (100%)	208 (6.9%)	384 (12.7%)	2427 (80.4%)	
Traumatic incidents (0, 0, 22)					
Never	398 (100%)	17 (4.3%)	42 (10.4%)	339 (85.3%)	$\chi^2(12) = 194.92$
Almost never	2089 (100%)	121 (5.8%)	179 (8.6%)	1789 (85.6%)	$p < .001$
Around one quarter of the time	2994 (100%)	204(6.8 %)	321 (10.7%)	2469 (82.5%)	
Around half of the time	1470 (100%)	127 (8.6%)	204 (13.9%)	1139 (77.5%)	
Around three quarters of the time	925 (100%)	91 (9.8%)	136 (14.7%)	698 (75.5%)	

Almost all of the time	1025 (100%)	100 (9.7%)	170 (16.6%)	755 (73.7)%	
All of the time	1007 (100%)	130 (12.9%)	195 (19.4%)	682 (67.7%)	
Traumatic visual material (0, 0, 28)					
Never	1265 (100%)	77 (6.1%)	108 (8.5%)	1080 (85.4%)	$\chi^2(12) = 183.35$
Almost never	4050 (100%)	257 (6.4%)	430 (10.6%)	3363 (83.0%)	$p < .001$
Around one quarter of the time	2219 (100%)	186 (8.4%)	289 (13.0%)	1744 (78.6%)	
Around half of the time	820 (100%)	92 (11.2)%	127 (15.5%)	601 (73.3%)	
Around three quarters of the time	552 (100%)	65 (11.8%)	87 (15.7%)	400 (72.5%)	
Almost all of the time	504 (100%)	53 (10.5%)	99 (19.5%)	352 (70.0%)	
All of the time	492 (100%)	62 (12.6%)	105 (21.3%)	325 (66.1%)	
Traumatic auditory material (0, 0, 56)					
Never	1187 (100%)	67 (5.7%)	111 (9.3%)	1009 (85.0%)	$\chi^2(12) = 173.95$
Almost never	3178 (100%)	204 (6.4%)	315 (9.9%)	2659 (83.7%)	$p < .001$
Around one quarter of the time	2072 (100%)	167 (8.0%)	238 (11.5%)	1667 (80.5%)	
Around half of the time	1028 (100%)	85 (8.3%)	147 (14.3%)	796 (77.4%)	
Around three quarters of the time	724 (100%)	73 (10.1%)	109 (15.0%)	542 (74.9%)	
Almost all of the time	886 (100%)	99 (11.1%)	172 (19.4%)	615 (69.5%)	
All of the time	803 (100%)	95 (11.8%)	148 (18.4%)	560 (69.8%)	
Verbal abuse (0, 0, 25)					
No	3022 (100%)	183 (6.1%)	303 (10.0%)	2536 (83.9%)	$\chi^2(2) = 53.57$
Yes	6884 (100%)	608 (8.8%)	942 (13.7%)	5334 (77.5%)	$p < .001$

Threats (0, 0, 35)					
No	4547 (100%)	288 (6.3%)	444 (9.8%)	3815 (83.9%)	$\chi^2(2) = 101.84$
Yes	5350 (100%)	502 (9.4%)	799 (14.9%)	4049 (75.7%)	$p < .001$
Humiliating behaviours (0, 0, 187)					
No	5640 (100%)	329 (5.8%)	464 (8.2%)	4847 (86.0%)	$\chi^2(2) = 343.92$
Yes	4112 (100%)	448 (10.9%)	758 (18.4%)	2906 (70.7%)	$p < .001$
Physical violence (0, 1, 11)					
No	4341 (100%)	291 (6.7%)	477 (11.0%)	3573 (82.3%)	$\chi^2(2) = 40.07$
Yes	5577 (100%)	502 (9.0%)	772 (13.8%)	4303 (77.2%)	$p < .001$
Sexual harassment (1, 0, 53)					
No	8844 (100%)	671 (7.6%)	1015 (11.4%)	7158 (81.0%)	$\chi^2(2) = 119.05$
Yes	1032 (100%)	115 (11.1%)	227 (22.1%)	690 (66.8%)	$p < .001$
Age (685, 3, 10)					
24 or younger	187 (100%)	21 (11.2%)	28 (15.0%)	138 (73.8%)	$X^2(8) = 20.19$
25 to 34	1983 (100%)	176 (8.9%)	223 (11.2%)	1584 (79.9%)	$p = .01$
35 to 44	3770 (100%)	278 (7.4%)	472 (12.5%)	3020 (80.1%)	
45 to 54	3523 (100%)	259 (7.3%)	478 (13.6%)	2786 (79.1%)	
55 or older	240 (100%)	17 (7.1%)	19 (7.9%)	204 (85.0%)	
Gender (688, 0, 0)					
Male	6354 (100%)	513 (8.1%)	819 (12.9%)	5022 (79.0%)	$\chi^2(2) = 18.55$
Female	3147 (100%)	219 (7.0%)	361 (11.5%)	2567 (81.5%)	$p = .001$

	Prefer not to say	212 (100%)	21 (9.9%)	40 (18.9%)	151 (71.2%)	

Table 2

Variables Predicting PTSD versus no PTSD in Simultaneous Logistic Regression

		Adjusted OR [95% CI]
Constant		.02
Years of service (ref = 0-4 years)		
	5-9 years (mid-career)	1.38 [.97, 1.96]
	10-19 years (experienced)	1.36 [1.00, 1.86]
	20+ years (late career)	1.28 [.91, 1.79]
Rank (ref = Constable)		
	Sergeant	.89 [.72, 1.10]
	Inspector or higher rank	.92 [.67, 1.26]
Frequency of traumatic incidents		1.11 [1.05, 1.17]***
Frequency of exposure to traumatic visual material		1.13 [1.07, 1.20]***
Frequency of exposure to traumatic auditory material		1.03 [.98, 1.08]
Verbal abuse (yes/no)		.95 [.73, 1.23]
Threats (yes/no)		1.08 [.83, 1.40]
Humiliating behaviours (yes/no)		2.02 [1.66, 2.45]***
Physical violence (yes/no)		.98 [.79, 1.21]
Sexual harassment (yes/no)		1.34 [1.05, 1.70]*
Gender (ref = male)		
	Female	.79 [.65, .94]*
	Prefer not to say	1.30 [.80, 2.12]

Note. OR = odds ratio; CI = confidence interval; ref = reference category.

**p<.05; **p<.01; ***p<.001*

Table 3

Variables Predicting CPTSD versus no PTSD in Simultaneous Logistic Regression

	Adjusted OR (95% CI)
Constant	.03
Years of service (ref = 0-4 years)	
5-9 years (mid-career)	1.49 [1.09, 2.03]*
10-19 years (experienced)	1.72 [1.31, 2.24]***
20+ years (late career)	2.12 [1.59, 2.83]***
Rank (ref = Constable)	
Sergeant	.74 [.62, .88]***
Inspector or higher rank	.56 [.43, .75]***
Frequency of traumatic incidents	1.08 [1.03, 1.13]**
Frequency of exposure to traumatic visual material	1.13 [1.07, 1.18]***
Frequency of exposure to traumatic auditory material	1.07 [1.03, 1.11]***
Verbal abuse (yes/no)	.79 [.63, .99]*
Threats (yes/no)	1.18 [.94, 1.47]
Humiliating behaviours (yes/no)	2.55 [2.16, 3.00]***
Physical violence (yes/no)	.85 [.71, 1.01]
Sexual harassment (yes/no)	1.81 [1.50, 2.19]***
Gender (ref = male)	
Female	.78 [.68, .91]**
Prefer not to say	1.45 [.98, 2.13]

Note. OR = odds ratio; CI = confidence interval; ref = reference category.

**p<.05; **p<.01; ***p<.001*