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What work-related exposures are associated with post-traumatic stress disorder? A systematic review with meta-analysis

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3 **What work-related exposures are associated with post-traumatic stress disorder? A systematic**
4 **review with meta-analysis**
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6

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Abstract

Objectives: Although there is evidence that work-related exposures cause post-traumatic stress disorder (PTSD), there are few quantitative studies assessing the degree to which these factors contribute to PTSD. This systematic review with meta-analysis identified work-related exposures associated with PTSD, and quantified their contribution to this disorder.

Methods: We searched Medline, PsycINFO, Embase, PILOTS and Web of Science (2005 to 10-09-2019) for longitudinal studies on work-related exposures and PTSD. We described included articles, and conducted meta-analyses for exposures with sufficient homogeneous information. We performed subgroup analyses for risk of bias, study design and PTSD ascertainment. We assessed evidence quality using GRADE, and estimated population attributable fractions.

Results: After screening 8,590 records, we selected 33 studies (n=5,719,236). From what was moderate quality evidence at best, we identified various work-related exposures that were associated with PTSD, mainly involving individuals in the military and first responder (e.g., police or fire brigade) occupations. These exposures included the number of army deployments (odds ratio: 1.15 [1.14 1.16]), combat exposure (1.89 [1.46 2.45]), army deployment (1.79 [1.45 2.21]) and confrontation with death (1.63 [1.41 1.90]). Effects were robust across subgroups and exposures attributed modestly (7%-34%) to PTSD. We identified additional exposures in other occupations, including life threats, being present during an attack, and hearing about a colleague's trauma.

Conclusions: We identified various work-related exposures associated with PTSD and quantified their contribution. While exposure assessment, PTSD ascertainment, and inconsistency may have biased our findings, our data are of importance for development of preventive interventions and occupational health guidelines.

Key words: Post traumatic stress disorder; occupational health; occupational diseases; systematic review; meta-analysis

Strengths and limitation of this study

- Post-traumatic stress disorder (PTSD) is particularly prevalent among certain occupational groups, e.g., first responder (such as police or fire brigade) and military personnel.
- However, the association of work-related exposures with PTSD has not previously been quantified in a meta-analysis.
- We identified 33 studies (with n=5,719,236 participants) in which various work-related exposures were found to be associated with PTSD, based on moderate quality evidence at best.
- These findings can be used to support the development of preventive interventions, and as an aid to the assessment of occupational PTSD in occupational medicine guidelines.

Background

Post-traumatic stress disorder (PTSD) can be triggered when individuals experience or witness traumatic events. PTSD has been a clinical diagnosis since 1980, when the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) was published¹. The most recent DSM-5² states that PTSD results from exposure to severely traumatic event(s), while exhibiting a pattern of symptoms characterised by intrusion, avoidance, negative moods and cognitions, arousal, and reactivity. A diagnosis of PTSD also involves duration and functional impairment criteria, and the patient's symptoms should be exclusive (i.e., not caused by drugs or other illnesses). Estimates of PTSD prevalence among the general population differ widely. For example, lifetime PTSD prevalence ranged from 6% to 9% in United States (US) and Canadian samples, while prevalence rates in Australian samples range from 1% to 2%³. The substantial differences between individual studies could result from different ways in which PTSD was ascertained, varying from any type of clinical diagnosis, to self-reports of DSM-5 criteria and PTSD symptoms assessed as *probable PTSD*.

PTSD can have a major impact on individuals and society as a whole, as it is associated with mental comorbidities⁴, substance abuse⁵ and suicide⁶. PTSD is particularly prevalent among certain occupational groups, such as police officers, firefighters, medical workers and military personnel, all of whom can experience events that might trigger PTSD^{7 8}. One particular systematic review showed that the prevalence of PTSD in military veterans and other high-risk occupational groups can be almost twice as high as among the general population⁸. Another more recent review identified a number of occupational groups, including healthcare workers, police officers, prison workers, and emergency personnel, with an increased risk of PTSD⁹. Also, various specific work-related exposures (i.e., exposures to situations or conditions at work that may have an effect on PTSD) and their association with PTSD have been reported⁷. This included traumatic events experienced by military personnel and first responders (e.g., police officers or fire fighters). The latter review also identified journalists, healthcare workers or individuals in other occupations who are exposed to traumatic events or the aftermath thereof⁷.

Despite this evidence, the association of work-related exposures with PTSD has not yet been quantified in a meta-analysis. Such knowledge is of importance to answer questions regarding work-related causation and prevention, as a prelude to developing interventions. With regard to prevention, we need to quantify the contribution of work-related exposures in the onset of PTSD¹⁰. Such data could be used to formulate clinically relevant exposure threshold limits, as has been done with other disorders^{11 12}. It could also be of use in occupational health guidelines, as many countries provide financial compensation for individuals diagnosed with an occupational disease.

In this study, our aim was to 1) identify the work-related exposures associated with the onset of PTSD, and 2) quantify the extent to which such exposures contribute to this disorder. Evidence on the contribution of work-related factors to PTSD could be used to facilitate decisions in reporting schemes. It could also help to identify and prioritise preventive interventions against those exposures with the strongest effect, in terms of triggering PTSD.

Methods

The protocol for this systematic review with meta-analysis was registered in PROSPERO¹³ a-priori. The review itself was conducted in accordance with the PRISMA statement guidelines¹⁴.

Searches

The Medline, PsycINFO, Embase, PILOTS and Web of Science databases were systematically searched for material published from 2005 (January) to 2019 (September 10). This was an arbitrarily chosen period on the basis of changes in people's exposure to work-related traumatic events and changes in the definition of PTSD over time². The search strategy consisted of a combination of controlled search terms (e.g., Medical Subject Headings/MeSH) and free-text words used to specify search terms related to: 1) PTSD 2) exposure, and 3) work. A methodological filter was used to select longitudinal studies (prospective, retrospective or case-control), studies published in English, and those involving human participants only. The search strategy used is described in detail in supplementary file 1. We validated this search with various key references, to avoid term bias. In addition to the database search, we conducted snowball searches for additional studies. These were based on citation tracking (forwards and backwards) from the articles and reviews retrieved in our electronic search. We also conducted scoping searches for key researchers on this topic, and used ResearchGate profiles to identify relevant records and projects (including unpublished projects). Outcome articles were compared to potential protocol papers, to assess selective reporting.

Inclusion and exclusion criteria

Two reviewers, working independently of one another, used Rayyan (an online tool: <https://rayyan.qcri.org/>) to screen for eligible references. The full texts of any such references (whose eligibility was based on the screening title and abstract) were retrieved for further screening. Any conflicts were resolved during a consensus meeting. We included studies on the association between any work-related exposure and the onset of PTSD (acute or delayed) in paid workers of working age (aged 18-65). Any studies that described work-related exposures in terms of work demands or other occupational factors were eligible for inclusion. However, studies in which exposures were related to job title or work title only were excluded. Studies were included if there was an actual diagnosis of PTSD (either using checklists with defined cut-off values or clinical criteria, e.g., using DSM criteria² and/or coded according to the International Classification of Disorders -ICD-9-CM 309.81-). Studies in which PTSD was assessed by means of self-reports only (not using any criteria) were excluded. We excluded any studies into the persistence or growth of PTSD. Those studies in which the exposure-outcome association was quantified, e.g., in terms of effect sizes such as a hazard ratio (HR), relative risk (RR) or odds ratio (OR), were included. We restricted ourselves to original articles, in English or Dutch, published in peer-reviewed scientific journals from 2005 onwards. Studies with a prospective, retrospective or case-control longitudinal design were included, while cross-sectional studies were excluded, to be able to monitor the time sequence between exposure and the PTSD onset, in which the assessments of exposure precede the actual onset of the disorder. The above-mentioned set of criteria were finalised after a pilot screening of 300 references.

Data extraction and risk of bias assessment

Two reviewers, working independently of one another, extracted data and assessed risk of bias from each of the eligible articles. Any conflicts were resolved during a consensus meeting. We extracted first author and year of publication, study name and design, sample (country, occupational group,

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3 age and sex), exposure assessment, PTSD ascertainment, and effect size. Where it was not possible
4 to retrieve sufficient information from the published articles, additional data were requested from
5 study researchers.
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7 Risk of bias was assessed using the 'Quality in Prognosis Studies' tool¹⁵, with criteria related
8 to study participation, attrition, prognostic factor (i.e., exposure) measurements, outcomes,
9 confounding, and statistical analysis. Here, we attributed a low risk of bias regarding attrition to
10 studies with a >80% participant retention.
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12 13 Data analysis

14 The included articles were described in terms of extracted data and risk of bias. Work-related
15 exposures were categorised according to the DSM-5 criteria for PTSD stressors²: 1) direct exposure to
16 the trauma, 2) witnessing a trauma, 3) hearing about a colleague/co-workers (adapted to work
17 context) was/were exposed to a trauma, or 4) indirect exposure to aversive details of a trauma (e.g.,
18 first responders and medics).
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21 Where sufficient clinically and methodologically homogeneous information were available, a
22 quantitative meta-analysis was conducted to determine a pooled effect size for the association of
23 each exposure with PTSD. Review Manager (RevMan 5) was used for the meta-analyses, and to
24 generate forest and funnel plots. The latter were used to assess publication bias, through visual
25 inspection. According to the Cochrane collaboration handbook, funnel plots were only generated for
26 exposures with effect sizes from ≥ 10 studies¹⁶. Most of the exposure-outcome associations featured
27 statistical heterogeneity ($I^2 > 75\%$), so random-effects estimates were adopted for statistical pooling.
28 We assumed that the interpretation of effect estimates (e.g., HR and OR) was consistent, and we
29 estimated pooled OR with 95% confidence interval (95%CI). We adopted the OR, as this was the most
30 frequently reported effect size in the articles found (being reported in 32 articles, whereas two
31 articles reported HRs and three articles reported RRs).
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34 When more than one article reported on the same study, information from just one of these
35 articles was used for analyses, using effect sizes from the article with the shortest follow-up duration
36 (with a latency time of at least four weeks) to ensure that the work-related exposure of interest is
37 indeed the most likely cause of PTSD. Wherever possible, we used information from fully adjusted
38 models and we did not consider subgroups (e.g., sex differences). Population attributable fractions
39 (PAFs) were estimated¹⁷ to assess the extent to which work-related exposures contributed to the
40 development of PTSD. Here, the proportion of workers exposed to the exposure of interest (P_e) were
41 multiplied by the attributable proportion in the exposed workers: $P_e(OR-1)/(1+P_e(OR-1))$.
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44 In line with our registered protocol¹³, subgroup analyses were based on the risk of bias (with
45 a cut-off score of 60% for the risk of bias scale summary score, to obtain two subgroups), on the
46 study design (prospective vs retrospective) and on PTSD ascertainment (clinically diagnosed PTSD vs
47 probable PTSD). In contrast to the protocol that we registered a-priori,¹³ we were unable to compare
48 other characteristics of PTSD (i.e., acute vs delayed) due to limited available data. Any information
49 that could not be qualitatively analysed was described narratively.
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54 Strength of evidence

55 The strength of the evidence was assessed using the GRADE (Grades of Recommendations,
56 Assessment, Development and Evaluation) framework¹⁸. Four quality levels were distinguished: high,
57 moderate, low, and very low. Our starting point for evidence grading was 'moderate', which has
58 previously been proposed for use in the assessment of prognostic factors¹⁹. Various study limitations
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3 could have detracted from the strength of the evidence (if the majority of the studies scored <60%
4 on the risk of bias scale), as could inconsistency ($I^2 > 50\%$), indirectness, imprecision (95%CI
5 boundaries are <1 and >2), and publication bias (based on the funnel plots). Study findings with
6 moderate or large effect sizes (i.e., lower limit of 95%CI OR > 2.0) or an exposure-response gradient
7 could boost the quality of the evidence.
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10 Patient and public involvement

11 There was no patient or public involvement in designing and conducting this study.
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Results

Study selection

The study selection procedure is described in Figure 1. We identified 14,529 records during database searches. After discarding duplicates, we screened the remaining 8,590 records on title and abstract. Of these, we assessed 107 full text articles and excluded 65 for various reasons (see Supplementary file 2 for more details). As no additional articles were found during snowball and scoping searches, 42 articles from 33 studies were described in this review²⁰⁻⁶¹.

Study description and methodological quality/risk of bias

Supplementary file 3 contains the extracted data, and risk of bias assessment is shown in supplementary file 4-5. The 33 included studies provided data on n=5,719,236 participants, ranging from n=19 to n=2,549,949 participants per study. Eighteen studies were from the US, four were from the United Kingdom, two were from Denmark, and two others from Japan. There was one study from each of the following countries: Israel, The Netherlands, Germany, Portugal, Italy, Norway and Korea. The majority of the studies (N=21) involved participants from armed forces. Five studies featured first responders who had attended the scene of a disaster, three focused on healthcare workers, two on employers at the scene of a disaster, one on bank workers and one on public transport workers.

Four studies reported no details of sex, five studies only used male participants, and 17 used samples in which the majority of participants were male ($\leq 20\%$ females). In only seven studies, did female participants make up a reasonable proportion ($>20\%$) of the study sample. Twenty-eight studies reported exposures obtained from self-reports, 12 studies used deployment administration databases, and two studies were based on a combination of these two measurements. Baseline exposure assessment was carried out for the period 1983-2012. Twenty-five articles assessed PTSD (by clinical diagnosis) while the remaining 17 articles assessed probable PTSD/PTSD symptoms (by self-reports using pre-defined (e.g., DSM-5) criteria). The weighted average for PTSD prevalence during in the follow-up periods was 7.3%, while individual study prevalence ranged from 1.0% to 70.5%. The average prevalence for diagnosed cases of PTSD was slightly higher (7.3%) than for probable PTSD (6.4%).

Twenty-five studies were prospective studies and eight were retrospective studies. On average, methodological quality was 62% (SD:19%), ranging from 25% to 100%. Most articles showed a low risk of bias on analysis/reporting (N=37) and confounding (N=25). Less than half of the articles showed a low risk of bias on participation selection (N=11), attrition (N=9), prognostic factor (exposure) assessment (N=9) and outcome (PTSD) ascertainment (N=13).

Work-related exposures

Each of the exposure-outcome associations presented have been described and categorised according to the DSM-5 criteria for PTSD stressors²: 1) direct exposure, 2) witnessing a trauma, 3) hearing that a colleague or co-worker was exposed to a trauma, or 4) indirect exposure to aversive details of a trauma. An overview of qualitative and quantitative analyses of all exposure-outcome associations is shown in Table 1. Figures 2 and 3 depict quantitative analyses, while Table 2 contains an overview of any exposure-outcome associations that could not be statistically pooled.

Direct exposure

The exposure-outcome associations for direct exposures were quantitatively analysed for: number of army deployments (OR[95%CI]: 1.15[1.14 1.16], $I^2=0\%$, n=333,024, Figure 2), combat exposure

(OR[95%CI]: 1.89[1.46 2.45], $I^2=89%$, $n=28,304$, Figure 2) and army deployment (OR[95%CI]: 1.79 [1.45 2.21], $I^2=0%$, $n=11,023$, Figure 3). The PAFs for these exposures were 7%, 14% and 34%, respectively. Evidence for these exposure-outcome associations was moderate, very low, and low quality, respectively. In some cases, the evidence was downgraded due to high risk of bias and inconsistency. There was some evidence for publication bias, although it was only possible to assess that for the 'combat exposure' variable (Supplementary file 6). Subgroup analyses based on risk of bias (Supplementary file 7-9), study design (Supplementary file 11-13) and PTSD ascertainment (Supplementary file 15-17) showed no statistically significant differences between effects for those subgroups.

In our qualitative analyses of exposures that could not be statistically pooled, we found exposure-outcome associations for exposures related to undergoing a traumatic event, cumulative exposure and the severity of exposure (Table 2). With regard to undergoing a traumatic event, the effect sizes ranged from OR[95%CI]: 0.86[0.32 2.28] (physical contacts with thieves)³⁴ to OR[95%CI]: 5.65[3.27 9.74] (workers fleeing from a tsunami)⁴². Cumulative exposure was e.g. expressed in length of deployment³⁷ (OR[95%CI]: 0.97[0.92 1.03]) and high frequency of violence (compared to no violence)⁵⁵ (OR[95%CI]: 6.5[1.6 25.6]). The effect sizes for exposure severity ranged from OR[95%CI]: 1.01[0.67 1.35] (severity of battles)⁴⁵ to OR[95%CI]: 6.5[1.6 26.0] (severe compared to no violence)⁵⁵

Witnessing a trauma

With regard to the DSM-5 criterion 'witnessing a trauma', there was insufficient homogeneous data to pool studies statistically (Table 2). In five studies (with $n=4,876$ participants), effect sizes ranged from OR[95%CI]: 1.01[0.63 1.64] ('perceiving a life threat')⁵⁶ to OR[95%CI]: 9.3[6.1 14.2] ('being present during an attack')³⁸.

A colleague or co-worker was exposed to a trauma

Only one study ($n=980$) reported on effect sizes regarding 'colleague or co-worker exposed to a trauma'. This study, among public transport workers, found that 'hearing that a close colleague had suffered a person under train experience' was not significantly association with PTSD (OR[95%CI]: 0.55[0.12 2.47])⁴⁶

Indirect exposure to aversive details

Regarding indirect exposure to adverse events, we statistically pooled the effect sizes from seven studies ($n=75,902$ participants) with moderate-quality evidence for an association between confrontation with death and PTSD (Figure 3; OR[95%CI]: 1.63[1.41 1.90]). Subgroup analyses regarding risk of bias (Supplementary file 10), study design (Supplementary file 14) and PTSD ascertainment (Supplementary file 18) showed no statistically significant differences between any of those subgroups.

Additional evidence from four studies ($n=14,085$ participants), which could not be statistically pooled, showed effect sizes ranging from OR[95%CI]: 1.03[1.00 1.06] (being exposed to the aftermath of a battle)³⁷ to OR[95%CI]: 4.0[2.5 6.6] (being present during the morning of the 9/11 attacks)²⁷.

Other exposures

We found additional evidence that could not be categorised into any of the DSM-5 criteria. An increased risk of PTSD was associated with experiencing stress, with evidence ranging from

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3 OR[95%CI]: 1.01[0.98 1.04] (deployment concerns)²⁸ to OR[95%CI]: 3.52[2.94 4.21] (high deployment
4 stress)²¹. Also, the time that has passed since a given traumatic event seems to be associated with
5 PTSD. This factor can either reduce the PTSD risk (OR[95%CI]: 0.47[0.32 0.70] with a longer dwell
6 time between deployments)⁴⁸ or increase it (OR[95%CI]: 1.89[0.99 3.60] if the period since the return
7 from deployment exceeds 6.5 years)³². Other exposures included experiencing discrimination at work
8 (OR[95%CI]: 5.72[3.37 9.71])⁴² and having to perform duties that involved a risk of radiation exposure
9 (OR[95%CI]: 1.08[0.97 1.20])⁵³.
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Discussion

In this systematic review with meta-analysis and evidence grading, we found various associations, albeit based on moderate-quality evidence at best, showing that several work-related exposures are associated with PTSD development. This includes exposures such as the number of army deployments, combat exposure, army deployment and confrontation with death. The corresponding effect sizes ranged from 1.15[1.14 1.16] to 1.89[1.46 2.45] and PAFs varied from 7% (for the number of army deployments) to 34% (for army deployment). The latter values indicate the proportion of PTSD cases that could potentially be avoided in a working population, if the exposure in question were to be totally eliminated. The data suggests that there could be an only moderate relationship between PTSD and work situations. However, they could also indicate that PTSD cannot be attributed to a single work-related exposure and that it is multi-factorial in nature and/or is mediated by other factors. This could, perhaps, also account for the relatively low ORs found for some of the effects.

Only a limited data, which could not be statistically pooled, was available concerning exposures that corresponded to the DSM-5 criteria 'witnessing a trauma' and 'hearing that a colleague/co-worker was exposed to a trauma'. These exposures include 'perceiving a life threat', 'being present during an attack', and 'hearing that a close colleague had suffered a person under train experience'. The additional exposures that could not be categorised according to DSM-5 criteria include 'military deployment', 'deployment stress', and 'time since return from deployment'. In future, it may be worth considering exposures of this kind when diagnosing work-related PTSD.

The details uncovered by this review are key to a better understanding of work-related causes of PTSD, to the selection or development of preventive interventions, and to the identification of thresholds for occupational health guidelines. This review has updated earlier work⁷⁻⁹ and we are the first to quantify the association between work-related exposures and PTSD. This update identifies occupational groups and exposures that do not feature in previous reviews, such as public transport workers⁴⁶ and bank workers (being exposed to robberies)³⁴. The exposures described in this review typically lead to an increased risk of PTSD, however, other work-related factors can actually reduce the risk of PTSD. For instance, among highly exposed occupational groups, a high level of preparedness (OR[95%CI]: 0.6[0.4 0.9])⁶², unit support (OR[95%CI]: 0.5[0.3 0.8])⁶², post-deployment support (OR[95%CI]: 0.3[0.2 0.4])⁶² and social support (OR[95%CI]: 0.96[0.93 0.98])³⁷ were all found to be associated with a reduced risk of PTSD. These elements can be used in the development of interventions, especially for those in occupations that involve high PTSD risks.

Methodological strengths and limitations

The strengths of this review are the systematic methods used plus a protocol that was registered a-priori, the systematic review with meta-analysis, and the assessment of evidential quality using GRADE¹⁸. The findings appear to be quite robust, since subgroup analyses based on risk of bias, study design and PTSD ascertainment produced results that did not differ between any of those subgroups. Moreover, the PAFs estimated in our study provide insight into the extent to which the identified exposures were occupationally related to PTSD.

We deviated from our a-prior registered protocol¹³ in that we were unable to compare different PTSD diagnoses (acute vs delayed). In our meta-analysis, we used effect sizes from the article with the shortest follow-up duration (with a latency time of at least four weeks). There were, however, also data available from few studies measuring both the short-term and long-term effects of exposure and their association with PTSD. For example, 'being present during a terrorist attack' was strongly associated with PTSD in the acute phase (after 10 months; OR[95%CI]: 9.3[6.1 14.2]), but this

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3 association was even stronger in the long term (after 34 months; OR[95%CI]: 10.0[5.4 18.6])³⁸.
4 Regarding 'being exposed to combat', the opposite was true. Stronger effects were seen in short
5 term (OR[95%CI]: 2.91[1.34 6.31]) than long term (OR[95%CI]: 2.42[1.04 5.62])³⁹. This is in line with
6 another review indicating that, following exposure, the risk of PTSD attenuates over time⁷.
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8 Another potential source of heterogeneity stems from the method used to ascertain PTSD. In 25
9 articles, PTSD was assessed by clinical diagnosis while 17 articles assessed probable PTSD/PTSD
10 symptoms, based on self-reports using pre-defined (e.g., DSM-5) criteria. We found that the average
11 prevalence was slightly higher for diagnosed PTSD (7.3%) than for probable PTSD (6.4%). This is in
12 line with a study of disaster workers, following the 9/11 attacks, in which 2-9% had probable self-
13 reported PTSD, respectively³¹. However, 6-15% of these workers were diagnosed with PTSD.
14 Nevertheless, our pooled effect sizes were robust across different methods for ascertaining PTSD.
15 While ascertaining PTSD by clinical diagnosis may be more valid, this source of heterogeneity is
16 unlikely to have substantially affected the findings presented. We have only assessed incidence of
17 PTSD. Accordingly, this review does not address the persistence or growth of PTSD. Future studies
18 should, therefore, focus on different types of PTSD diagnoses. They should also assess the work-
19 relatedness of PTSD persistence and growth, as an aid to the development of occupational health
20 guidelines.
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22 One limitation of our study is that the majority of the studies in this review were based on
23 participants from armed forces (N=21) and first responders (N=5). There was limited information on
24 other occupations, such as public transport workers, bank employees and healthcare workers.
25 Furthermore, most studies of the armed forces and of first responders tend to be male dominated
26 and from Western countries. Future research should address these issues, by assessing previously
27 unexplored occupational sectors and groups, as well as data from other countries. In this review we
28 only included longitudinal studies in which the exposure would precede the outcome, as a result of
29 which a better inference of causality can be provided than with cross-sectional studies only.
30 Moreover, we focussed in our review on articles published from 2005 onwards. This cut-off was
31 based on changes in people's exposure to work-related traumatic events and changes to the
32 definition of PTSD over time².
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34 Although methodological quality of the included studies was of an acceptable level (62%, on
35 average), the quality of the evidence was rated moderate at best. More than half of the articles
36 showed a risk of bias with regard to participation (i.e., selection bias), attrition (with <80% of the
37 participants being retained during the follow-up period), and misclassification due to a limited
38 assessment of the prognostic factors (i.e., exposure) and the outcome of interest. As mentioned
39 above, the ascertainment of PTSD is unlikely to have caused a substantial bias in our findings.
40 However, exposures were often measured by means of self-reports, which may well have biased our
41 findings. In addition, the quality of the evidence was downgraded due to inconsistency for some of
42 the exposures. Our assessment of publication bias was limited to just one of the pooled exposures,
43 which did not indicate a strong risk of such bias. It appeared, however, that none of the studies had
44 published or registered their protocol, which could have caused publication bias.
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Conclusion

In this systematic review with meta-analysis of 33 studies (with n=5,719,236 participants), based on moderate quality evidence at best, we identified a number of work-related exposures (mainly involving individuals in the armed forces and in first responder occupations) that increase the risk of PTSD (by 15% to 189%). These exposures include 'number of army deployments', 'combat exposure', 'army deployment' and 'confrontation with death', for which we found a moderate contribution to the development of PTSD. We identified additional exposures in other occupations, such as bank workers, public transport workers, and medics. These included 'life threats', 'being present during an attack' and 'hearing about a colleague's trauma'. Although exposure assessment, PTSD ascertainment and inconsistency may have biased our findings, the results of this review are quite robust and are of importance for the development of preventive interventions and occupational health guidelines.

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Author contribution

Both authors (PC and HvdM) designed the study and reviewed the manuscript for important intellectual content. Both authors identified relevant articles and conducted data extraction and analyses together. PC drafted the first version of the manuscript. HvdM is the study guarantor.

Data sharing

All data relevant to the study are included in the article and supplementary documents.

Study ethics

Not applicable as this study is a systematic review

Competing interests

The authors declare no competing interests

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Data sharing

Additional data is provided in the supplementary files.

Ethical approval

As this is a systematic review, no ethical approval is required

Patient consent

As this is a systematic review, no patient consent is required

Table 1. Overview of the evidence from both qualitative and quantitative analyses, with exposures categorised according to DSM-5 criteria. For exposures for which quantitative analyses could be performed (Figure 2 and 3), quality of the evidence for the relationship between work-related exposures and PTSD according to the GRADE framework is shown. Other exposures are described qualitatively (Table 2).

DSM-5 criterion	Exposure	N	n	Limit ¹	Incons ²	Indirect ³	Imprec ⁴	Pub bias ⁵	OR [95%CI] ⁶	Grad ⁷	GRADE	PAF	Reference
Direct exposure	Number of army deployments ⁸	3	333,024	No	0%	No	No	N/A	1.15 [1.14 1.16]	No	Moderate	7%	Figure 2
	Combat exposure	11	28,304	Yes	89%	No	No	Yes	1.89 [1.46 2.45]	No	Very low	14%	Figure 2
	Army deployment ⁹	4	11,023	Yes	0%	No	No	N/A	1.79 [1.45 2.21]	No	Low	34%	Figure 3
	Undergoing a traumatic event	13	1,703,107	-	-	-	-	-	Min: 0.86 [0.32 2.28] Max: 5.65 [3.27 9.74]	-	-		Table 2
	Cumulative exposure	8	1,749,762	-	-	-	-	-	Min: 0.97 [0.92 1.03] Max: 6.5 [1.6 25.6]	-	-		Table 2
	Exposure severity	3	2,558	-	-	-	-	-	Min: 1.01 [0.67 1.35] Max: 6.5 [1.6 26.0]	-	-		Table 2
Witnessing trauma	-	5	4,876	-	-	-	-	-	Min: 1.01 [0.63 1.64] Max: 9.3 [6.1 14.2]	-	-		Table 2
Colleague exposed ¹⁰	-	1	980	-	-	-	-	-	0.55 [0.12 2.47]	-	-		Table 2
Indirect exposure	Confrontation with death	7	75,902	No	46%	No	No	N/A	1.63 [1.41 1.90]	No	Moderate	15%	Figure 3
		4	14,085	-	-	-	-	-	Min: 1.03 [1.00 1.06] Max: 4.0 [2.5 6.6]	-	-		Table 2
Other exposures	Stress	4	1,390,641	-	-	-	-	-	Min: 1.01 [0.98 1.04] Max: 3.52 [2.94 4.21]	-	-		Table 2
	Time since event	3	1,358,468	-	-	-	-	-	Min: 0.47 [0.32 0.70] Max: 1.89 [0.99 3.60]	-	-		Table 2
	Other	3	69,176	-	-	-	-	-	Min: 1.08 [0.97 1.20] Max: 5.72 [3.37 9.71]	-	-		Table 2

n= number of participants; N = number of studies; OR = Odds ratio; 95%CI = 95% confidence interval; PAF = population attributable fractions
¹ Limitation: downgraded if the majority of studies score lower than 60% on the risk of bias scale. ² Inconsistency: downgrade if I²≥50%.
³ Indirectness: downgrade if indirectness is present. ⁴ Imprecision: downgrade if the 95% confidence interval is <1 and >2.
⁵ Publication bias: downgraded if publication bias is present (based on the funnel plots). ⁶ Effect size: upgrade if the lower limit of the 95% confidence interval is >2.0.
⁷ Gradient: upgraded if there is a dose-response gradient available.
⁸ Depicting the effect of being deployed more than once, as compared to being deployed once.
⁹ Depicting the effect of being deployed, as compared to not being deployed.
¹⁰ For this study on occupational exposures, the DSM-5 criterion ‘relative/friend’ was adapted to ‘colleague or co-worker’.

Table 2. Overview of all exposure-outcome effect sizes from qualitative analyses, with exposures categorised according to DSM-5 criteria. Odds ratios (OR) with 95% confidence intervals (95%CI) are shown.

DSM-5 criterion	Exposure category	Exposure	Effect size (OR [95%CI])
Direct exposure	Undergoing an event	Work-related threats ²⁰	1.10 [1.04 1.15]
		Work-related violence ²⁰	1.02 [0.98 1.06]
		Previous disaster experience ²³	1.4 [1.2 1.6]
		One injury sustained during the 9/11 attacks ²⁹	1.1 [0.6 2.0]
		Two or more injuries sustained during the 9/11 attacks ²⁹	1.4 [0.6 3.4]
		Participation in abusive violence ³³	3.32 [1.81 6.08]
		Robberies during working life ³⁴	1.18 [0.97 1.44]
		Physical contacts with robbers ³⁴	0.86 [0.32 2.28]
		Scuffle [taking part or being present] ³⁴	1.92 [0.63 5.79]
		Being injured during the robbery ³⁴	1.28 [0.31 5.21]
		Discharged weapon on deployment ³⁶	1.48 [0.61 3.60]
		Experience of life-threatening danger ⁴²	4.32 [2.89 6.48]
		Major property loss ⁴²	3.45 [2.28 5.23]
		Escape from tsunami ⁴²	5.65 [3.27 9.74]
		Life threatening war ⁴⁵	1.91 [1.07 3.24]
		Conflict with passengers ⁴⁶	3.21 [1.14 9.03]
		Felt in great danger of being killed ⁴⁸	3.44 [2.50 4.72]
		Exposure to blast ⁵⁰	4.72 [2.9 7.7]
		Cumulative exposure	Encountering explosive devices ⁵⁴
	Prolonged work at the WTC site ²³		2.0 [1.7 2.3]
	Length of deployment ³⁷		0.97 [0.92 1.03]
	≥5 critical cases per call for traumatic surgeons ⁴³		7 [1.1 8]
	≥7 call duties a month for traumatic surgeons ⁴³		3.8 [0.9 7.2]
	≥15 operative cases per month ⁴³		2.8 [0.4 3.2]
	Cumulative years deployed in navy ⁴⁷		2.04 [1.93 2.15]
	Cumulative years deployed in army ⁴⁷		1.74 [1.71 1.76]
	No. of Combat Exposures ⁴⁸		1.62 [1.46 1.79]
	Two combat exposure deployment ⁴⁸		1.37 [1.17 1.61]
	Three combat exposure deployment ⁴⁸		1.30 [0.94 1.82]
	Two deployments ⁴⁸		1.00 [1.00 1.01]
	Three deployments ⁴⁸		1.00 [0.99 1.01]
	One exposure (compared to no exposure) ⁵⁰		4.67 [3.1 7.1]
	Two or more deployments (compared to no exposure) ⁵⁰		6.15 [4.4 8.7]
	Deployment length 1–3 months ⁵³		1.53 [1.37 1.70]
	Deployment length ≥3 months ⁵³		2.64 [2.33 2.99]
	Exposure severity		Low frequency of violence (compared to no violence) ⁵⁵
		Medium frequency of violence (compared to no violence) ⁵⁵	5.9 [1.4 24.2]
High frequency of violence (compared to no violence) ⁵⁵		6.5 [1.6 25.6]	
Combat exposure scale ³³		1.98 [1.50 2.62]	
Severity of battles ⁴⁵		1.01 [0.67 1.35]	
Max. mild violence (compared to no violence) ⁵⁵		3.8 [0.3 46.2]	
Max. threats of violence (compared to no violence) ⁵⁵		5.4 [1.2 24.2]	
Max. moderate violence (compared to no violence) ⁵⁵		2.6 [0.6 10.8]	
Max. severe violence (compared to no violence) ⁵⁵		6.5 [1.6 26.0]	
Witnessing the trauma		Perceived life threat ⁵⁶	1.01 [0.63 1.64]
		Observation of abusive violence ³³	8.36 [4.56 15.35]
		Presence during attack ³⁸	9.3 [6.1 14.2]
	Witnessing of plant explosions ⁴²	2.09 [1.43 3.06]	
	Person under train experience ⁴⁶	1.54 [0.52 4.55]	
	One person under train experiences ⁴⁶	1.77 [0.31 4.47]	
	Two or more person under train experiences ⁴⁶	2.36 [0.57 9.70]	
	Sudden train stop ⁴⁶	3.66 [0.82 16.4]	
Near train accident ⁴⁶	8.81 [1.96 39.3]		

		Damage to train ⁴⁶	1.71 [0.48 6.14]
Colleague exposed		Person under train experience of colleague ⁴⁶	0.55 [0.12 2.47]
Indirect exposure to aversive details		Aftermath of battle ³⁷	1.03 [1.00 1.06]
		morning of 9/11 (compared to >3 days) ²⁷	4.0 [2.5 6.6]
		afternoon of 9/11 (compared to >3 days) ²⁷	2.1 [1.3 3.3]
		day 2 (compared to >3 days) ²⁷	1.4 [0.9 2.4]
		Morning of 9/11 (compared to >3 days) ²³	2.0 [1.3 2.9]
		Afternoon of 9/11 (compared to >3 days) ²³	1.1 [0.8 1.5]
		Exposure to aftermath of battle ⁵⁶	1.81 [1.08 3.06]
Other exposures	Stress	High deployment stress ²¹	3.52 [2.94 4.21]
		Deployment concerns summary score ²⁸	1.01 [0.98 1.04]
		Worried by other issues related to robbery ³⁴	2.64 [0.95 7.36]
		Unit cumulative high deployment stress rate (marine) ⁴⁷	1.04 [1.03 1.05]
		Unit cumulative high deployment stress rate (army) ⁴⁷	1.05 [1.04 1.06]
	Time since event	Months since most recent deployment ²⁸	1.00 [0.98 1.02]
		Time since return from deployment (up to 2 years) ³²	1.18 [0.75 1.86]
		Time since return from deployment (up to 3 years) ³²	1.80 [1.05 3.10]
		Time since return from deployment (up to 4 years) ³²	1.88 [0.98 3.62]
		Time since return from deployment (up to 5 years) ³²	1.53 [0.92 2.55]
		Time since return from deployment (up to 6.5 years) ³²	1.89 [0.99 3.60]
	Other	Dwell to deployment ratio (1:1 versus <1:1) ⁴⁸	0.83 [0.60 1.13]
		Dwell to deployment ratio (2:1 versus <1:1) ⁴⁸	0.47 [0.32 0.70]
		Supervising responsibilities ²³	2.2 [1.7 2.9]
		Discrimination/slurs ⁴²	5.72 [3.37 9.71]
		Duties with radiation exposure risk ⁵³	1.08 [0.97 1.20]

Figure caption

Figure 1. Flow chart depicting the search for literature.

Figure 2. Study findings (i.e., effect sizes) for articles reporting on the association of number of army deployments (depicting the effect of being deployed more than once, as compared to being deployed once; upper panel) and combat exposure (lower panel) with PTSD. Individual study as well as pooled effects are presented. SE = standard error; CI = confidence interval; IV = Inverse variance.

Figure 3. Study findings (i.e., effect sizes) for articles reporting on the association of deployments status (depicting the effect of being deployed, as compared to not being deployed; upper panel) and confrontation with death (lower panel) with PTSD. Individual study as well as pooled effects are presented. SE = standard error; CI = confidence interval; IV = Inverse variance.

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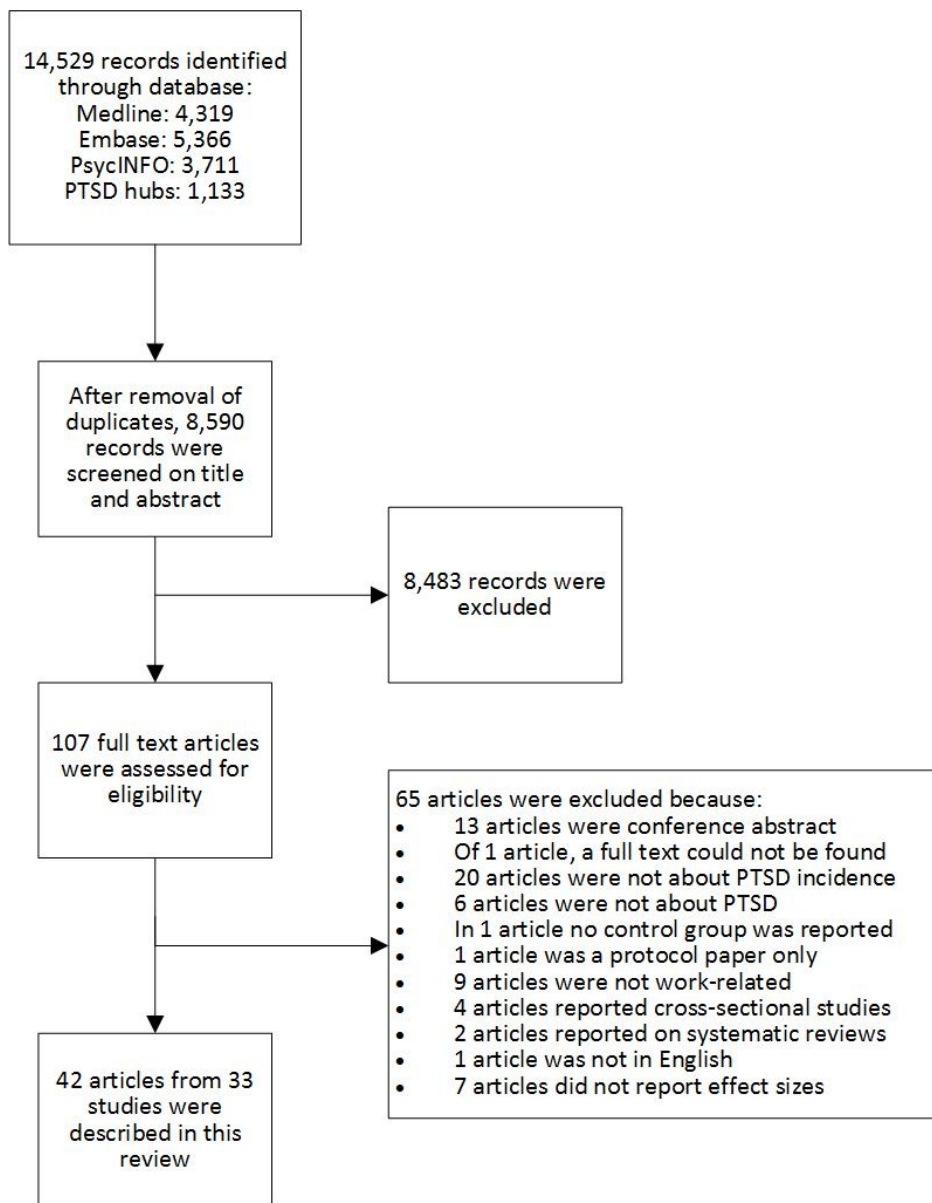
References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 3rd ed. ed. Washington DC, USA1980.
2. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. ed. Washington DC, USA2013.
3. Sareen J. Posttraumatic stress disorder in adults: impact, comorbidity, risk factors, and treatment. *Can J Psychiatry* 2014;59(9):460–67.
4. Knowles KA, Sripada RK, Defever M, Rauch SAM. Comorbid mood and anxiety disorders and severity of posttraumatic stress disorder symptoms in treatment-seeking veterans. *Psychol Trauma* 2019;11(4):451-58. doi: 10.1037/tra0000383
5. Debell F, Fear NT, Head M, Batt-Rawden S, Greenberg N, Wessely S, Goodwin L. A systematic review of the comorbidity between PTSD and alcohol misuse. *Soc Psychiatry Psychiatr Epidemiol* 2014;49(9):1401-25. doi: 10.1007/s00127-014-0855-7
6. Pompili M, Sher L, Serafini G, Forte A, Innamorati M, Dominici G, Lester D, Amore M, Girardi P. Posttraumatic stress disorder and suicide risk among veterans: a literature review. *J Nerv Ment Dis* 2013;201(8):802-12. doi: 10.1097/NMD.0b013e3182a21458
7. Skogstad M, Skorstad M, Lie A, Conradi HS, Heir T, Weisæth L. Work-related post-traumatic stress disorder. In-depth review. *Occup Med* 2013;63(3):175-82. doi: 10.1093/occmed/kqt003
8. Utzon-Frank N, Breinegaard N, Bertelsen M, Borritz M, Eller NH, Nordentoft M, Olesen K, Rod NH, Rugulies R, Bonde JP. Occurrence of delayed-onset post-traumatic stress disorder: a systematic review and meta-analysis of prospective studies. *Scand J Work Environ Health* 2014;40(3):215-29.
9. Lee W, Lee YR, Yoon JH, Lee HJ, Kang MY. Occupational post-traumatic stress disorder: an updated systematic review. *BMC Public Health* 2020;20:768. doi: 10.1186/s12889-020-08903-2
10. van der Beek AJ, Dennerlein JT, Huysmans MA, Mathiassen SE, Burdorf A, van Mechelen W, van Dieën JH, Frings-Dresen MH, Holtermann A, Janwantanakul P, van der Molen HF, Rempel D, Straker L, Walker-Bone K, Coenen P. A research framework for the development and implementation of interventions preventing work-related musculoskeletal disorders. *Scand J Work Environ* 2017;43(6):526-39. doi: 10.5271/sjweh.3671
11. van der Molen HF, Foresti C, Daams JG, Frings-Dresen MHW, Kuijer PPFM. Work-related risk factors for specific shoulder disorders: a systematic review and meta-analysis. *Occup Environ Med* 2017;74(10):745–55.
12. Kuijer PPFM, Verbeek JH, Seidler A, Ellegast R, Hulshof CTJ, Frings-Dresen MHW, van der Molen HF. Work-relatedness of lumbosacral radiculopathy syndrome: Review and dose-response meta-analysis *Neurology* 2018;91(12):558–64.
13. Coenen P, Brand T, Sorgdrager B, Daams J, de Groene G, van der Molen HF. What work-related risk factors are associated with post-traumatic stress disorder? *PROSPERO* 2020;CRD42020155434
14. Moher D, Liberati A, Tetzlaff J, Altman DG, Group. P. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ* 2009;21(339):2535. doi: 10.1136/bmj.b2535
15. Hayden JA, van der Windt DA, Cartwright JL, Cote P, Bombardier C. Assessing bias in studies of prognostic factors. *Ann Intern Med* 2013;158(4):280-86.
16. Cochrane Collaboration. Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]. Available from www.cochrane-handbook.org.2011.
17. Poole C. A history of the population attributable fraction and related measures. *Ann Epidemiol* 2015;25(147–154)
18. Hugueta A, Hayden JA, Stinson J, McGrath PJ, Chambers CT, Tougas ME, Wozney L. Judging the quality of evidence in reviews of prognostic factor research: adapting the GRADE framework. *Syst Rev* 2013;2:71. doi: 10.1186/2046-4053-2-71
19. Foroutan. F., Guyatt G, Zuk V, Vandvik PO, Carolina Alba AC, Mustafa R, Vernooij R, Arevalo-Rodriguez I, Munn Z, Roshanov P, Riley R, Schandelmaier S, Kuijpers T, Siemieniuk R, Canelo-Aybar C, Schunemann H, Iorio A. GRADE guidelines 28: use of grade for the assessment of evidence about prognostic factors: rating certainty in identification of groups of patients with different absolute risks. *J Clin Epidemiol* 2020;121:62–70.
20. Andersen LP, Hogh A, Elklit A, Andersen JH, Biering K. Work-related threats and violence and post-traumatic symptoms in four high-risk occupations: short- and long-term symptoms. *Int Arch Occup Environ Health* 2019;92(2):195-208. doi: 10.1007/s00420-018-1369-5

21. Anderson L, Campbell-Sills L, Ursano RJ, Kessler RC, Sun X, Heeringa SG, Nock MK, Bliese PD, Gonzalez OI, Wynn GH, Jain S, Stein MB. Prospective associations of perceived unit cohesion with postdeployment mental health outcomes. *Depress Anxiety* 2019;36(6):511-21. doi: 10.1002/da.22884
22. Armed Forces Health Surveillance Center. Associations between repeated deployments to Iraq (OIF/OND) and Afghanistan (OEF) and post-deployment illnesses and injuries, active component, U.S. Armed Forces, 2003-2010. Part II. Mental disorders, by gender, age group, military occupation, and "dwell times" prior to repeat (second through fifth) deployments. *MSMR* 2011;18(9):2-11.
23. Berninger A, Webber MP, Niles JK, Gustave J, Lee R, Cohen HW, Kelly K, Corrigan M, Prezant DJ. Longitudinal study of probable post-traumatic stress disorder in firefighters exposed to the World Trade Center disaster. *Am J Ind Med* 2010;53(12):1177-85. doi: 10.1002/ajim.20894
24. Brownlow JA, Zitnik GA, McLean CP, Gehrman PR. The influence of deployment stress and life stress on Post-Traumatic Stress Disorder (PTSD) diagnosis among military personnel. *J Psychiatr Res* 2018;103:26-32. doi: 10.1016/j.jpsychires.2018.05.005
25. Brundage JF, Taubman SB, Hunt DJ, Clark LL. Whither the "signature wounds of the war" after the war: estimates of incidence rates and proportions of TBI and PTSD diagnoses attributable to background risk, enhanced ascertainment, and active war zone service, active component, U.S. Armed Forces, 2003-2014. *MSMR* 2015;22(2):2-11.
26. Cameron KL, Sturdivant RX, Baker SP. Trends in the incidence of physician-diagnosed posttraumatic stress disorder among active-duty U.S. military personnel between 1999 and 2008. *Mil Med Res* 2019;6(1):8. doi: 10.1186/s40779-019-0198-5
27. Chiu S, Niles JK, Webber MP, Zeig-Owens R, Gustave J, Lee R, Rizzotto L, Kelly KJ, Cohen HW, Prezant DJ. Evaluating risk factors and possible mediation effects in posttraumatic depression and posttraumatic stress disorder comorbidity. *Public Health Rep* 2011;126(2):201-09.
28. Ciarleglio MM, Aslan M, Proctor SP, Concato J, Ko J, Kaiser AP, Vasterling JJ. Associations of stress exposures and social support with long-term mental health outcomes among U.S. Iraq war veterans. *Behav Ther* 2018;49(5):653-67. doi: 10.1016/j.beth.2018.01.002
29. Cone JE, Li J, Kornblith E, Gocheva V, Stellman SD, Shaikh A, Schwarzer R, Bowler RM. Chronic probable PTSD in police responders in the world trade center health registry ten to eleven years after 9/11. *Am J Ind Med* 2015;58(5):483-93. doi: 10.1002/ajim.22446
30. Connorton E, Perry MJ, Hemenway D, Miller M. Occupational trauma and mental illness--combat, peacekeeping, or relief work and the national co-morbidity survey replication. *J Occup Environ Med* 2011;53(12):1360-63. doi: 10.1097/JOM.0b013e318234e2ec
31. Cukor J, Wyka K, Mello B, Olden M, Jayasinghe N, Roberts J, Giosan C, Crane M, Difede J. The longitudinal course of PTSD among disaster workers deployed to the World Trade Center following the attacks of September 11th. *J Trauma Stress* 2011;24(5):506-14. doi: 10.1002/jts.20672
32. Fear NT, Jones M, Murphy D, Hull L, Iversen AC, Coker B, Machell L, Sundin J, Woodhead C, Jones N, Greenberg N, Landau S, Dandeker C, Rona RJ, Hotopf M, Wessely S. What are the consequences of deployment to Iraq and Afghanistan on the mental health of the UK armed forces? A cohort study. *Lancet* 2010;375(9728):1783-97. doi: 10.1016/S0140-6736(10)60672-1
33. Ferrajão PC, Oliveira RA. The effects of combat exposure, abusive violence, and sense of coherence on PTSD and depression in portuguese colonial war veterans. *Psychol Trauma* 2016;8(1):1-8. doi: <http://dx.doi.org/10.1037/tra0000043>
34. Fichera GP, Fattori A, Neri L, Musti M, Coggiola M, Costa G. Post-traumatic stress disorder among bank employee victims of robbery. *Occup Med* 2015;65(4):283-89. doi: 10.1093/occmed/kqu180
35. Fink DS, Cohen GH, Sampson LA, Gifford RK, Fullerton CS, Ursano RJ, Galea S. Incidence of and risk for post-traumatic stress disorder and depression in a representative sample of US Reserve and National Guard. *Ann Epidemiol* 2016;26(3):189-97. doi: 10.1016/j.annepidem.2016.01.003
36. Goodwin L, Jones M, Rona RJ, Sundin J, Wessely S, Fear NT. Prevalence of delayed-onset posttraumatic stress disorder in military personnel: Is there evidence for this disorder? Results of a prospective UK cohort study. *J Nerv Ment Dis* 2012;200(5):429-37. doi: 10.1097/NMD.0b013e31825322fe
37. Green JD, Bovin MJ, Erb SE, Lachowicz M, Gorman KR, Rosen RC, Keane TM, Marx BP. The effect of enemy combat tactics on PTSD prevalence rates: A comparison of operation Iraqi

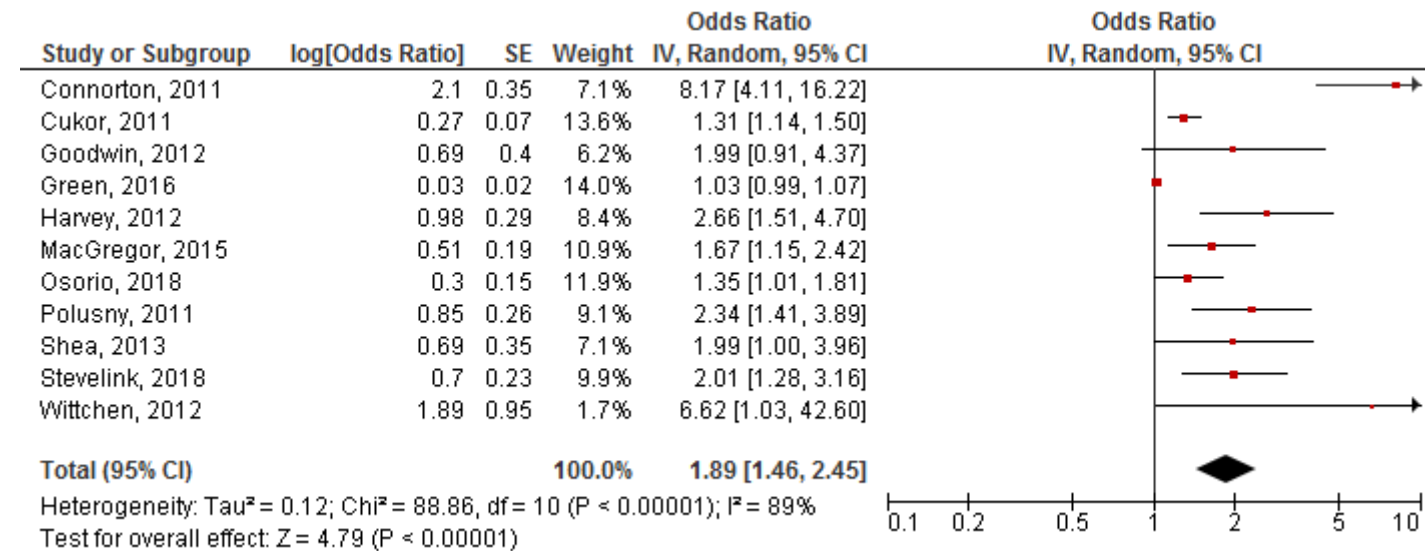
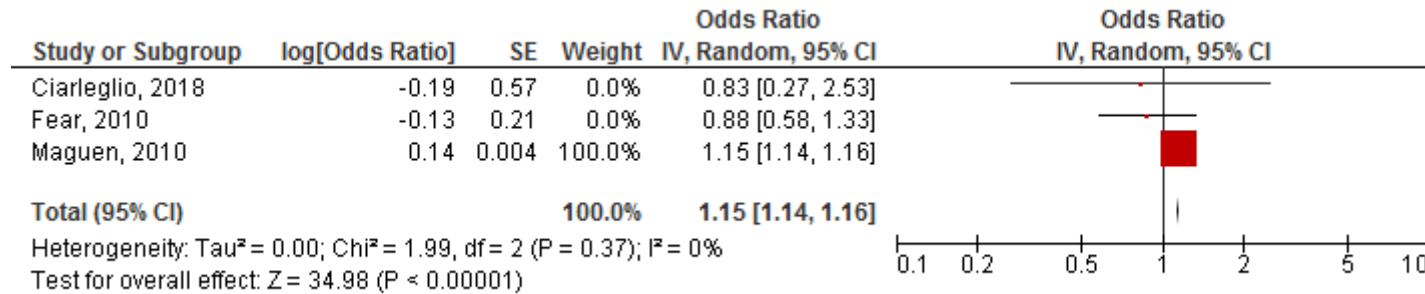
- 1
2
3 freedom deployment phases in a sample of male and female veterans. *Psychol Trauma*
4 2016;8(5):634-40. doi: 10.1037/tra0000086
- 5 38. Hansen MB, Birkeland MS, Nissen A, Blix I, Solberg O, Heir T. Prevalence and course of
6 symptom-defined PTSD in individuals directly or indirectly exposed to terror: A longitudinal
7 study. *Psychiatry* 2017;80(2):171-83. doi: 10.1080/00332747.2016.1230983
- 8 39. Harvey SB, Hatch SL, Jones M, Hull L, Jones N, Greenberg N, Dandeker C, Fear NT, Wessely S.
9 The long-term consequences of military deployment: A 5-year cohort study of United Kingdom
10 reservists deployed to Iraq in 2003. *Am J Epidemiol* 2012;176(12):1177-84. doi:
11 10.1093/aje/kws248
- 12 40. Horesh D, Solomon Z, Zerach G, Ein-Dor T. Delayed-onset PTSD among war veterans: the role of
13 life events throughout the life cycle. *Soc Psychiatry Psychiatr Epidemiol* 2011;46:863-70. doi:
14 10.1007/s00127-010-0255-6
- 15 41. Hourani L, Bender RH, Weimer B, Peeler R, Bradshaw M, Lane M, Larson G. Longitudinal study of
16 resilience and mental health in marines leaving military service. *J Affect Disord* 2012;139 154-
17 65.
- 18 42. Ikeda A, Tanigawa T, Charvat H, Wada H, Shigemura J, Kawachi I. Longitudinal effects of
19 disaster-related experiences on mental health among Fukushima nuclear plant workers: The
20 Fukushima NEWS Project Study. *Psychol Med* 2017;47:1936-46. doi:
21 10.1017/S0033291717000320
- 22 43. Joseph B, Pandit V, Hadeed G, Kulvatunyou N, Zangbar B, Tang A, O'Keeffe T, Wynne J, Green
23 DJ, Friese RS, Rhee R. Unveiling posttraumatic stress disorder in trauma surgeons: A
24 national survey. *J Trauma Acute Care Surg* 2014;77(1):148-54. doi:
25 10.1097/TA.0000000000000271
- 26 44. Karstoft KI, Armour C, Elklit A, Solomon Z. Long-term trajectories of posttraumatic stress disorder
27 in veterans: The role of social resources. *J Clin Psychiatry* 2013;74(12):e1163-e68. doi:
28 10.4088/JCP.13m08428
- 29 45. Karstoft KI, Armour C, Elklit A, Solomon Z. The role of locus of control and coping style in
30 predicting longitudinal PTSD-trajectories after combat exposure. *J Anxiety Disord* 2015;32:89-
31 94.
- 32 46. Kim S, Kim HR, Park JI, Lee HW, Lee J, Byun J, Yim HW. The association between psychiatric
33 disorders and work-related problems among subway drivers in Korea. *Ann Occup Environ*
34 *Med* 2014;26:39.
- 35 47. Levin-Rector A, Hourani LL, van Dorn RA, Bray RB, Stander VA, Cartwright JK, Morgan JK,
36 Trudeau J, Lattimore PK. Predictors of posttraumatic stress disorder, anxiety disorders,
37 depressive disorders, and any mental health condition among U.S. soldiers and marines,
38 2001-2011. *J Trauma Stress* 2018;31:568-78.
- 39 48. MacGregor AJ, Dougherty AL, Mayo JA, Han PP, Galerneau MR. Post-traumatic stress disorder
40 among navy health care personnel following combat deployment. *Mil Med* 2015;180(8):882
- 41 49. MacGregor AJ, Han PP, Dougherty AL, Galerneau MR. Effect of dwell time on the mental health of
42 US military personnel with multiple combat tours. *Am J Public Health* 2012;102:S55-S59. doi:
43 10.2105/AJPH.2011.300341
- 44 50. Maguen S, Madden E, Lau KM, Seal K. The impact of head injury mechanism on mental health
45 symptoms in veterans: Do number and type of exposures matter? *J Trauma Stress*
46 2012;25:3-9.
- 47 51. Maguen S, Ren L, Bosch JO, Marmar CR, Seal KH. Gender differences in mental health
48 diagnoses among Iraq and Afghanistan veterans enrolled in veterans affairs health care. *Am J*
49 *Public Health* 2010;100:2450-56. doi: 10.2105/AJPH.2009.166165
- 50 52. Martindale SL, Rowland JA, Shura RD, Taber KH. Longitudinal changes in neuroimaging and
51 neuropsychiatric status of post-deployment veterans: a CENC pilot study. *Brain Injury*
52 2018;32(10):1208-16. doi: 10.1080/02699052.2018.1492741
- 53 53. Nagamine M, Yamamoto T, Shigemura J, Tanichi M, Yoshino A, Suzuki G, Takahashi Y, Miyazaki
54 M, Uwabe Y, Harada N, Shimizu K. The psychological impact of the great East Japan
55 earthquake on Japan ground self-defense force personnel: A three-wave, one-year
56 longitudinal study. *Psychiatry* 2018;1:1-9. doi:
57 <https://doi.org/10.1080/00332747.2017.1333340>
- 58 54. Osório C, Jones N, Jones E, Robbins I, Wessely S, Greenberg N. Combat experiences and their
59 relationship to post-traumatic stress disorder symptom clusters in UK military personnel
60 deployed to Afghanistan. *Behavioral Medicine* 2017 doi: 10.1080/08964289.2017.1288606

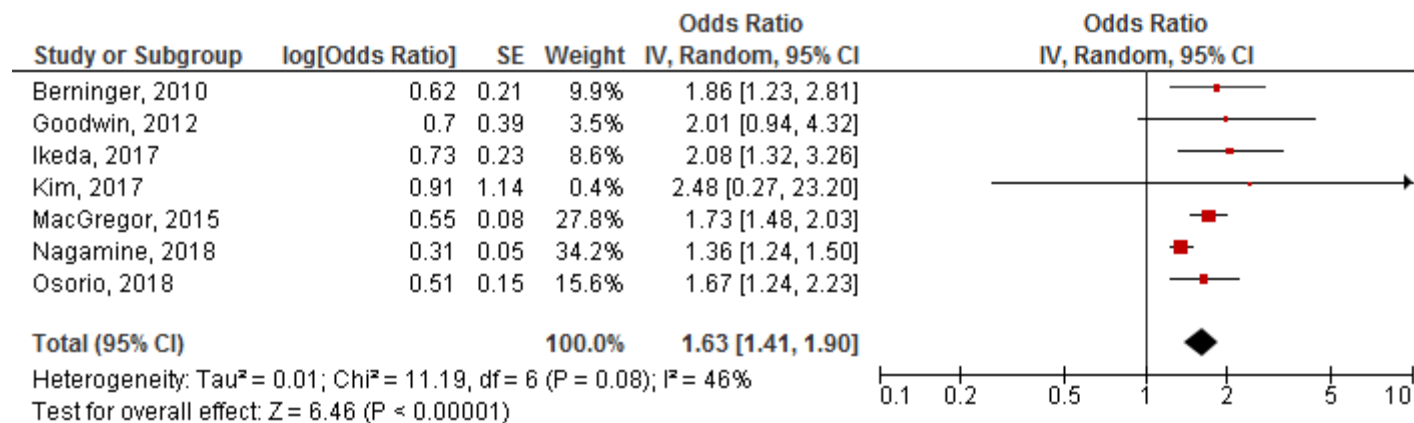
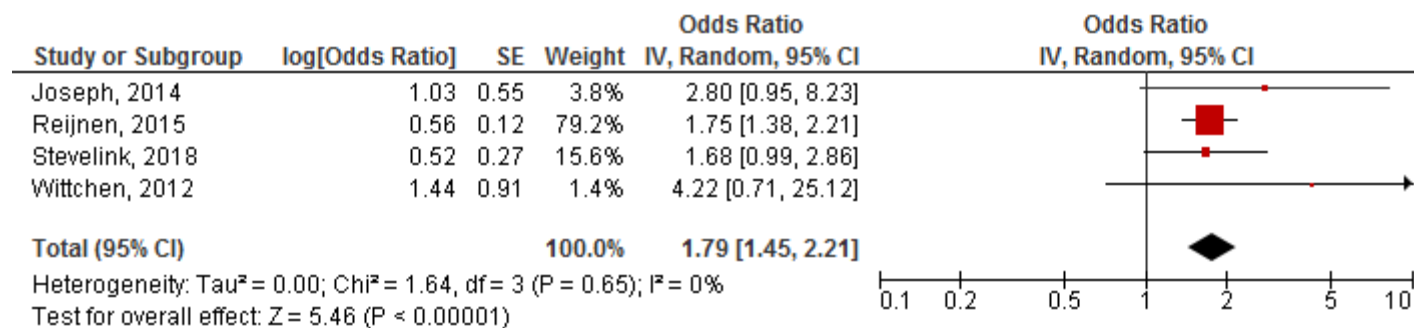
- 1
2
3 55. Pihl-Thingvad J, Andersen AA, Brandt LP, Elklit A. Are frequency and severity of workplace
4 violence etiologic factors of posttraumatic stress disorder? A 1-year prospective study of 1,763
5 social educators. *J Occup Health Psychol* 2019;24(5):543-55. doi: 10.1037/ocp0000148
6 56. Polusny MA, Erbes CR, Murdoch M, Arbisi PA, Thuras P, Rath MB. Prospective risk factors for
7 new-onset post-traumatic stress disorder in National Guard soldiers deployed to Iraq. *Psych*
8 *Med* 2011;41:687-98. doi: 10.1017/S0033291710002047
9 57. Reijnen A, Rademaker AR, Vermetten E, Geuze E. Prevalence of mental health symptoms in
10 Dutch military personnel returning from deployment to Afghanistan: A 2-year longitudinal
11 analysis. *Eur Psychiat* 2015;30:341-46.
12 58. Shea MT, Reddy MK, Tyrka AR, Sevin E. Risk factors for post-deployment post traumatic stress
13 disorder in national guard/reserve service members. *Psychiatry Res* 2013;210:1042-48.
14 59. Soo J, Webber MP, Gustave J, Lee R, Hall CB, Cohen HW, Kelly KJ, Prezant DK. Trends in
15 probable PTSD in firefighters exposed to the World Trade Center disaster, 2001-2010.
16 *Disaster Med Public Health Preparedness* 2011;5:S197-S203.
17 60. Stevelink SA, Jones M, Hull L, Pernet D, MacCrimmon S, Goodwin L, MacManus D, Murphy D,
18 Jones N, Greenberg N, Rona RJ, Fear NT, Wessely S. Mental health outcomes at the end of
19 the British involvement in the Iraq and Afghanistan conflicts: a cohort study. *Br J Psychiatry*
20 2018;213:690-97. doi: 10.1192/bjp.2018.175
21 61. Wittchen HU, Schönfeld S, Kirschbaum C, Thurau C, Trautmann S, Steudte S, Klotsche J, Höfler
22 M, Hauffa R, Zimmermann P. Traumatic experiences and posttraumatic stress disorder in
23 soldiers following deployment abroad: how big is the hidden problem? *Dtsch Arztebl Int*
24 2012;109(35-36):559-68. doi: 10.3238/arztebl.2012.0559
25 62. Goldmann E, Calabrese JR, Prescott MR, Tamburrino M, Liberzon I, Slembariski R, Shirley E, Fine
26 T, Goto T, Wilson K, Ganocy S, Chan P, Serrano MB, Sizemore J, Galea S. Potentially
27 modifiable pre-, peri-, and postdeployment characteristics associated with deployment-related
28 posttraumatic stress disorder among ohio army national guard soldiers. *Ann Epidemiol*
29 2012;22(2):71-8. doi: 10.1016/j.annepidem.2011.11.003
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Flow chart depicting the search for literature.

101x130mm (200 x 200 DPI)





Supplementary file 1.

Ovid MEDLINE(R) ALL <1946 to September 09, 2019>. Search date: 10 September 2019		
#	Search	Results
1	stress disorders, post-traumatic/ or stress disorders, traumatic, acute/	30925
2	(acute stress or (asd and stress) or ptsd or ptss or posttraumatic stress or post traumatic stress or acute stress disorder or posttraumatic symptom? or post traumatic symptom? or traumatic stress).ab,kf,ti,sh.	42697
3	(htsq or trauma screen* or (trauma screen* and stress)).ab,kf,ti. [trauma screening zoals de Harvard Trauma Screening Questionnaire - htsq]	160
4	or/1-3 [ptsd]	51153
5	exp Occupations/ or Workload/ or exp Work/ or Workplace/ or exp Occupational Diseases/ or Rehabilitation, Vocational/ or Occupational Health/ or Sick Leave/ or Absenteeism/ or Retirement/ or workers' compensation/ or exp Employment/ or exp Occupational Exposure/ or Volunteers/	361332
6	(worka* or worke* or workg* or worki* or workl* or workp* or work capacity or work disabilit* or work abilit* or at work or work exposure or work related or workers or job* or employee or staff or personnel or occupation or occupations or occupational or outdoor work* or day shift* or night shift* or shift work* or vocational rehabilitation or sick leave or absenteeism or sickness absen* or absente* or presente* or "return to work" or vocational reintegration or retirement or pension or employment or unemployed or unemployment or work status or industries or industrial sector or volunteer* or voluntary worker* or repetitive work).ab,kf,ti.	2038626
7	exp "personnel, hospital"/ or exp emergency responders/	100417
8	(residents or emergency responder? or first responder? or firefighter? or fire fighter? or Police officer? or emergency medicals or Armed forces or paramedics or veterans or Journalist?).ab,kf,ti.	147998
9	or/5-8 [work]	2360997
10	Epidemiologic studies/	8073
11	exp case control studies/	1016792
12	exp cohort studies/	1894888
13	Case control.tw.	118051
14	(cohort adj (study or studies)).tw.	183886
15	Cohort analy\$.tw.	7241
16	(Follow up adj (study or studies)).tw.	47481
17	(observational adj (study or studies)).tw.	95892
18	Longitudinal.tw.	227916
19	or/10-17 [observationele- en longitudinale studies]	2269321
20	(risk or predict*).mp.	3563653
21	19 or 20	4936872
22	and/4,9,21	6387
23	limit 22 to yr="2010-current"	4319

Ovid Embase Classic+Embase <1947 to 2019 September 09>. Search date: 10 September 2019		
#	Search	Results
1	*posttraumatic stress disorder/ or *acute stress disorder/	30071
2	(acute stress or (asd and stress) or ptsd or ptss or posttraumatic stress or post traumatic stress or acute stress disorder or posttraumatic symptom? or post traumatic symptom? or	56167

	traumatic stress).ab,kw,ti.	
3	(htsq or trauma screen* or (trauma screen* and stress)).ab,kw,ti.	199
4	or/1-3 [ptsd]	60673
5	exp *Occupation/ or exp *occupational health/ or exp *work/ or *Volunteer/ or exp *named groups by occupation/	907358
6	(worka* or worke* or workg* or worki* or workl* or workp* or work capacity or work disabilit* or work abilit* or at work or work exposure or work related or workers or job* or employee or staff or personnel or occupation or occupations or occupational or outdoor work* or day shift* or night shift* or shift work* or vocational rehabilitation or sick leave or absenteeism or sickness absen* or absente* or presente* or "return to work" or vocational reintegration or retirement or pension or employment or unemployed or unemployment or work status or industries or industrial sector or volunteer* or voluntary worker* or repetitive work).ab,kw,ti.	3266921
7	exp *hospital personnel/ or rescue personnel/	46527
8	(residents or emergency responder? or first responder? or firefighter? or fire fighter? or Police officer? or emergency medicals or Armed forces or paramedics or veterans or Journalist?).ab,kw,ti.	195059
9	or/5-8 [work]	3981638
10	*Clinical study/	56379
11	*Case control study/	6905
12	*Family study/	2834
13	*Longitudinal study/	7151
14	*Retrospective study/	19751
15	*Prospective study/	21494
16	Randomized controlled trials/	168154
17	15 not 16	21378
18	*Cohort analysis/	26124
19	(Cohort adj (study or studies)).mp.	275760
20	(Case control adj (study or studies)).tw.	126673
21	(follow up adj (study or studies)).tw.	66352
22	(observational adj (study or studies)).tw.	151582
23	(epidemiologic\$ adj (study or studies)).tw.	106051
24	or/10-15,17-23	799536
25	(risk or predict*).mp.	5152294
26	24 or 25	5545704
27	and/4,9,26	7053
28	limit 27 to yr="2010-current"	5366

	Ovid PsycINFO <1806 to September Week 1 2019>. Search date: 10 September 2019	
#	Search	Results
1	posttraumatic stress disorder/ or acute stress disorder/	31361
2	(acute stress or (asd and stress) or ptsd or ptss or posttraumatic stress or post traumatic stress or acute stress disorder or posttraumatic symptom? or post traumatic symptom? or traumatic stress).ab,id,ti.	49013
3	(htsq or trauma screen* or (trauma screen* and stress)).ab,id,ti,tm.	292
4	or/1-3 [ptsd]	50242

5	exp occupations/ or exp occupational health/ or occupational status/	59891
6	(worka* or worke* or workg* or worki* or workl* or workp* or work capacity or work disabilit* or work abilit* or at work or work exposure or work related or workers or job* or employee or staff or personnel or occupation or occupations or occupational or outdoor work* or day shift* or night shift* or shift work* or vocational rehabilitation or sick leave or absenteeism or sickness absen* or absente* or presente* or "return to work" or vocational reintegration or retirement or pension or employment or unemployed or unemployment or work status or industries or industrial sector or volunteer* or voluntary worker* or repetitive work).ab,id,ti.	866191
7	exp medical personnel/ or exp emergency personnel/	89105
8	(residents or emergency responder? or first responder? or firefighter? or fire fighter? or Police officer? or emergency medicals or Armed forces or paramedics or veterans or Journalist?).ab,id,ti.	68300
9	or/5-8 [work]	972972
10	(Clinical stud* or Case control stud* or Longitudinal stud* or Retrospective stud* or (Prospective stud* not (Randomized controlled trials or rct)) or Cohort analysis or (Cohort adj (study or studies)) or (Case control adj (study or studies)) or (follow up adj (study or studies)) or (observational adj (study or studies)) or (epidemiologic\$ adj (study or studies))).ab,id,ti.	136663
11	(risk or predict*).mp.	730689
12	10 or 11	808563
13	and/4,9,12	5417
14	limit 13 to yr="2010-current"	3711

ProQuest PTSDhubs. Search date: 10 September 2019		
#	Search	Results
1	(su((worka* OR worke* OR workg* OR worki* OR workl* OR workp* OR work capacity OR work disabilit* OR work abilit* OR at work OR work exposure OR work related OR workers OR job* OR employee OR staff OR personnel OR occupation OR occupations OR occupational OR outdoor work* OR day shift* OR night shift* OR shift work* OR vocational rehabilitation OR sick leave OR absenteeism OR sickness absen* OR absente* OR presente* OR "return to work" OR vocational reintegration OR retirement OR pension OR employment OR unemployed OR unemployment OR work status OR industries OR industrial sector OR volunteer* OR voluntary worker* OR repetitive work)) OR su((residents OR emergency responder? OR first responder? OR firefighter? OR fire fighter? OR Police officer? OR emergency medicals OR Armed forces OR paramedics OR veterans OR Journalist?))) AND (su(risk OR predict*) OR su((Clinical stud* OR Case control stud* OR Longitudinal stud* OR Retrospective stud* OR (Prospective stud* NOT (Randomized controlled trials OR rct)) OR Cohort analysis OR Cohort stud* OR Case control stud* OR follow up stud* OR observational stud* OR epidemiologic stud*)))	1849
2	Limit 1 to publication date = 2010-01-01 / 2019-09-10	1133

Supplementary file 2. Excluded articles

Article	Reason for exclusion	No papers
1. Amiri T. Occupational posttraumatic stress disorder: Latent structure and risk pathways. 2019, Dissertation Abstracts International, 80(4).	Conference abstract	1
2. Chin WS, Shiao JSC, Liao SC, Kuo CY, Chen CC, Guo YL. Psychiatric diseases at six years after occupational injuries. 2016. Occupational and Environmental Medicine, 73: A175.	Conference abstract	2
3. Connorton E, Miller M, Perry MJ, Hemenway D. Mental health and combat, peacekeeping, or relief work: Results from the National Comorbidity Survey Replication. 2011. Comprehensive Psychiatry, 52: E4.	Conference abstract	3
4. Geronazzo AL, Shen S, Duarte CS, Wu P, Lord E, Amsel L, Musa GJ, Wicks J, Yip J, Fan B, Guffanti G, Hoven CW. Cumulative exposure to work-related incidents and current posttraumatic stress disorder in new york city's first responders. 2013. European Psychiatry Conference.	Conference abstract	4
5. Goldmann E, Tamburrino M, Liberzon I, Slembariski R, Prescott MR, Calabrese J Galea S. Pre-, peri-, and post-deployment characteristics and risk of posttraumatic stress disorder among ohio national guard soldiers. 2010. American Journal of Epidemiology, 11: S90.	Conference abstract	5
6. Goodwin L, Jones M, Sundin J, Wessely S, Rona RJ, Fear NT. Prevalence and predictors of delayed onset PTSD in military personnel: Is there evidence for this disorder? Results of a prospective UK cohort study. 2011. Occupational and Environmental Medicine,1351-0711,1,A100.	Conference abstract	6
7. Herrell R, Wilk J, Bliese P, Hoge C. Combat intensity, psychopathology, and suicidal ideation in a population of soldiers after deployment to Iraq. 2011. Comprehensive Psychiatry, 52: E8.	Conference abstract	7
8. Herrell RK, Bliese PA, Hoge CW. Effect of combat intensity, depression, alcohol misuse, and family history of depression and alcohol misuse on PTSD in a sample of post-deployment US Soldiers. 2013. Comprehensive Psychiatry, 54: E4-E5.	Conference abstract	8
9. Herrell RK, Bliese PB, Hoge CW. Number of deployments and total months of deployment as predictors of post-traumatic stress disorder in active duty soldiers. 2011. American Journal of Epidemiology, 11: S289.	Conference abstract	9
10. Horesh D, Solomon Z, Ein-Dor T. Delayed-onset PTSD following combat: The role of social resources. 2013. Comprehensive Psychiatry, 54: e24.	Conference abstract	10
11. Kim AR, Sung JH, Cho SW, Jeong KS, Ahn YS. The relationship between the post-traumatic stress syndrome and the occupational stress among the firefighters in Korea. 2018. Occupational and Environmental Medicine, 75: A380.	Conference abstract	11
12. Pierce MD, Wood MD, Reddy M, Sevin E, Shea MT. A prospective examination of posttraumatic stress and alcohol use disorders among returning veterans. 2012. Alcoholism: Clinical and Experimental Research, 1: 303A.	Conference abstract	12
13. Subramaney U. Personality, trauma exposure, PTSD and depression in a cohort of SA metro policemen: A longitudinal study. 2010. South African Journal of Psychiatry, 16: 97-98.	Conference abstract	13
14. Huang, D, Wang X, Kung WW. The impact of job loss on posttraumatic stress disorder among Asian Americans: 11-12 years after the World Trade Center attack. 2019. Traumatology,1085-9373.	Full text could not be found	1
15. Andersen SB, Karstoft KI, Bertelsen M, Madsen T. Latent trajectories of trauma symptoms and resilience: the 3-year longitudinal prospective USPER study of Danish veterans deployed in Afghanistan. 2014. Journal of Clinical Psychiatry, 75(9): 1001-1008.	No PTSD incidence	1
16. Armstrong D, Shakespeare-Finch J, Shochet I. Predicting post-traumatic growth and post-traumatic stress in firefighters. 2014. Australian Journal of Psychology, 66(1): 38-46.	No PTSD incidence	2
17. Boasso AM, Steenkamp MM, Nash, WP, Larson JL, Litz BT. The relationship between course of PTSD symptoms in deployed U.S. Marines and degree of combat exposure. 2015. Journal of Traumatic Stress, 28(1): 73-78.	No PTSD incidence	3
18. Bowler RM, Harris M, Li J, Gocheva V, Stellman SD, Wilson K, Alper H, Schwarzer R,	No PTSD	4

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3 Cone JE. Longitudinal mental health impact among police responders to the 9/11 incidence
4 terrorist attack. 2012. *American Journal of Industrial Medicine*, 55(4): 297-312.
- 5 19. Chin WD, Shiao JS, Liao SC, Kuo CY, Chen CC, Guo YL. Depressive, anxiety and post- No PTSD 5
6 traumatic stress disorders at six years after occupational injuries. 2017. *European incidence*
7 *Archives of Psychiatry & Clinical Neuroscience*, 267(6): 507-516.
- 8 20. Eriksson CB, Lopes Cardozo B, Foy DW, Sabin M, Ager A, Snider L, Scholte WF, Kaiser No PTSD 6
9 R, Olf M, Rijnen B, Crawford CG, Zhu J, Simon W. Predeployment mental health and incidence
10 trauma exposure of expatriate humanitarian aid workers: Risk and resilience factors.
11 2013. *Traumatology*, 19(1): 41-48.
- 12 21. Garcia FE, Vazquez C, Inostroza C. Predictors of post-traumatic stress symptoms No PTSD 7
13 following occupational accidents: A longitudinal study. 2019. *Anxiety, Stress, & incidence*
14 *Coping*, 32(2): 168-178.
- 15 22. Hartley TA, Violanti JM, Sarkisian K, Andrew ME, Burchfiel CM. PTSD symptoms No PTSD 8
16 among police officers: associations with frequency, recency, and types of traumatic incidence
17 events. 2013. *International Journal of Emergency Mental Health*, 15(4): 241-253.
- 18 23. Huang H, Kashubeck-West S. Exposure, agency, perceived threat, and guilt as No PTSD 9
19 predictors of posttraumatic stress disorder in veterans. 2015. *Journal of Counseling incidence*
20 & Development, 93(1): 3-13.
- 21 24. Jaegers LA, Matthieu MM, Vaughn MG, Werth P, Katz IM, Ahmad SO. Posttraumatic No PTSD 10
22 Stress Disorder and Job Burnout Among Jail Officers. 2019. *Journal of Occupational & incidence*
23 *Environmental Medicine*, 61(6): 505-510.
- 24 25. Mac Donald CL, Johnson AM, Wierzechowski L, Kassner E, Stewart T, Nelson EC, No PTSD 11
25 Werner NJ, Zonies D, Oh J, Fang R, Brody DL. Prospectively assessed clinical incidence
26 outcomes in concussive blast vs nonblast traumatic brain injury among evacuated US
27 military personnel. 2014. *JAMA Neurology*, 71(8): 994-1002.
- 28 26. Magruder KM, Goldberg J, Forsberg CW, Friedman MJ, Litz BT, Vaccarino V, Heagerty No PTSD 12
29 PJ, Gleason TC, Huang GD, Smith NL. Long-Term Trajectories of PTSD in Vietnam-Era incidence
30 Veterans: The Course and Consequences of PTSD in Twins. 2016. *Journal of*
31 *Traumatic Stress*, 29(1): 5-16.
- 32 27. Marchand A, Nadeau C, Beaulieu-Prevost D, Boyer R, Martin M. Predictors of No PTSD 13
33 posttraumatic stress disorder among police officers: A prospective study. 2015. incidence
34 *Psychological Trauma: Theory, Research, Practice and Policy*, 7(3): 212-221.
- 35 28. Nash WP, Boasso AM, Steenkamp MM, Larson JL, Lubin RE, Litz BT. Posttraumatic No PTSD 14
36 stress in deployed marines: Prospective trajectories of early adaptation. 2015. incidence
37 *Journal of Abnormal Psychology*, 124(1): 155-171.
- 38 29. Polusny MA, Kumpula MJ, Meis LA, Erbes CR, Arbisi PA, Murdoch M, Thuras P, Kehle- No PTSD 15
39 Forbes SM, Johnson AK. Gender differences in the effects of deployment-related incidence
40 stressors and pre-deployment risk factors on the development of PTSD symptoms in
41 National Guard Soldiers deployed to Iraq and Afghanistan. 2014. *Journal of*
42 *Psychiatric Research*, 49(1): 1-9.
- 43 30. Rona RJ, Jones M, Sundin J, Goodwin L, Hull L, Wessely S, Fear NT. Predicting No PTSD 16
44 persistent posttraumatic stress disorder (PTSD) in UK military personnel who served incidence
45 in Iraq: a longitudinal study. 2012. *Journal of Psychiatric Research*, 46(9): 1191-1198.
- 46 31. Ryan-Gonzalez C, Kimbrel N, Meyer EC, Gordon EM, DeBeer BB, Gulliver SB, Elliott No PTSD 17
47 TR, Mosissette S. Differences in PTSD symptoms among post-9/11 veterans with incidence
48 blast- and non-blast mild TBI. 2019. *Journal of Neurotrauma*, 0897-7151.
- 49 32. Steenkamp MM, Schlenger WE, Corry N, Henn-Haase C, Qian M, Li M, Horesh D, No PTSD 18
50 Karstoft KI, Williams C, Ho CL, Shalev A, Kulka R, Marmar C. Predictors of PTSD 40 incidence
51 years after combat: Findings from the National Vietnam Veterans longitudinal study.
52 2017. *Depression & Anxiety*, 34(8): 711-722.
- 53 33. Wolf E, Mitchell K, Koenen K, Miller M. Combat exposure severity as a moderator of No PTSD 19
54 genetic and environmental liability to post-traumatic stress disorder. 2014. incidence
55 *Psychological Medicine*, 44(7): 1499-1509.
- 56 34. Yuan C, Wang Z, Inslicht SS, McCaslin SE, Metzler TJ, Henn-Haase C, Apfel BA, Tong H, No PTSD 20
57 Neylan TC, Fang Y, Marmar CR. Protective factors for posttraumatic stress disorder incidence
58 symptoms in a prospective study of police officers. 2011. *Psychiatry Research*,
59 188(1): 45-50.

35.	Amster ED, Fertig SS, Green M, Carel R. Occupational exposures and psychological symptoms among fire fighters and police during a major wildfire: The carmel cohort study. 2018. <i>Occupational and Environmental Medicine</i> , 75: A590-A591	Not about PTSD	1
36.	Cavanaugh CE, Campbell JC, Messing JT. A longitudinal study of the impact of cumulative violence victimization on comorbid posttraumatic stress and depression among female nurses and nursing personnel. 2014. <i>Workplace Health and Safety</i> , 62 (6): 224-232.	Not about PTSD	2
37.	Han M, Park S, Park JH, Hwang SS, Kim I. Do police officers and firefighters have a higher risk of disease than other public officers? A 13-year nationwide cohort study in South Korea. 2018, <i>BMJ Open</i> ; 8(1):e019987.	Not about PTSD	3
38.	Jacobson IG, Horton JL, Leardmann CA, Ryan MA, Boyko EJ, Wells TS, Smith B, Smith TC. Posttraumatic stress disorder and depression among U.S. military health care professionals deployed in support of operations in Iraq and Afghanistan. 2012, <i>J Trauma Stress</i> ;25(6):616-23.	Not about PTSD	4
39.	Tvaryanas AP, Maupin GM. Risk of incident mental health conditions among critical care air transport team members. 2014. <i>Aviation Space & Environmental Medicine</i> , 85(1): 30-38.	Not about PTSD	5
40.	Vasterling JJ, Brailey K, Proctor SP, Kane RL, Heeren T, Franz, Molly R. Neuropsychological outcomes of mild traumatic brain injury, post-traumatic stress disorder and depression in Iraq-deployed US Army soldiers. 2012. <i>British Journal of Psychiatry</i> , 201(3): 186-192.	Not about PTSD	6
41.	Bandelow BB, Koch M, Zimmermann P, Biesold KH, Wedekind D, Falkai P. Posttraumatic stress disorder (PTSD) in the German Armed Forces: a retrospective study in inpatients of a German army hospital. 2012. <i>European Archives of Psychiatry & Clinical Neuroscience</i> , 262(6): 459-467.	No control group	1
42.	Aslan M, Concato J, Peduzzi PN, Proctor SP, Schnurr PP, Marx BP, McFall ME, Gleason TC, Huang GD, Vasterling JJ. Design of 'Neuropsychological and mental health outcomes of Operation Iraqi Freedom: a longitudinal cohort study'. 2013. <i>Journal of Investigative Medicine</i> , 61(3):569-577.	Protocol paper only	1
43.	Dinenberg RE, McCaslin SE, Bates MN, Cohen BE. Social support may protect against development of posttraumatic stress disorder: findings from the Heart and Soul Study. 2014. <i>American Journal of Health Promotion</i> , 28(5): 294-297.	Not work-related	1
44.	Erbes CR, Polusny MA, Arbisi PA, Koffel E. PTSD symptoms in a cohort of National Guard soldiers deployed to Iraq: Evidence for nonspecific and specific components. 2012. <i>Journal of Affective Disorders</i> , 142(1): 269-274.	Not work-related	2
45.	Eskridge SL, Macera CA, Galarneau MR, Holbrook TL, Woodruff SI, MacGregor AJ, Morton DJ, Shaffer RA. Influence of combat blast-related mild traumatic brain injury acute symptoms on mental health and service discharge outcomes. 2013. <i>Journal of Neurotrauma</i> , 30(16): 1391-1397.	Not work-related	3
46.	Eskridge SL, Macera CA, Galarneau MR, Holbrook, TL, Woodruff SI, Macgregor AJ, Morton DJ, Shaffer RA. Combat blast injuries: Injury severity and posttraumatic stress disorder interaction on career outcomes in male servicemembers. 2013. <i>Journal of Rehabilitation Research and Development</i> , 50(1): 7-16.	Not work-related	4
47.	Fink DS, Gradus JL, Keyes KM, Calabrese JR, Liberzon I, Tamburrino MB, Cohen GH, Sampson L, Galea S. Subthreshold PTSD and PTSD in a prospective-longitudinal cohort of military personnel: Potential targets for preventive interventions. 2018. <i>Depression & Anxiety</i> , 35(11): 1048-1055.	Not work-related	5
48.	Fitch TJ, Yu X, Chien LC, Karim MM, Alamgir H. Traumatic life events and development of post-traumatic stress disorder among female factory workers in a developing country. 2018. <i>International Journal of Social Psychiatry</i> , 64(4): 351-358.	Not work-related	6
49.	Gilbertson MW, McFarlane AC, Weathers FW, Keane TM, Yehuda R, Shalev AY, Lasko NB, Goetz JM, Pitman RK, Harvard VA. Is trauma a causal agent of psychopathologic symptoms in posttraumatic stress disorder? Findings from identical twins discordant for combat exposure. 2010. <i>Journal of Clinical Psychiatry</i> , 71(10): 1324-1330.	Not work-related	7
50.	Horesh D, Solomon Z, Keinan G, Ein-Dor T. The clinical picture of late-onset PTSD: a 20-year longitudinal study of Israeli war veterans. 2013. <i>Psychiatry Research</i> , 208(3): 265-273.	Not work-related	8

51.	Goldmann E, Calabrese JR, Prescott MR, Tamburrino M, Liberzon I, Slembariski R, Shirley E, Fine T, Goto T, Wilson K, Ganocy S, Chan P, Serrano MB, Sizemore J, Galea S. Potentially modifiable pre-, peri-, and postdeployment characteristics associated with deployment-related posttraumatic stress disorder among ohio army national guard soldiers. <i>Ann Epidemiol.</i> 2012;22(2): 71-78.	No work-related exposure	1
52.	Banducci AN, McCaughey VK, Gradus JL, Street AE. The associations between deployment experiences, PTSD, and alcohol use among male and female veterans. 2019. <i>Addictive Behaviors</i> , 98: 106032,	Cross-sectional	1
53.	Huang, J. and Liu, Q. and Li, J. and Li, X. and You, J. and Zhang, L. and Tian, C. and Luan, R. Post-traumatic stress disorder status in a rescue group after the Wenchuan earthquake relief. 2013. <i>Neural Regeneration Research</i> , 8(20): 1898-1906.	Cross-sectional	2
54.	Jones M, Sundin J, Goodwin G, Hull L, Fear NT, Wessely S, Rona RJ. 2013. What Explains Post-Traumatic Stress Disorder (PTSD) in UK Service Personnel: Deployment or Something Else? <i>Psychological Medicine</i> , 43(8):1703-12.	Cross-sectional	3
55.	Rybojad B, Aftyka A, Baran M, Rzonca P. Risk Factors for Posttraumatic Stress Disorder in Polish Paramedics: A Pilot Study. 2016. <i>Journal of Emergency Medicine</i> , 50(2): 270-276.	Cross-sectional	4
56.	Liu B, Tarigan LH, Bromet EJ, Kim H. World Trade Center disaster exposure-related probable posttraumatic stress disorder among responders and civilians: a meta-analysis. 2014. <i>PLoS ONE</i> , 9(7): e101491.	Systematic review	1
57.	Schutte N, Bar O, Weiss U, Heuft G. Prediction of PTSD in police officers after six months--a prospective study. 2012. <i>Spanish Journal of Psychology</i> , 15(3): 1339-1348.	Systematic review	2
58.	Milosavljevic M, Drakulic B, Crnobaric C, Perunicic I, Tosevski DL. Risk factor assessment for posttraumatic stress disorder in war veterans in former Yugoslavia. 2011. <i>Psihijatrija Danas</i> , 43(2): 141-153.	Not in English	1
59.	Giupponi G, Thoma H, Lamis D, Forte A, Pompili M, Kapfhammer HP. Posttraumatic stress reactions of underground drivers after suicides by jumping to arriving trains; feasibility of an early stepped care outpatient intervention. <i>J Trauma Dissociation</i> . 2019; 20(5):495-510.	No effect sizes	1
60.	Osofsky HJ, Osofsky JD, Arey J, Kronenberg ME, Hansel TC, Many MM. Hurricane Katrina's first responders: the struggle to protect and serve in the aftermath of the disaster. 2011. <i>Disaster Medicine and Public Health Preparedness</i> , 5: S214-S219.	No effect sizes	2
61.	Rosenblatt AS, Li R, Fortier C, Liu X, Fonda JR, Villalon A, McGlinchey RE, Jorge RE. Latent factor structure of PTSD symptoms in veterans with a history of mild traumatic brain injury and close-range blast exposure. 2018. <i>Psychological Trauma: Theory, Research, Practice, and Policy</i> , 442-450.	No effect sizes	3
62.	Sheffler JL, Rushing NC, Stanley IH, Sachs-Ericsson NJ. The long-term impact of combat exposure on health, interpersonal, and economic domains of functioning. 2016. <i>Aging and Mental Health</i> , 20(11): 1202-1212.	No effect sizes	4
63.	Solberg O, Birkeland MS, Blix I, Hansen MB, Heir T. Towards an exposure-dependent model of post-traumatic stress: longitudinal course of post-traumatic stress symptomatology and functional impairment after the 2011 Oslo bombing. 2016. <i>Psychological Medicine</i> , 46(15): 3241-3254.	No effect sizes	5
64.	Taymur I, Sargin AE, Ozdel K, Turkcapar HM, Calisgan L, Zamki E, Demirel B. Possible Risk Factors for Acute Stress Disorder and Post-Traumatic Stress Disorder After an Industrial Explosion. 2014. <i>Noropsikiyatri Arsivi</i> , 51(1): 23-29.	No effect sizes	6
65.	Wisnivesky JP, Teitelbaum S, Todd AC, Boffetta P, Crane M, Crowley L, De la Hoz RE, Dellenbaugh C, Harrison DJ, Herbert R, Kim H, Jeon Y, Kaplan J, Katz CL, Levin SM, Luft BJ, Markowitz S, Moline JM, Ozbay F, Pietrzak RH, Shapiro M, Sharma V, Skloot G, Southwick SM, Stevenson LA, Udasin IG, Wallenstein S, Landrigan PJ. Persistence of multiple illnesses in World Trade Center rescue and recovery workers: a cohort study. 2011. <i>Lancet</i> , 378(9794): 888-897.	No effect sizes	7

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Supplementary file 3. Data extraction of included studies.

First author, Year;	Study (name, design and follow-up period)	Sample description (n, Country, Type of job/company, relevant inclusion/exclusion criteria, %Female, Age)	Description of exposure to screen work (way and year of baseline exposure assessment and description of categories)	Description of outcome (type of symptoms, way of assessment, and incidence over the follow-up period)	Adjustment	Effect estimates (e.g., HR, RR or OR with 95% confidence interval). Super scripts refer to the models specified in the 'adjustment' column
1. Armed Forces Health Surveillance Center, 2011 ²¹	<u>Name:</u> Armed forces health surveillance <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 12 months post deployment	<u>n</u> =1,344,668 <u>Country</u> =USA <u>%Female</u> = 11% <u>Age</u> = The majority was <25, with lower numbers of participants in the 25-29 and 30+ categories. <u>Type of job/company</u> = Active components of the forces (on Afghanistan and Iran missions). <u>Inclusion/exclusion</u> = -	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> between Oct 2001 and Dec 2010 <u>Exposure categories:</u> % PTSD diagnosis were compared between deployment number, gender, age group, military occupation (combat, health care and other) and 'dwelling time' between employments.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Mental disorders assessed with ICD-9-CM (309.81), reported in military or civilian hospitals <u>Incidence:</u> -	No	PTSD incidence was in general higher after the second, third and fourth deployment, compared to the first and fifth. PTSD incidence was in general higher among males, those in lowest age group, health care workers and those with longer dwelling time between the deployments. No effect estimates were reported (only incidences).
2. Andersen, 2019 ¹⁹	<u>Name:</u> - <u>Design:</u> Prospective longitudinal (with cross-sectional and longitudinal analyses) <u>Follow-up period:</u> 4 years	<u>n</u> = 2,678 <u>Country</u> = Denmark <u>%Female</u> = 66% <u>Age</u> = 45.1(10.1) years <u>Type of job/company</u> = Employees working in psychiatric wards, in the	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 2011 <u>Exposure categories:</u> Work-related violence and threats on a 5 point likert scale with 0=never to 4=almost daily, with	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Self-reported with the Impact of Event Scale-Revised <u>Incidence:</u> 14% (2 incidences)	Unadjusted (model 1), adjusted for gender, age, bullying, sexual harassment, conflicts at work, negative acts, private traumas and sector (model 2), additionally adjusted for	Work-related threats All four sectors PTSD at 2011 OR: 1.11 [1.07 1.14] ¹ OR: 1.10 [1.05 1.15] ² PTSD at 2015 OR: 1.10 [1.07 1.13] ¹ OR: 1.11 [1.07 1.5] ² OR: 1.10 [1.04 1.15] ³ Elder care

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		<p>elder sector, at special schools and in the prison and probation service.</p> <p><u>Inclusion/exclusion</u>--</p>	<p>summary scores 0-24 and 0-44, respectively.</p>		<p>baseline PTSD (model 3)</p>	<p>PTSD at 2011 OR: 0.99 [0.88 1.23]¹ OR: 0.98 [0.82 1.18]² PTSD at 2015 OR: 1.12 [1.00 1.25]¹ OR: 1.12 [0.94 1.33]² OR: 1.22 [0.95 1.56]³</p> <p>Prison and probation service PTSD at 2011 OR: 1.21 [1.14 1.28]¹ OR: 1.18 [1.08 1.27]² PTSD at 2015 OR: 1.73 [1.20 1.35]¹ OR: 1.25 [1.17 1.34]² OR: 1.22 [1.13 1.31]³</p> <p>Psychiatry PTSD at 2011 OR: 1.14 [1.06 1.12]¹ OR: 1.19 [1.09 1.32]² PTSD at 2015 OR: 1.06 [0.99 1.13]¹ OR: 1.06 [0.97 1.17]² OR: 0.94 [0.83 1.07]³</p> <p>Special schools PTSD at 2011 OR: 1.01 [0.93 1.09]¹ OR: 0.95 [0.85 1.05]² PTSD at 2015 OR: 1.08 [1.01 1.15]¹ OR: 1.06 [0.98 1.14]² OR: 1.07 [0.95 1.12]³</p> <p>PTSD at 2011 Males</p>
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						OR: 1.19 [1.12 1.26] ²
						Females
						OR: 1.04 [0.99 1.09] ²
						PTSD at 2015
						Males
						OR: 1.18 [1.09 1.26] ³
						Females
						OR: 1.02 [0.96 1.09] ³
						Work-related violence
						All four sectors
						PTSD at 2011
						OR: 1.05 [1.03 1.08] ¹
						OR: 1.05 [1.01 1.08] ²
						PTSD at 2015
						OR: 1.02 [0.98 1.04] ¹
						OR: 1.03 [1.00 1.06] ²
						OR: 1.02 [0.98 1.06] ³
						Elder care
						PTSD at 2011
						OR: 1.04 [0.95 1.12] ¹
						OR: 1.03 [0.94 1.13] ²
						PTSD at 2015
						OR: 1.07 [0.97 1.15] ¹
						OR: 1.03 [0.93 1.14] ²
						OR: 1.02 [0.90 1.16] ³
						Prison and probation service
						PTSD at 2011
						OR: 1.29 [1.15 1.49] ¹
						OR: 1.26 [1.09 1.46] ²
						PTSD at 2015
						OR: 1.50 [1.31 1.73] ¹
						OR: 1.42 [1.22 1.65] ²
						OR: 1.36 [1.36 1.60] ³

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						Psychiatry PTSD at 2011 OR: 1.08 [1.01 1.15] ¹ OR: 1.13 [1.03 1.24] ² PTSD at 2015 OR: 1.04 [0.98 1.10] ¹ OR: 1.05 [0.96 1.14] ² OR: 0.98 [0.88 1.10] ³ Special schools PTSD at 2011 OR: 1.04 [0.98 1.09] ¹ OR: 1.03 [0.97 1.10] ² PTSD at 2015 OR: 1.02 [0.97 1.07] ¹ OR: 1.02 [0.97 1.07] ² OR: 1.01 [0.42 1.08] ³ PTSD at 2011 Males OR: 1.06 [0.99 1.12] ² Females OR: 1.03 [0.99 1.07] ² PTSD at 2015 Males OR: 1.07 [0.99 1.14] ³ Females OR: 0.99 [0.95 1.05] ³
3. Anderson, 2019 ²⁰	Name: Army STARRS study Design: Prospective longitudinal (with baseline measurements 1-2 months before	n=4,645 Country=USA %Female=5% Age=26.9(0.2) years Type of job/company=	Exposure assessment: Self-reported Year of assessment: 2012 Exposure categories: Unit cohesion, stressful employment	Type of symptoms: PTSD (30 days) Way of assessment: Composite International Diagnostic Interview screening scales (CIDI-SC) and a six-item	Models were adjusted for all other exposures (model 1) and for lifetime PTSD at baseline (model 2).	Age OR: 1.00 [0.99 1.02] ¹ OR: 1.00 [0.99 1.02] ² Sex Female OR: Ref OR: Ref Male

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	<p>the deployment)</p> <p><u>Follow-up period:</u> 9 months post-employment</p>	<p>Soldiers from three combat teams employed in Afghanistan</p> <p><u>Inclusion/exclusion=</u> -</p>	<p>characteristics and sociodemographic were assessed</p>	<p>screening version of the PTSD Checklist (PCL) to assess lifetime DSM-4 mental disorders</p> <p><u>Incidence:</u> 11.9% (lifetime)</p>	<p>OR: 0.73 [0.46 1.14]¹ OR: 0.88 [0.51 1.51]²</p> <p>Race</p> <p><u>White</u> OR: Ref OR: Ref</p> <p><u>Black</u> OR: 0.99 [0.67 1.48]¹ OR: 1.04 [0.72 1.49]²</p> <p><u>Asian</u> OR: 1.28 [0.77 2.12]¹ OR: 1.38 [0.80 2.39]²</p> <p><u>Other</u> OR: 1.49 [1.04 2.15]¹ OR: 1.25 [0.86 1.82]²</p> <p>Ethnicity</p> <p><u>Non-Hispanic</u> OR: Ref OR: Ref</p> <p><u>Hispanic</u> OR: 1.15 [0.83 1.59]¹ OR: 1.22 [0.87 1.73]²</p> <p>Brigade Combat Team</p> <p><u>Fort #1</u> OR: Ref OR: Ref</p> <p><u>Fort #2</u> OR: 1.15 [0.90 1.47]¹ OR: 1.31 [0.97 1.77]²</p> <p><u>Fort #3</u> OR: 1.00 [0.80 1.24]¹ OR: 1.09 [0.82 1.45]²</p> <p>Number of deployments</p>
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						<p><u>Zero</u> OR: Ref OR: Ref</p> <p><u>One</u> OR: 1.09 [0.84 1.42]¹ OR: 0.96 [0.73 1.27]²</p> <p><u>≥Two</u> OR: 1.12 [0.87 1.43]¹ OR: 0.92 [0.71 1.19]²</p> <p>Time in unit <u>>6months</u> OR: Ref OR: Ref</p> <p><u><1month</u> OR: 1.51 [1.12 2.05]¹ OR: 1.81 [1.24 2.63]²</p> <p><u>1–6 months</u> OR: 0.75 [0.58 0.96]¹ OR: 0.77 [0.64 0.94]²</p> <p>Lifetime PTSD at baseline OR: 3.06 [2.24 4.17]¹</p> <p>30-day PTSD at baseline OR: 2.28 [1.36 3.82]¹</p> <p>Deployment stress <u>Low/moderate</u> OR: Ref OR: Ref</p> <p><u>High</u> OR: 3.21 [2.75 3.74]¹ OR: 3.52 [2.94 4.21]²</p> <p>Unit cohesion at baseline OR: 0.82 [0.73 0.91]¹</p>
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						OR: 0.74 [0.65 0.84] ²
4. Berninger, 2010 ²²	<p>Name: FDNY-WTC-MMP</p> <p>Design: Prospective longitudinal with baseline measurement within 6 months from the disaster.</p> <p>Follow-up period: 2.9 years</p>	<p>n=5,656</p> <p>Country= USA</p> <p>%Female= 0%</p> <p>Age= -</p> <p>Type of job/company= New York fire department rescue workers who were involved in the 9/11 WTC disaster</p> <p>Inclusion/exclusion= Fire fighters who retired during the study, who arrived at the disaster site >14 days after the rescue, and females; firefighters</p>	<p>Exposure assessment: Demographic and retirement from employee databases, all other information from self-reports.</p> <p>Year of assessment: 2001</p> <p>Exposure categories: -</p>	<p>Type of symptoms: Probable PTSD</p> <p>Way of assessment: Self-reported using PTSD checklist (PCL-m)</p> <p>Incidence:16%</p>	<p>Univariate (model 1) and multivariate adjusting for all other exposures that contributed statistically significant in the univariate model (model 2).</p>	<p>Age</p> <p><u>20-29 years</u> OR: Ref</p> <p><u>30-39 years</u> OR: 1.0 [0.8 1.3]¹</p> <p><u>40-49 years</u> OR: 1.0 [0.8 1.3]¹</p> <p><u>50-59 years</u> OR: 0.6 [0.4 1.1]¹</p> <p><u>60+ years</u> OR: -</p> <p><u>Continuous</u> OR: 0.98 [0.97 1.00]²</p> <p>Education</p> <p><u>High School</u> OR: Ref</p> <p><u>Some College</u> OR: 1.1 [0.9 1.3]¹</p> <p><u>College</u> OR: 1.1 [0.9 1.3]¹</p> <p><u>Post-College</u> OR: 1.2 [0.8 1.8]¹</p> <p>Living with a partner</p> <p><u>Yes</u> OR: Ref</p> <p><u>No</u> OR: 1.06 [0.89 1.27]¹</p> <p>Arrival Group</p> <p><u>Morning of 9/11</u> OR: 4.8 [3.0 7.5]¹</p> <p>OR: 2.0 [1.3 2.9]²</p> <p><u>Afternoon of 9/11</u> OR: 2.3 [1.5 3.5]¹</p>

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						<p>OR: 1.1 [0.8 1.5]² <u>Day 2</u> OR: 1.4 [0.8 2.3]¹ <u>Days 3-14</u> OR: Ref</p> <p>Prolonged work at the WTC site <u>≥4 months</u> OR: 2.0 [1.7 2.3]¹ <u><4 months</u> OR: Ref</p> <p>Rank <u>Firefighter</u> OR: Ref <u>Line officer</u> OR: 1.1 [0.95 1.30]¹ <u>Chiefs</u> OR: 0.96 [0.70 1.32]¹</p> <p>Number of deaths in firehouse <u>0 deaths</u> OR: Ref <u>1-3 deaths</u> OR: 1.5 [1.2 1.9]¹ <u>4+ deaths</u> OR: 2.3 [1.8 2.9]¹</p> <p>Supervising responsibilities <u>Yes</u> OR: 2.2 [1.7 2.9]¹ <u>No</u> OR: Ref</p> <p>Previous disaster experience</p>
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						<u>Yes</u> OR: 1.4 [1.2 1.6] ¹ <u>No</u> OR: Ref Duration of work at WTC site (per month) OR: 1.1 [1.1 1.2] ² Reported increase in alcohol OR: 1.3 [1.0 1.7] ² Baseline probable PTSD OR: 5.6 [4.4 7.0] ²
5. Brownlow, 2018 ²³	<u>Name:</u> Army STARSS study <u>Design:</u> Retrospective longitudinal <u>Follow-up period:</u> -	<u>n=</u> 14,254 for AAS and 25,629 for NSS. <u>Country=</u> USA <u>%Female=</u> 12% for AAS and 17% for NSS <u>Age=</u> 29.0(0.1) for AAS and 21.0(0.0) for NSS <u>Type of job/company=</u> Soldiers at all stages of their activity (AAS sub-study) and new recruits (NSS sub-study) <u>Inclusion/exclusion=</u> -	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 2011-2013 <u>Exposure categories:</u> Deployment-related and lifetime stress were assessed (the former only for the AAS cohort).	<u>Type of symptoms:</u> Probable PTSD (lifetime and past 30-day prevalence) was assessed using the PTSD Checklist (PCL) using DSM-4 criteria <u>Way of assessment:</u> Self-reported <u>Incidence:-</u>	-	Diversity of Deployment-Related Traumatic Stress Score [0-15] <i>30-day PTSD</i> OR: 1.15 [1.13 1.16] (AAS) <i>Lifetime PTSD</i> OR: 1.17 [1.16 1.18] (AAS) Cumulative Deployment-Related Traumatic Stress Score [0 60] <i>30-day PTSD</i> OR: 1.03 [1.03 1.04] (AAS) <i>Lifetime PTSD</i> OR: 1.00 [0.99 1.00] (AAS) Diversity of Lifetime Traumatic Stress Score <i>30-day PTSD</i> OR: 1.14 [1.13 1.16] (AAS) OR: 1.34 [1.30 1.38] (NSS) <i>Lifetime PTSD</i> OR: 1.16 [1.15 1.17] (AAS) OR: 1.34 [1.31 1.38] (NSS)

						Cumulative Lifetime Traumatic Stress Score <i>30-day PTSD</i> OR: 1.02 [1.02 1.03] (AAS) OR: 0.99 [0.98 1.01] (NSS) <i>Lifetime PTSD</i> OR: 1.02 [1.01 1.02] (AAS) OR: 1.00 [0.99 1.01] (NSS)
6. Brundage, 2015 ²⁴	<p><u>Name:</u> Defense Medical Surveillance System (DMSS)</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 36 months post-deployment.</p>	<p>n= 2,020,340 (Iraq/Afghanistan) and 529,609 (Korea/Japan)</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Individuals who served in army, air force, navy and marine. Those who were deployed in Iraq and Afghanistan were compared with a reference group who returned from assignments in Korea and Japan.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Deployment administration</p> <p><u>Year of assessment:</u> 2003-2014</p> <p><u>Exposure categories:</u> Iraq/Afghanistan vs Korea/Japan, and occupation. Also other factors were assessed but were not considered for this review.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosis using ICD-9 criteria.</p> <p><u>Incidence:</u> -</p>	-	<p>There were 4.85 diagnoses per 100 deployments among those who served in Iraq/Afghanistan, this was 1.04 among those who went to Japan/Korea (with a 4.66 ratio between the two groups).</p> <p>Diagnosis per 100 deployments were highest among combat specific (5.62) and health care (8.52) occupations who went to Iraq/Afghanistan, compared to others (4.17).</p>
7. Cameron, 2019 ²⁵	<p><u>Name:</u> Defence Manpower Data Center (DMDC) Database and Defense Medical</p>	<p>n= 1.35 million</p> <p><u>Country</u> = USA</p> <p><u>%Female</u>= 12%</p>	<p><u>Exposure assessment:</u> Deployment administration</p> <p><u>Year of assessment:</u></p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Data from the</p>	Unadjusted (model 1) and adjusted for all other exposures (model 2).	<p>Sex</p> <p><u>Female</u> RR: 1.65 [1.54 1.77]¹</p> <p><u>Male</u> RR: 1.92 [1.84 2.00]²</p>

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	<p>Surveillance System (DMSS)</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>Age=</u> -</p> <p><u>Type of job/company =</u> Active duty service members between 1999 and 2008.</p> <p><u>Inclusion/exclusion=</u> -</p>	<p>1999-2008</p> <p><u>Exposure categories:</u> Rank and service type.</p>	<p>Defence Medical Surveillance System (DMSS), with ICD-9-CM coded diagnoses, were used.</p> <p><u>Incidence:</u> 52,771 incident cases (~4%)</p>	<p>RR: Ref. RR: Ref.</p> <p>Age</p> <p><u>< 20</u> RR: Ref. RR: Ref.</p> <p><u>20–24</u> RR: 1.41 [1.25 1.60]¹ RR: 1.36 [1.27 1.46]²</p> <p><u>25–29</u> RR: 1.36 [1.20 1.54]¹ RR: 1.52 [1.41 1.65]²</p> <p><u>30–34</u> RR: 1.00 [0.87 1.15]¹ RR: 1.37 [1.25 1.50]²</p> <p><u>35–39</u> RR: 0.88 [0.76 1.02]¹ RR: 1.37 [1.24 1.52]²</p> <p><u>> 39</u> RR: 0.93 [0.80 1.08]¹ RR: 1.68 [1.51 1.87]²</p> <p>Race</p> <p><u>Black</u> RR: Ref. RR: Ref.</p> <p><u>Other</u> RR: 1.32 [1.18 1.47]¹ RR: 1.45 [1.36 1.54]²</p> <p><u>White</u> RR: 1.35 [1.25 1.47]¹ RR: 1.58 [1.51 1.66]²</p> <p>Marital Status</p> <p><u>Married</u> RR: 1.13 [1.06 1.20]¹</p>
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						RR: 1.38 [1.32 1.44] ² <u>Other</u> RR: 1.59 [1.40 1.80] ¹ RR: 1.72 [1.59 1.86] ² <u>Single</u> RR: Ref. RR: Ref. Rank <u>E1-E4</u> RR: 3.90 [3.19 4.77] ¹ RR: 4.93 [4.31 5.63] ² <u>E5-E9</u> RR: 3.02 [2.47 3.70] ¹ RR: 3.42 [3.02 3.89] ² <u>O1-O3</u> RR: 1.08 [0.84 1.38] ¹ RR: 1.17 [1.00 1.36] ² <u>O4-O9</u> RR: Ref. RR: Ref. Service <u>Air Force</u> RR: Ref. RR: Ref. <u>Army</u> RR: 3.80 [3.50 4.12] ¹ RR: 3.80 [3.59 4.02] ² <u>Marines</u> RR: 2.90 [2.63 3.19] ¹ RR: 2.92 [2.73 3.12] ² <u>Navy</u> RR: 1.38 [1.25 1.52] ¹ RR: 1.51 [1.41 1.61] ²
8. Chiu, 2011 <small>26</small>	<u>Name:</u> FDNY pension database	<u>n=</u> 1,915	<u>Exposure assessment:</u> Deployment	<u>Type of symptoms:</u> PTSD symptoms	Unadjusted (model 1) and adjusted for	Exposure group <u>morning of 9/11</u>

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	<p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4 years post-attack.</p>	<p><u>Country</u>= USA</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 47.0 (6.9) years</p> <p><u>Type of job/company</u>= New York fire department firefighters who were involved in the 9/11 WTC attacks.</p> <p><u>Inclusion/exclusion</u>= Fire marshals, females, those who retired due to mental health disability and those who did not first arrive at the disaster site were excluded.</p>	<p>administration</p> <p><u>Year of assessment:</u> 2001</p> <p><u>Exposure categories:</u> Retirement status, rank, and exposure.</p>	<p><u>Way of assessment:</u> Self-reported using the PTSD checklist (PCL-17) , using a cut-off >= 39 (range 17-85).</p> <p><u>Incidence:</u> 22%</p>	<p>all remaining exposures in the model (model 2).</p>	<p>OR: 4.9 [3.0 7.9]¹ OR: 4.0 [2.5 6.6]² <u>afternoon of 9/11</u> OR: 2.4 [1.5 3.7]¹ OR: 2.1 [1.3 3.3]² <u>day 2</u> OR: 1.7 [1.0 2.8]¹ OR: 1.4 [0.9 2.4]² <u>day 3 to day 14</u> OR: Ref. OR: Ref.</p> <p>Retirement status</p> <p><u>Disability</u> OR: 1.9 [1.5 2.4]¹ OR: 1.7 [1.4 2.2]²</p> <p><u>Non-disability</u> OR: Ref. OR: Ref.</p> <p>AUDIT score</p> <p><u>≥8</u> OR: 2.0 [1.5 2.5]¹ OR: 1.9 [1.5 2.4]²</p> <p><u>≤8</u> OR: Ref. OR: Ref.</p> <p>Age on 9/11 [in years]</p> <p><u><55</u> OR: 2.0 [1.4 3.0]¹ OR: 1.5 [1.0 3.0]²</p> <p><u>≥55</u> OR: Ref. OR: Ref.</p> <p>Age on 9/11 - in years</p>
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						<p><u>Continuous</u> OR: 1.0 [1.0 1.0]¹</p> <p>Marital status <u>Married</u> OR: 0.8 [0.6 1.2]¹ <u>Living with a partner</u> OR: 1.1 [0.6 2.1]¹ <u>Never married</u> OR: 0.9 [0.5 1.6]¹ <u>Separated/widowed/divorced</u> OR: Ref.</p> <p>Marital status change since 9/11 <u>Status change</u> OR: 1.3 [0.9 1.9]¹ <u>No change</u> OR: Ref.</p> <p>Previous profession <u>No other profession</u> OR: 1.2 [0.9 1.4]¹ <u>Other professions</u> OR: Ref.</p> <p>Rank <u>Chiefs</u> OR: 0.5 [0.3 0.9]¹ <u>Captains and lieutenants</u> OR: 0.8 [0.6 1.0]¹ <u>Firefighters</u> OR: Ref.</p>
9. Ciarleglio, 2018 ²⁷	<u>Name:</u> VU Cooperative Studies Program Study, combined	<u>n=</u> 375 <u>Country=</u> USA	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u>	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u>	Multivariate models adjusting for all other exposures.	Age in years OR: 1.04 [0.99 1.09] Gender

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	<p>with data from Neurocognition Deployment Health Study (NDHS).</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> Between 5.7 months (baseline) and 7.5 months post-deployment (long-term follow-up).</p>	<p><u>%Female</u>= 5%</p> <p><u>Age</u>= 35.1 (5.9) years</p> <p><u>Type of job/company</u>= Army soldiers who were deployed in Iraq</p> <p><u>Inclusion/exclusion</u>= -</p>	<p>2003-2005</p> <p><u>Exposure categories:</u> Deployment history and stress exposure.</p>	<p>Using a clinically administered PTSD scale.</p> <p><u>Incidence:</u> 24% (prevalence)</p>	<p><u>Male</u> OR: Ref.</p> <p><u>Female</u> OR: 0.31 [0.07 1.53]</p> <p>Number of deployments</p> <p><u>Single deployment</u> OR: Ref.</p> <p><u>Multiple deployments</u> OR: 0.83 [0.27 2.57]</p> <p>Months since most recent deployment OR: 1.00 [0.98 1.02]</p> <p>Composite emotional health factor post-deployment OR: 1.09 [0.79 1.50]</p> <p>Mental health treatment received post-deployment</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 4.12 [2.18 7.80]</p> <p>Early life events summary score OR: 0.92 [0.84 1.00]</p> <p>Combat and post-battle experiences OR: 0.99 [0.95 1.03]</p> <p>Deployment concerns summary score OR: 1.01 [0.98 1.04]</p>
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						<p>Life and family concerns OR: 0.99 [0.94 1.03]</p> <p>Post-deployment life events summary score OR: 1.07 [0.96 1.19]</p> <p>Post-war-zone social support OR: 0.92 [0.89 0.95]</p>
10. Cone, 2015 28	<p><u>Name:</u> World Trade Center Health Registry</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 10 years</p>	<p><u>n=</u> 2,204</p> <p><u>Country=</u> USA</p> <p><u>%Female=</u> 13%</p> <p><u>Age=</u> 38 (median)</p> <p><u>Type of job/company=</u> Police responders to the 9/11 WTC attacks</p> <p><u>Inclusion/exclusion=</u> Those with at least one shift at the disaster site, those without pre-9/11 PTSD and with follow-up measurements.</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2001</p> <p><u>Exposure categories:</u> Demographic, injury, stressors, life threatening event, support.</p>	<p><u>Type of symptoms:</u> Probable PTSD</p> <p><u>Way of assessment:</u> Self-reported using a combination of the PCL checklist and DSM-4 criteria.</p> <p><u>Incidence:</u> 11% (prevalence)</p>	<p>Adjusting for all other exposures.</p>	<p>Age group at 9/11 <u>18-44</u> OR: Ref. <u>45-69</u> OR: 0.6 [0.3 1.3]</p> <p>Gender <u>Male</u> OR: Ref. <u>Female</u> OR: 1.3 [0.7 2.5]</p> <p>Hispanic <u>No</u> OR: Ref. <u>Yes</u> OR: 1.2 [0.7 2.0]</p> <p>Household gross income at wave 3 <u>≥75K</u> OR: Ref. <u><75K</u> OR: 2.0 [1.2 3.4]</p> <p>Having social support <u>All of the time</u></p>

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OR: Ref. <u>Most</u> OR: 3.5 [2.0 6.1] <u>Some</u> OR: 3.6 [1.9 6.9] <u>Little or none</u> OR: 2.6 [1.04 6.5]
Current employment status at wave 3 <u>Employed</u> OR: Ref. <u>Unable to work because of health</u> OR: 3.7 [1.9 7.3] <u>Retired</u> OR: 1.3 [0.8 2.2] <u>Other</u> OR: 2.9 [0.8 10.1]
Number of life stressors in last 12 months <u>None</u> OR: Ref. <u>1 to 2</u> OR: 1.7 [1.0 2.7] <u>≥3</u> OR: 3.2 [1.2 8.5]
Number of events threatened your life since 9/11 <u>None</u> OR: Ref. <u>1 to 2</u> OR: 1.0 [0.5 1.9] <u>≥3</u>

						<p>OR: 3.3 [1.9 5.6]</p> <p>Number of injuries sustained during the 9/11 attacks</p> <p><u>None</u> OR: Ref.</p> <p><u>One</u> OR: 1.1 [0.6 2.0]</p> <p><u>Two or more</u> OR: 1.4 [0.6 3.4]</p> <p>Report of unmet mental health care needs at wave 3</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 9.5 [5.3 16.9]</p>
11. Connorton, 2011 ²⁹	<p><u>Name:</u> National Comorbidity Survey Replication (NCS-R)</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 217 exposed and 2,110 unexposed.</p> <p><u>Country</u>=USA</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 55.0(0.9) for exposed workers, 43.8 (0.9) for non-exposed workers</p> <p><u>Type of job/company</u>= Participants employed in combat or service as peacekeeper or relief worker.</p> <p><u>Inclusion/exclusion</u>= Females were excluded</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2001-2002</p> <p><u>Exposure categories:</u> Participants who were exposed to combat and peacekeeping/relieve work or combat only vs non-exposed participants.</p>	<p><u>Type of symptoms:</u> PTSD (according to DSM-4 criteria)</p> <p><u>Way of assessment:</u> Self-reported (no specific questionnaire mentioned)</p> <p><u>Incidence:</u> 29/(217+2110)=1%</p>	<p>Univariate and multivariate analyses adjusting for age of exposure, age of onset diagnoses, race</p>	<p>Exposure</p> <p><u>No exposure</u> OR: Ref</p> <p><u>Exposure to peacekeeping/relieve work and combat</u> OR: 11.2 [2.9 43.2]</p> <p><u>Exposure to combat only</u> OR: 7.3 [3.3 15.8]</p> <p>According to the authors the results remained the same in multivariate analyses (data not reported)</p>

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<p>12. Cukor, 2011 30</p>	<p><u>Name:</u> Weill Cornell 9/11 Screening Program</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> Up to 4 years.</p>	<p><u>n</u>= 2,960</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= 9/11 WTC disaster recovery workers.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2002-2004</p> <p><u>Exposure categories:</u> Occupational exposure</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Using the CAPS standardized clinical interview and using the PCL-C questionnaire using DSM-4 criteria. CAPS data were used for exposure-outcome assessment.</p> <p><u>Incidence:</u> 9%, 5% and 2% had probable self-reported PTSD at T1, T2 and T3, respectively. 15%, 8% and 6% had diagnosed PTSD at T1, T2 and T3, respectively.</p>	<p>Adjusting for baseline PTSD and demographic variables.</p>	<p>Occupational exposure</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 1.31 [1.13 1.51]</p>
<p>13. Fear, 2010 31</p>	<p><u>Name:</u> HERRICK cohort (and other samples)</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 3600</p> <p><u>Country</u>= UK</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Armed forces who were deployed in Iraq and Afghanistan, who were compared to armed forces who were not deployed.</p>	<p><u>Exposure assessment:</u> Deployment administration</p> <p><u>Year of assessment:</u> 2003</p> <p><u>Exposure categories:</u> Deployment, rank, number of deployments and time since deployment.</p>	<p><u>Type of symptoms:</u> PTSD symptoms</p> <p><u>Way of assessment:</u> Self-reporting using the PCL-C questionnaire.</p> <p><u>Incidence:</u> 4%</p>	<p>Unadjusted (model 1) and adjusted for age, sex, marital status, education and rank (model 2)</p>	<p>Deployment</p> <p><u>Not deployed</u> OR: Ref.</p> <p><u>Regulars</u> OR: 1.03 [0.79 1.36]¹ OR: 1.13 [0.82 1.54]²</p> <p><u>Reservists</u> OR: 2.90 [1.37 6.12]¹ OR: 2.83 [1.23 6.51]²</p> <p>Location of deployment</p> <p><u>Not deployed in Iraq/Afghanistan</u> OR: Ref.</p>

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		<p><u>Inclusion/exclusion= -</u></p>			<p><u>Deployed in Iraq</u> OR: 1.20 [0.87 1.67]²</p> <p><u>Deployed in Afghanistan</u> OR: 0.93 [0.54 1.59]²</p> <p><u>Deployed in Iraq and Afghanistan</u> OR: 0.92 [0.58 1.46]²</p> <p>Role of deployment</p> <p><u>Combat service report</u> OR: Ref. OR: Ref.</p> <p><u>Combat</u> OR: 1.99 [1.42 2.78]¹ OR: 1.87 [1.26 2.78]²</p> <p><u>Service support</u> OR: 0.58 [0.28 1.19]¹ OR: 0.67 [0.32 1.41]²</p> <p>Number of deployments</p> <p><u>One deployment</u> OR: Ref. OR: Ref.</p> <p><u>Two deployments</u> OR: 0.83 [0.51 1.36]¹ OR: 0.96 [0.58 1.57]²</p> <p><u>More than three deployments</u> OR: 0.61 [0.29 1.26]¹ OR: 0.72 [0.34 1.50]²</p> <p>Time since return from deployment</p> <p><u>Up to 1 year</u> OR: Ref. OR: Ref.</p> <p><u>Up to 2 years</u></p>
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						OR: 1.19 [0.76 1.86] ¹ OR: 1.18 [0.75 1.86] ² <u>Up to 3 years</u> OR: 1.95 [1.16 3.27] ¹ OR: 1.80 [1.05 3.10] ² <u>Up to 4 years</u> OR: 1.98 [1.08 3.65] ¹ OR: 1.88 [0.98 3.62] ² <u>Up to 5 years</u> OR: 1.59 [0.99 2.57] ¹ OR: 1.53 [0.92 2.55] ² <u>Up to 6.5 years</u> OR: 1.79 [0.98 3.26] ¹ OR: 1.89 [0.99 3.60] ²
14. Ferrajao, 2016 ³²	<u>Name:</u> - <u>Design:</u> Retrospective longitudinal <u>Follow-up period:</u> -	<u>n</u> = 120 <u>Country</u> = Portugal <u>%Female</u> = 0% <u>Age</u> = 64 [59-72] <u>Type of job/company</u> = Colonial war veterans <u>Inclusion/exclusion</u> = Participants who received psychiatric and psychological treatment during the last 5 years, and no history of traumatic brain injury, neurological disorders or physical disability were included.	<u>Exposure assessment:</u> Self-reported. <u>Year of assessment:</u> - <u>Exposure categories:</u> Combat exposure, abusive violence, sense of coherence.	<u>Type of symptoms:</u> PTSD symptoms <u>Way of assessment:</u> Self-reported using the Impact of Event Scale Revised (with a cut-off score: >=33) <u>Incidence:</u> 41% (prevalence)	Unadjusted	Combat exposure scale [1 5] OR: 1.98 [1.50, 2,62] Sense of coherence OR: -5.08 [-3.32, -7.78] Observation of abusive violence <u>No</u> OR: Ref. <u>Yes</u> OR: 8.36 [4.56, 15.35] Participation in abusive violence <u>No</u> OR: Ref. <u>Yes</u> OR: 3.32 [1.81, 6.08]
15. Fichera,	<u>Name:</u> -	<u>n</u> = 383	<u>Exposure assessment:</u>	<u>Type of symptoms:</u>	Adjusting for all	Number of robberies during

2015 ³³	<p><u>Design:</u> Prospective longitudinal, with baseline 7-15 days post-robbery</p> <p><u>Follow-up period:</u> 45 days after the first session</p>	<p><u>Country</u>= Italy</p> <p><u>%Female</u>= 52%</p> <p><u>Age</u>= 43 (9) years</p> <p><u>Type of job/company</u>= Employees of a large bank who were victims of robberies.</p> <p><u>Inclusion/exclusion</u>= Participants who had voluntarily joined and employer sponsored post-robbery support program.</p>	<p>Self-reported (questionnaires and interviews)</p> <p><u>Year of assessment:</u> 2010-2012</p> <p><u>Exposure categories:</u> Personal characteristics and characteristics of the robberies</p>	<p>PTSD</p> <p><u>Way of assessment:</u> Self-reported using the Impact of Events Scale (IES).</p> <p><u>Incidence:</u> 14%</p>	<p>other exposures (model 1), when additionally adjusting for baseline PTSD (model 2), and the latter two models in which random intercepts were adopted (model 3 and 4).</p>	<p>working life OR: 1.25 [1.07 1.44]¹ OR: 1.15 [0.97 1.36]² OR: 1.27 [1.07 1.51]³ OR: 1.18 [0.97 1.44]⁴</p> <p>Gender <u>Males</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴ <u>Females</u> OR: 0.63 [0.31 1.29]¹ OR: 0.72 [0.33 1.58]² OR: 0.77 [0.34 1.78]³ OR: 0.85 [0.33 2.13]⁴</p> <p>Being cashier <u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴ <u>Yes</u> OR: 0.52 [0.22 1.22]¹ OR: 0.94 [0.36 2.42]² OR: 0.40 [0.14 1.07]³ OR: 0.76 [0.25 2.25]⁴</p> <p>Physical contacts with robbers <u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴</p>
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						<p><u>Yes</u> OR: 1.21 [0.58 2.54]¹ OR: 0.83 [0.36 1.87]² OR: 1.23 [0.50 2.98]³ OR: 0.86 [0.32 2.28]⁴</p> <p>Scuffle [taking part or being present]</p> <p><u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴</p> <p><u>Yes</u> OR: 1.41 [0.61 3.27]¹ OR: 1.64 [0.64 4.20]² OR: 1.72 [0.62 4.78]³ OR: 1.92 [0.63 5.79]⁴</p> <p>Being injured during the robbery</p> <p><u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴</p> <p><u>Yes</u> OR: 1.69 [0.58 4.89]¹ OR: 1.44 [0.44 4.73]² OR: 1.81 [0.49 6.61]³ OR: 1.28 [0.31 5.21]⁴</p> <p>Worried by other issues related to robbery</p> <p><u>No</u> OR: Ref¹ OR: Ref²</p>
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						<p>OR: Ref³ OR: Ref⁴ <u>Yes</u> OR: 2.47 [1.16 5.27]¹ OR: 2.11 [0.91 4.91]² OR: 2.88 [1.16 7.19]³ OR: 2.64 [0.95 7.36]⁴</p> <p>Feeling terror and hopelessness <u>True</u> OR: 6.96 [2.25 21.53]¹ OR: 1.19 [0.32 4.36]² OR: 8.64 [2.19 34.10]³ OR: 1.59 [0.33 7.58]⁴ <u>Partly true</u> OR: 2.82 [0.98 8.10]¹ OR: 1.10 [0.33 3.65]² OR: 3.48 [1.00 12.12]³ OR: 1.45 [0.35 6.02]⁴</p> <p>Post-session individual interview requested <u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴ <u>Yes</u> OR: 1.09 [0.29 4.09]¹ OR: 0.41 [0.09 1.81]² OR: 0.75 [0.14 4.07]³ OR: 0.35 [0.06 2.07]⁴</p> <p>PTSD at T1 <u>No</u> OR: Ref¹</p>
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						OR: Ref ² OR: Ref ³ OR: Ref ⁴ <u>Yes</u> OR: – OR: 1.11 [1.07 1.15] ² OR: – OR: 1.11 [1.07 1.16] ⁴
16. Fink, 2016 ³⁴	<p><u>Name:</u> Reserve and National Guard (RNG) study.</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4 years</p>	<p><u>n</u>= 2,003</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 18%</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Army reservists</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2010</p> <p><u>Exposure categories:</u> Personal characteristics, deployment history and rank.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Self-reported using the PCL-C checklist, based on DSM-4 criteria. Criteria that sensitive and specific were used leading to two different PTSD definitions.</p> <p><u>Incidence:</u> 4.7 and 2.9 per 100 person-year for sensitive and specific definition, respectively.</p>	<p>Univariate models using the sensitive (model 1) and specific (model 2) outcome definition.</p>	<p>Effects in incidence rate (IR) per 100/per-years</p> <p>Age</p> <p><u>18–24 years</u> IR: 4.8 [3.0–7.5]¹ IR: 1.9 [0.8–4.3]²</p> <p><u>25–34 years</u> IR: 4.4 [3.2–6.1]¹ IR: 2.9 [1.9–4.4]²</p> <p><u>>35 years</u> IR: 4.9 [3.8–6.3]¹ IR: 3.4 [2.5–4.7]²</p> <p>Sex</p> <p><u>Male</u> IR: 4.6 [3.8–5.7]¹ IR: 3.2 [2.5–4.2]²</p> <p><u>Female</u> IR: 4.9 [3.2–7.4]¹ IR: 1.4 [0.7–2.8]²</p> <p>Race/ethnicity</p> <p><u>Non-Hispanic, white</u> IR: 4.3 [3.4–5.3]¹ IR: 2.4 [1.8–3.3]²</p> <p><u>Non-Hispanic, black</u> IR: 6.4 [4.0–10.2]¹ IR: 4.6 [2.6–8.2]²</p>

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						<p><u>Hispanic</u> IR: 5.5 [3.3–9.1]¹ IR: 4.3 [2.4–7.6]²</p> <p><u>Other</u> IR: 5.3 [3.0–9.1]¹ IR: 3.8 [2.0–7.2]²</p> <p>Education</p> <p><u>< High school</u> IR: 4.2 [1.0–16.6]¹ IR: 7.9 [2.1–29.1]²</p> <p><u>High school</u> IR: 6.1 [3.9–9.4]¹ IR: 3.6 [2.0–6.4]²</p> <p><u>Some college</u> IR: 4.8 [3.7–6.2]¹ IR: 2.8 [2.0–3.8]²</p> <p><u>> College</u> IR: 3.5 [2.6–4.8]¹ IR: 2.3 [1.6–3.4]²</p> <p>Marital status</p> <p><u>Never married</u> IR: 3.9 [2.7–5.7]¹ IR: 2.3 [1.3–4.0]²</p> <p><u>Married</u> IR: 4.9 [3.8–6.2]¹ IR: 2.9 [2.1–4.0]²</p> <p><u>Previously married</u> IR: 6.1 [3.9–9.5]¹ IR: 4.8 [3.0–7.6]²</p> <p>Rank</p> <p><u>Junior enlisted</u> IR: 4.4 [2.2–8.8]¹ IR: 1.2 [0.4–3.4]²</p> <p><u>Non-Commissioned Officers</u></p>
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						<p>IR: 5.1 [4.1–6.2]¹ IR: 3.4 [2.6–4.4]² <u>Officer</u> IR: 3.0 [2.0–4.5]¹ IR: 1.4 [0.8–2.5]²</p> <p>Number of baseline deployments</p> <p><u>Zero</u> IR: 3.9 [2.5–5.9]¹ IR: 1.4 [0.7–2.5]²</p> <p><u>One</u> IR: 4.8 [3.4–6.7]¹ IR: 3.9 [2.6–5.9]²</p> <p><u>Two</u> IR: 5.1 [3.7–7.0]¹ IR: 3.5 [2.4–5.0]²</p> <p><u>More than three</u> IR: 5.5 [3.6–8.3]¹ IR: 2.9 [1.6–5.4]²</p> <p>Past-year deployment</p> <p><u>Yes</u> IR: 7.2 [4.6–11.2]¹ IR: 3.0 [1.4–6.3]²</p> <p><u>No</u> IR: 5.3 [4.4–6.5]¹ IR: 3.6 [2.8–4.6]²</p> <p>Past-year deployment trauma</p> <p><u>Yes</u> IR: 5.3 [3.2–8.7]¹ IR: 2.0 [0.9–4.4]²</p> <p><u>No</u> IR: 4.6 [3.7–5.6]¹ IR: 3.1 [2.4–4.0]²</p>
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						<p>Past-year civilian trauma</p> <p><u>Yes</u> IR: 6.5 [5.2–8.1]¹ IR: 4.2 [3.1–5.6]²</p> <p><u>No</u> IR: 2.9 [2.1–4.0]¹ IR: 1.6 [1.0–2.5]²</p> <p>Component</p> <p><u>Reserve</u> IR: 4.0 [3.0–5.3]¹ IR: 3.0 [2.1–4.2]²</p> <p><u>National Guard</u> IR: 5.3 [4.2–6.8]¹ IR: 2.8 [2.0–4.0]²</p> <p>Branch</p> <p><u>Air Force Reserve</u> IR: 2.7 [1.3–5.6]¹ IR: 1.1 [0.3–3.5]²</p> <p><u>Army Reserve</u> IR: 4.2 [2.8–6.3]¹ IR: 4.2 [2.7–6.6]²</p> <p><u>Marine Reserve</u> IR: 5.3 [3.0–9.7]¹ IR: 2.5 [1.1–5.5]²</p> <p><u>Navy Reserve</u> IR: 4.0 [2.2–7.2]¹ IR: 1.9 [0.9–4.0]²</p> <p><u>Air National Guard</u> IR: 3.4 [1.9–6.1]¹ IR: 0.4 [0.1–1.4]²</p> <p><u>Army National Guard</u> IR: 5.9 [4.5–7.7]¹ IR: 3.6 [2.4–5.0]²</p>
17. Goodwin,	Name: -	n= 1,397	Exposure assessment:	Type of symptoms:	Univariate (model	Sex

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<p>2012³⁵</p>	<p>Design: Prospective longitudinal.</p> <p>Follow-up period: 40.3 months (median)</p>	<p>Country= UK</p> <p>%Female= 11%</p> <p>Age= -</p> <p>Type of job/company= Military personnel that were and were not deployed in the Iraq war.</p> <p>Inclusion/exclusion= -</p>	<p>Self-reported.</p> <p>Year of assessment: 2004-2006.</p> <p>Exposure categories: Personal characteristics, service, rank and deployment history.</p>	<p>PTSD symptoms (delayed onset)</p> <p>Way of assessment: Self-reported using the PCL-C checklist.</p> <p>Incidence: 3.5%</p>	<p>1) and multivariate (model 2) adjusting for service, rank, deployment characteristics, depression, anxiety/panic disorder, childhood adversity and general health, alcohol misuse, common mental disorders, and subthreshold PTSD all at phase 1.</p>	<p>Male OR: Ref.</p> <p>Female OR: 1.46 [0.64 3.36]¹</p> <p>Age <35 OR: Ref.</p> <p>≥35 OR: 0.71 [0.38 1.34]¹</p> <p>Marital status In a relationship OR: Ref.</p> <p>Single, divorced, separated, widowed OR: 0.92 [0.39 2.14]¹</p> <p>Service Naval services OR: 0.40 [0.14 1.19]¹ OR: 0.45 [0.16 1.28]²</p> <p>Army OR: Ref. OR: Ref.</p> <p>Royal Air Force OR: 0.23 [0.07 0.81]¹ OR: 0.53 [0.15 1.87]²</p> <p>Rank Officer OR: 0.17 [0.05 0.57]¹ OR: 0.21 [0.06 0.72]²</p> <p>Other rank OR: Ref. OR: Ref.</p>
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						<p>Deployment</p> <p><u>Regular</u> OR: Ref.</p> <p><u>Reservist</u> OR: 0.83 [0.42 1.68]¹</p> <p>In a combat role on deployment</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 3.00 [1.57 5.75]¹ OR: 2.61 [1.20 5.68]²</p> <p>Thought might be killed</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 3.69 [1.61 8.45]¹ OR: 2.38 [1.03 5.46]²</p> <p>Discharged weapon on deployment</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 1.48 [0.61 3.60]¹</p> <p>Handled bodies on deployment</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 2.01 [0.93 4.35]¹</p>
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<p>History of depression</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 4.31 [2.19 8.49]¹ OR: 3.67 [1.75 7.67]²</p> <p>History of anxiety/panic disorder</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 4.77 [1.92 11.82]¹ OR: 2.85 [0.87 9.30]²</p> <p>Childhood adversity, antisocial behavior</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 3.26 [1.66 6.40]¹ OR: 1.58 [0.73 3.43]²</p> <p>Childhood adversity, family relationship</p> <p><u>0 adversities</u> OR: Ref. OR: Ref.</p> <p><u>1 adversity</u> OR: 1.36 [0.53 3.48]¹ OR: 1.29 [0.46 3.63]²</p> <p><u>2 or more adversities</u> OR: 2.92 [1.41 6.04]¹ OR: 2.18 [0.99 4.77]²</p>

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General health status

Fair/ poor

OR: 3.05 [1.49 6.23]¹

OR: 1.84 [0.79 4.28]²

Excellent/ good

OR: Ref.

OR: Ref.

Common mental disorder

Non-case

OR: Ref.

OR: Ref.

Case

OR: 5.58 [2.94 10.58]¹

OR: 2.47 [1.12 5.46]²

Multiple physical symptoms

Non-case

OR: Ref.

OR: Ref.

Case

OR: 7.32 [3.81 14.07]¹

OR: 3.40 [1.54 7.47]²

Alcohol misuse

Non-case

OR: Ref.

Case

OR: 2.18 [1.00 4.75]¹

Subthreshold PTSD reported at phase 1

No

OR: Ref.

OR: Ref.

Yes

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OR: 9.96 [4.67 21.20] ¹ OR: 4.87 [2.05 11.58] ²
Cumulative physical/psychological morbidity at phase 1
<u>0 reports</u> OR: Ref. OR: Ref.
<u>1 report</u> OR: 4.40 [1.88 10.33] ¹ OR: 3.37 [1.30 8.73] ²
<u>2 reports</u> OR: 10.72 [4.09 28.08] ¹ OR: 6.56 [2.29 8.73] ²
<u>3-4 reports</u> OR: 17.14 [6.84 42.97] ¹ OR: 8.14 [2.81 23.57] ²
Relationship status
<u>No change</u> OR: Ref.
<u>In a new relationship since phase 1</u> OR: 1.17 [0.39 3.52] ¹
<u>End of a relationship since phase 1</u> OR: 2.18 [0.84 5.62] ¹
Serving status
<u>In service phases 1 and 2</u> OR: Ref. OR: Ref.
<u>Not in service phases 1 and 2</u> OR: 1.51 [0.58 3.89] ¹ OR: 1.14 [0.40 3.29] ²
<u>Left service</u>

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						<p>OR: 2.24 [1.13 4.42]¹ OR: 1.46 [0.66 3.23]²</p> <p>General health status <u>Good health stable</u> OR: Ref. OR: Ref.</p> <p><u>Poor health stable</u> OR: 7.83 [3.33 18.44]¹ OR: 3.72 [1.19 11.65]²</p> <p><u>Decline in health since phase 1</u> OR: 6.44 [2.89 14.35]¹ OR: 3.74 [1.41 9.91]²</p> <p><u>Improvement in health since phase 1</u> OR: 1.71 [0.47 6.24]¹ OR: 0.88 [0.24 3.24]²</p> <p>Alcohol misuse <u>No change [no misuse]</u> OR: Ref. OR: Ref.</p> <p><u>No change [misuse]</u> OR: 3.84 [1.37 10.77]¹ OR: 1.29 [0.40 4.18]²</p> <p><u>Deterioration change since phase 1</u> OR: 6.10 [2.45 15.17]¹ OR: 6.15 [2.05 18.48]²</p> <p><u>Improvement change since phase 1</u> OR: 1.60 [0.47 5.47]¹ OR: 0.76 [0.21 2.71]²</p> <p>Common mental disorders <u>No change or positive change</u></p>
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						<p>OR: Ref. OR: Ref. <u>Negative change since phase 1</u> OR: 6.29 [3.24 12.21]¹ OR: 7.12 [3.07 16.52]²</p> <p>Multiple physical symptoms <u>No change or improvement</u> OR: Ref. OR: Ref. <u>Decline in health since phase 1</u> OR: 9.73 [4.56 20.76]¹ OR: 7.85 [2.86 21.52]²</p>
18. Green, 2016 <small>36</small>	<p><u>Name:</u> Project VALOR</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 738</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 51%</p> <p><u>Age</u>= 37.7 (9.9) years.</p> <p><u>Type of job/company</u>= Iraq and Afghanistan army and marine corps veterans.</p> <p><u>Inclusion/exclusion</u>= Participants who had undergone mental health evaluation at a veterans facility were included. Participants with probable PTSD and females were oversampled to get a</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Deployment risk and resilience.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Using a structured clinical interview with DSM-4 criteria.</p> <p><u>Incidence:</u> 73% and 68% for females and males, respectively.</p>	Unadjusted	<p>Age OR: 1.01 [0.81 1.03]</p> <p>Race <u>White</u> OR: Ref. <u>Black</u> OR: 1.83 [0.76 4.41] <u>Other</u> OR: 0.46 [0.19 1.11]</p> <p>Combat experiences OR: 1.03 [1.00 1.07]</p> <p>Aftermath of battle OR: 1.03 [1.00 1.06]</p> <p>Social support OR: 0.96 [0.93 0.98]</p> <p>Length of deployment OR: 0.97 [0.92 1.03]</p>

		good representation of these groups in the final sample. Only participants with one deployment were included.				Deployment phase <u>Insurgency</u> OR: Ref. <u>Invasion</u> OR: 0.38 [0.16 0.91] <u>Surge</u> OR: 0.44 [0.21 0.93]
19. Hansen, 2017 ³⁷	<p>Name: Mental Health and Work Environment Factors in the Aftermath of the Oslo Terrorist Attack</p> <p>Design: Prospective longitudinal</p> <p>Follow-up period: 10, 22 and 34 months after the attack</p>	<p>n= 1,933</p> <p>Country= Norway</p> <p>%Female= 58%</p> <p>Age= 45.4(10.9) years</p> <p>Type of job/company= Employees of the ministries at the moment of the Oslo terrorist attack.</p> <p>Inclusion/exclusion= -</p>	<p>Exposure assessment: Deployment administration</p> <p>Year of assessment: 2011</p> <p>Exposure categories: Mental health, exposure, work, perceived safety and psychosocial variables.</p>	<p>Type of symptoms: PTS symptoms</p> <p>Way of assessment: Self-reported using a Norwegian version of the Posttraumatic Stress Disorder Checklist – Specific (PCL-C), using DSM-4 criteria.</p> <p>Incidence: 6%, 4%, and 4% during the three follow-up periods, respectively.</p>	<p>Unadjusted (model 1) and multivariate (model 2) with age and gender and traumatic experiences, education level and leadership position.</p>	<p>Presence during attack</p> <p><u>Not present during attack</u></p> <p>10 months OR: Ref.¹ OR: Ref.² 22 months OR: Ref.¹ OR: Ref.² 34 months OR: Ref.¹ OR: Ref.²</p> <p><u>Present during attack</u></p> <p>10 months OR: 8.4 [5.6 12.6]¹ OR: 9.3 [6.1 14.2]² 22 months OR: 6.9 [4.3 11.2]¹ OR: 8.9 [5.2 15.3]² 34 months OR: 8.8 [5.2 15.1]¹ OR: 10.0 [5.4 18.6]²</p>
20. Harvey, 2012 ³⁸	<p>Name: -</p> <p>Design: Prospective longitudinal</p>	<p>n= 552 in combat group, 391 in control group</p> <p>Country= UK</p> <p>%Female= 17% in</p>	<p>Exposure assessment: Deployment administration</p> <p>Year of assessment: 2003</p>	<p>Type of symptoms: PTSD symptoms (using a cut-off >=50)</p> <p>Way of assessment: 17-item National</p>	<p>Univariate (model 1) and adjusted for gender, age, rank and service (model 2).</p>	<p>Combat status</p> <p><u>Control group</u></p> <p>Short-term OR: Ref OR: Ref</p> <p>Long-term</p>

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	<u>Follow-up period:</u> 16 months and 4.8 year post- deployment	combat group, 19% in control group <u>Age</u> = 39.4(7.9) in combat group, 42.0(8.9) in control group <u>Type of job/company</u> = Military personnel that were and were not deployed in the Iraq war <u>Inclusion/exclusion</u> = -	<u>Exposure categories:</u> Combat versus control group	Centre for PTSD Checklist (PCL-C) <u>Incidence:</u> Short term: 2.2% in control group and 6.3% in the combat group. Long- term: 2.0% in the control group and 5.1 in the combat group.		OR: Ref OR: Ref <u>Combat group</u> <i>Short-term</i> OR: 3.01 [1.36 6.64] ¹ OR: 2.91 [1.34 6.31] ² <i>Long-term</i> OR: 2.62 [1.12 6.16] ¹ OR: 2.42 [1.04 5.62] ²
21. Horesh, 2011 ³⁹	<u>Name:</u> - <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 1, 2 and 20 years post-war	<u>n</u> = 675 <u>Country</u> = Israel <u>%Female</u> = - <u>Age</u> = - <u>Type of job/company</u> = War veterans from the Lebanon war <u>Inclusion/exclusion</u> = -	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 1983 <u>Exposure categories:</u> Combat exposure was self-reported.	<u>Type of symptoms:</u> PTSD, grouped into four groups: no-PTSD, 1983 PTSD, 1984 delayed onset PTSD and 2002 delayed onset PTSD. <u>Way of assessment:</u> Self-reported using the PTSD inventory, using DSM-3 criteria. <u>Incidence:</u> 16.5%	-	64.5% of the participants in the 1983 PTSD group reported extreme exposure to danger, compared to 24.5% of the no-PTSD group, 35.8% of the 2002 delayed onset PTSD group and 41.4% of the 1984 delayed onset PTSD group. Whereas 27.9% of the participants in the no- PTSD group reported extreme battles severity, 48.2% of the participants in the 1983 PTSD group reported extreme battles severity. In comparison, 39.6% of the participants in the 2002 delayed onset PTSD group and 34.5% of the participants in the 1984 delayed onset PTSD group reported extreme battles severity.
22. Hourani,	<u>Name:</u> -	<u>n</u> = 2116	<u>Exposure assessment:</u>	<u>Type of symptoms:</u>	-	Those with PTSD symptoms

2012 ⁴⁰	<p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 6 months</p>	<p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Marines</p> <p><u>Inclusion/exclusion</u>= Participants who transitioned from active military duty to civilian life were for a minimum of 2 months were included.</p>	<p>Self-reported</p> <p><u>Year of assessment:</u> 2010</p> <p><u>Exposure categories:</u> Exposures like number of deployments and stress were used.</p>	<p>PTSD symptoms</p> <p><u>Way of assessment:</u> Self-reported using the National Centre for PTSD Checklist (PCL-C) of the Department of Veterans Affairs – Civilian Version.</p> <p><u>Incidence:</u> Baseline prevalence 28%, follow-up incidence 10%</p>		<p>also were more likely to report a previous trauma during their lifetime at baseline. High combat exposure scale scores were associated with PTSD. Baseline social support was associated with PTSD.</p>
23. Ikeda, 2017 ⁴¹	<p><u>Name:</u> Fukushima Nuclear Energy Worker's Support (NEWS) Project.</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> Baseline at 2-3 months post-disaster, with follow-up 3 years after that.</p>	<p><u>n</u>= 1,417</p> <p><u>Country</u>= Japan</p> <p><u>%Female</u>= 5%</p> <p><u>Age</u>= 39.3 years</p> <p><u>Type of job/company</u>= Employers of the Tokyo Electric Power Company in Fukushima.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2011</p> <p><u>Exposure categories:</u> Sociodemographic, disaster-related experiences and psychological distress.</p>	<p><u>Type of symptoms:</u> PTSD symptoms (using a cut-off >=25)</p> <p><u>Way of assessment:</u> Self-reported using the Japanese version of the Impact of Event Scale-Revisited (IES-R), using DSM-4 criteria.</p> <p><u>Incidence:</u> 26%</p>	<p>Adjusted for age, gender and job location.</p>	<p>Experience of life-threatening danger</p> <p><u>No</u> OR: Ref. (2011) OR: Ref. (2012) OR: Ref. (2013) OR: Ref. (2014)</p> <p><u>Yes</u> OR: 4.32 [2.89 6.48] (2011) OR: 3.47 [2.43 4.95] (2012) OR: 2.78 [1.87 4.14] (2013) OR: 2.23 [1.34 3.72] (2014)</p> <p>Major property loss</p> <p><u>No</u> OR: Ref. (2011) OR: Ref. (2012) OR: Ref. (2013) OR: Ref. (2014)</p> <p><u>Yes</u></p>

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OR: 3.45 [2.28 5.23] (2011)
OR: 2.55 [1.77 3.66] (2012)
OR: 1.88 [1.25 2.84] (2013)
OR: 1.39 [0.81 2.37] (2014)

Discrimination/slurs

No
OR: Ref. (2011)
OR: Ref. (2012)
OR: Ref. (2013)
OR: Ref. (2014)

Yes
OR: 5.72 [3.37 9.71] (2011)
OR: 4.47 [2.83 7.08] (2012)
OR: 3.50 [2.10 5.84] (2013)
OR: 2.74 [1.42 5.30] (2014)

Escape from tsunami

No
OR: Ref. (2011)
OR: Ref. (2012)
OR: Ref. (2013)
OR: Ref. (2014)

Yes
OR: 5.65 [3.27 9.74] (2011)
OR: 3.72 [2.30 6.02] (2012)
OR: 2.45 [1.40 4.27] (2013)
OR: 1.61 [0.78 3.35] (2014)

Witnessing of plant explosions

No
OR: Ref. (2011)
Yes
OR: 2.09 [1.43 3.06] (2011)

Family member deaths

						<p><u>No</u> OR: Ref. (2011)</p> <p><u>Yes</u> OR: 1.60 [0.80 3.19] (2011)</p> <p>Colleague deaths</p> <p><u>No</u> OR: Ref. (2011)</p> <p><u>Yes</u> OR: 2.08 [1.33 3.26] (2011)</p> <p>Home evacuation</p> <p><u>No</u> OR: Ref. (2011)</p> <p><u>Yes</u> OR: 1.49 [1.03 2.15] (2011)</p>
<p>24. Joseph, 2014⁴²</p>	<p><u>Name:</u> -</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 453</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 24%</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Traumatic surgeons</p> <p><u>Inclusion/exclusion</u> = --</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Personal characteristics, and exposure at work.</p>	<p><u>Type of symptoms:</u> PTSD (symptoms and diagnosed PTSD - only diagnosed PTSD was extracted for this review)</p> <p><u>Way of assessment:</u> Self-reported using the PCL checklist (with a cut-off score >=44).</p> <p><u>Incidence:</u> 15% (prevalence)</p>	<p>Univariate (model 1) and adjusting for all other exposure (model 2).</p>	<p>Age</p> <p><u><51 years</u> OR: Ref.¹</p> <p><u>>=51 years</u> OR: Ref.²</p> <p>OR: 1.8 [0.7 3.4]¹</p> <p>Gender</p> <p><u>Female</u> OR: Ref.¹</p> <p>OR: Ref.²</p> <p><u>Male</u> OR: 2.1 [1.4 4.6]¹</p> <p>OR: 1.8 [0.9 5.3]²</p> <p>Marital status</p> <p><u>Other</u> OR: Ref.¹</p> <p><u>Single</u> OR: 1.2 [0.4 2.8]¹</p>

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						<p>Race</p> <p><u>Other</u> OR: Ref.¹</p> <p><u>White</u> OR: 1.1 [0.8 2.6]¹</p> <p>Comorbidities</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 2.4 [0.6 4.1]¹</p> <p>Urban hospital</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.6 [0.5 2.4]¹</p> <p>Academic facility</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 3.6 [0.9 7.8]¹</p> <p>24-h resident coverage</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.8 [1.1 3.2]¹ OR: 1.4 [0.8 4.2]²</p> <p>≥5 critical cases per call</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u></p>
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						<p>OR: 2.4 [1.6 9.4]¹ OR: 7 [1.1 8]²</p> <p>≥7 call duties a month</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.6 [2.1 14.6]¹ OR: 3.8 [0.9 7.2]²</p> <p>≥15 operative cases per month</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 3.1 [1.1 7.2]¹ OR: 2.8 [0.4 3.2]²</p> <p>≥4-h relaxation per day</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.6 [1.8 11.5]¹ OR: 3.1 [0.9 6.7]²</p> <p>≥2-wk vacation per year</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.1 [0.9 6.8]¹ OR: 1.4 [0.6 4.1]²</p> <p>Military experience</p>
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						<p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.4 [0.8 5.6]¹ OR: 1.1 [0.7 3.8]²</p> <p>War deployment</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.2 [2.8 14.1]¹ OR: 2.8 [0.9 7.9]²</p> <p>Smoking</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.2 [0.8 3.1]¹</p> <p>Alcohol</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.1 [0.5 2.3]¹</p> <p>Annual income >\$300,000</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 3.6 [0.9 8.4]¹</p>
25. Karstoft, 2013 ⁴³	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal</p>	n= 675 (369 who were diagnosed with a combat stress reaction and 306 without)	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 1983</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Self-reported using</p>	-	<p>Severity of battles</p> <p>OR: 0.96 [0.63 1.48] (combat stress reaction)</p> <p>OR: 0.87 [0.55 1.36] (no combat stress reaction)</p>

	<p><u>Follow-up period:</u> 1, 2 and 20 years post-war.</p>	<p><u>Country</u>= Israel <u>%Female</u>= 0% <u>Age</u>= 25.8(4.7) <u>Type of job/company</u>= Combat veterans who were on active duty in the Lebanon war. <u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure categories:</u> Exposures such as the severity of battles, life threatening war, unit atmosphere and social support were assessed.</p>	<p>the PTSD inventory, using DSM-3 criteria. Latent growth modelling was used to identify PTSD subgroups. For the current review we only assessed the 'delayed onset' PTSD group, as this reflects incidence of PTSD. <u>Incidence:</u> -</p>	<p>Life threatening war OR: 1.90 [1.08 3.35] (combat stress reaction) OR: 0.95 [0.64 1.43] (no combat stress reaction) Unit atmosphere OR: 1.08 [1.00 1.17] (combat stress reaction) OR: 1.02 [0.96 1.09] (no combat stress reaction) Social support OR: 0.58 [0.25 1.31] (combat stress reaction) OR: 0.66 [0.29 1.53] (no combat stress reaction)</p>
<p>26. Karstoft, 2015⁴⁴</p>	<p><u>Name:</u> - <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 1, 2 and 20 years post-war.</p>	<p><u>n</u>= 675 (369 who were diagnosed with a combat stress reaction and 306 without) <u>Country</u>= Israel <u>%Female</u>= 0% <u>Age</u>= 25.8(4.7) <u>Type of job/company</u>= Combat veterans who were on active duty in the Lebanon war. <u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 1983 <u>Exposure categories:</u> Exposures such as the severity of battles, life threatening war, coping were assessed.</p>	<p><u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Self-reported using the PTSD inventory, using DSM-3 criteria. Latent growth modelling was used to identify PTSD subgroups. For the current review we only assessed the 'delayed onset' PTSD group, as this reflects incidence of PTSD. <u>Incidence:</u> -</p>	<p>- Severity of battles OR: 1.01 [0.67 1.35] (combat stress reaction) OR: 0.87 [0.57 1.32] (no combat stress reaction) Life threatening war OR: 1.91 [1.07 3.24] (combat stress reaction) OR: 1.01 [0.68 1.50] (no combat stress reaction) Locus of control OR: 1.12 [0.93 1.35] (combat stress reaction) OR: 0.88 [0.73 1.05] (no combat stress reaction) Problem-focused coping</p>

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						<p>OR: 1.72 [0.80 3.73] (combat stress reaction) OR: 3.11 [1.16 8.38] (no combat stress reaction)</p> <p>Emotion-focused coping OR: 0.60 [0.26–1.35] (combat stress reaction) OR: 0.28 [0.09–0.93] (no combat stress reaction)</p>
27. Kim, 2014 ⁴⁵	<p><u>Name:</u> -</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 980</p> <p><u>Country</u>= Korea</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= Most participants were in their 40s.</p> <p><u>Type of job/company</u>= Subway drivers employed by a public company in Seoul</p> <p><u>Inclusion/exclusion</u>= Participants currently on sick leave and female drivers were excluded.</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Person under train experiences and other work-related exposures were assessed.</p>	<p><u>Type of symptoms:</u> PTSD (1 year and lifetime prevalence).</p> <p><u>Way of assessment:</u> The Korean version of the Composite International Diagnostic Interview (K-CIDI) was administered to diagnose PTSD, using DSM-4 criteria.</p> <p><u>Incidence:</u> 1.6% (one year prevalence)</p>	<p>Multi-variate analyses with all other exposures and age. For 1 year prevalence (model 1) and lifetime prevalence (model 2).</p>	<p>Person under train experience <u>No</u> OR: Ref OR: Ref <u>Yes</u> OR: 1.54 [0.52 4.55]¹ OR: 2.06 [0.94 4.55]²</p> <p>Number of person under train experiences <u>0 experiences</u> OR: Ref OR: Ref <u>1 experience</u> OR: 1.77 [0.31 4.47]¹ OR: 1.45 [0.55 3.85]² <u>≥2 experiences</u> OR: 2.36 [0.57 9.70]¹ OR: 3.57 [1.32 3.65]²</p> <p>Severity of victim’s injury <u>Alive</u> OR: Ref OR: Ref <u>Death</u> OR: 2.49 [0.27 23.27]¹</p>

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						<p>OR: 1.39 [0.40 4.82]²</p> <p>Person under train experience</p> <p><u>>5 years ago</u></p> <p>OR: Ref</p> <p>OR: Ref</p> <p><u>≤5 years</u></p> <p>OR: 1.01 [0.11 9.06]¹</p> <p>OR: 0.33 [0.03 2.63]²</p> <p>Conflict with passengers</p> <p><u>No</u></p> <p>OR: Ref.¹</p> <p>OR: Ref.²</p> <p><u>Yes</u></p> <p>OR: 3.21 [1.14 9.03]¹</p> <p>OR: 3.32 [1.55 7.12]²</p> <p>Sudden stop</p> <p><u>No</u></p> <p>OR: Ref.¹</p> <p>OR: Ref.²</p> <p><u>Yes</u></p> <p>OR: 3.66 [0.82 16.4]¹</p> <p>OR: 7.53 [1.77 32.02]²</p> <p>Near accident</p> <p><u>No</u></p> <p>OR: Ref.¹</p> <p>OR: Ref.²</p> <p><u>Yes</u></p> <p>OR: 8.81 [1.96 39.3]¹</p> <p>OR: 6.36 [2.40 16.90]²</p> <p>Breakdown</p> <p><u>No</u></p> <p>OR: Ref.¹</p> <p>OR: Ref.²</p> <p><u>Yes</u></p>
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						<p>OR: 1.71 [0.48 6.14]¹ OR: 1.89 [0.75 4.75]² Person under train experience of colleague <u>No</u> OR: Ref.¹ OR: Ref.² <u>Yes</u> OR: 0.55 [0.12 2.47]² OR: 2.84 [1.32 6.12]²</p>
28. Levin-Rector, 2018 ⁴⁶	<p><u>Name:</u> Defence Manpower Data Center (DMDC), Career History and Archival Medical Personnel System (CHAMPS), and the Expeditionary Medical Encounter Database (EMED)</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 35-43 months.</p>	<p>n= 332,093 (marine) and 773,359 (army)</p> <p><u>Country=</u> USA</p> <p><u>%Female=</u> 7% (marine) and 17% (army)</p> <p><u>Age=</u> 20.0 (3.9) (marine) and 21.7 (2.1) (army)</p> <p><u>Type of job/company=</u> All service members who went into the army or navy between 2001 and 2011.</p> <p><u>Inclusion/exclusion=</u> -</p>	<p><u>Exposure assessment:</u> Military databases</p> <p><u>Year of assessment:</u> 2001-2011</p> <p><u>Exposure categories:</u> Personal and deployment characteristics.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed PTSD obtained from military records.</p> <p><u>Incidence:</u> 4.3% (marine); 7.6% (army).</p>	<p>Adjusting for clustering within units.</p>	<p>Sex <u>Female</u> HR: Ref. (marine) HR: Ref. (army) <u>Male</u> HR: 0.40 [0.36 0.44] (marine) HR: 0.57 [0.55 0.59] (army)</p> <p>Age at accession HR: 0.99 [0.98 1.00] (marine) HR: 1.01 [1.00 1.01] (army)</p> <p>Race <u>White</u> HR: Ref. (marine) HR: Ref. (army) <u>Non-white</u> HR: 0.95 [0.91 1.00] (marine) HR: 0.96 [0.94 0.98] (army)</p> <p>Ethnicity <u>Non-Hispanic</u> HR: Ref. (marine) HR: Ref. (army) <u>Hispanic</u> HR: 0.80 [0.75 0.84] (marine) HR: 0.86 [0.84 0.89] (army)</p>

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						<p>Prior substance abuse disorder diagnosis HR: 3.10 [2.92 3.30] (marine) HR: 2.05 [2.00 2.10] (army)</p> <p>Waiver status <u>No waiver</u> HR: Ref. (marine) HR: Ref. (army) <u>Received medical waiver</u> HR: 1.13 [1.07 1.20] (marine) HR: 1.02 [0.99 1.05] (army) <u>Received other waiver</u> HR: 1.12 [1.08 1.16] (marine) HR: 1.12 [1.10 1.15] (army)</p> <p>Marital status <u>Single</u> HR: Ref. (marine) HR: Ref. (army) <u>Divorced/widowed</u> HR: 1.21 [1.06 1.39] (marine) HR: 1.18 [1.12 1.24] (army) <u>Married</u> HR: 1.31 [1.24 1.38] (marine) HR: 1.20 [1.18 1.23] (army)</p> <p>Rank <u>Enlisted</u> HR: Ref. (marine) HR: Ref. (army) <u>Officer</u> HR: 0.16 [0.13 0.21] (marine) HR: 0.20 [0.15 0.26] (army)</p> <p>Occupation</p>
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						<u>Combat specialist</u> HR: Ref. (marine) HR: Ref. (army) <u>Communications/intelligence</u> HR: 0.54 [0.48 0.62] (marine) HR: 0.73 [0.70 0.77] (army) <u>Craft/repair specialist</u> HR: 0.46 [0.40 0.54] (marine) HR: 0.62 [0.60 0.65] (army) <u>Functional support/other</u> HR: 0.46 [0.41 0.51] (marine) HR: 0.56 [0.53 0.59] (army) <u>Service and supply</u> HR: 0.77 [0.68 0.87] (marine) HR: 0.84 [0.80 0.88] (army) <u>Healthcare specialist</u> HR: 1.03 [0.98 1.08] (army) Cumulative years deployed HR: 2.04 [1.93 2.15] (marine) HR: 1.74 [1.71 1.76] (army) Unit cumulative high deployment stress rate (per 100) HR: 1.04 [1.03 1.05] (marine) HR: 1.05 [1.04 1.06] (army) Unit stability HR: 1.11 [0.92 1.33] (marine) HR: 0.69 [0.64 0.74] (army)
29. MacGregor, 2015 ⁴⁷	<u>Name:</u> Defence Manpower Data Center (DMDC) <u>Design:</u> Prospective	<u>n</u> = 8,064 (3,416 health care profession, 4,648 no health care profession) <u>Country</u> = USA	<u>Exposure assessment:</u> Self-reported. <u>Year of assessment:</u> 2001-2008	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Diagnosed, according to ICD-9-CM criteria,	Univariate (model 1) and multivariate (model 1) adjusting for all remaining exposures	Health Care Occupation <u>No</u> OR: Ref. (1 deployment) OR: Ref. (2 deployments) OR: Ref. (3 deployments) <u>Yes</u>

	<p>longitudinal</p> <p><u>Follow-up period:</u> Up to 60 days.</p>	<p><u>%Female=</u> 0%</p> <p><u>Age=</u> Ranging from 27.9 (5.7) to 30.2 (7.0) in various participating groups.</p> <p><u>Type of job/company=</u> Navy personnel with one, two or three deployments in Iraq and/or Afghanistan.</p> <p><u>Inclusion/exclusion=</u> Participants who completed a health assessment within 60 days post-deployment were included. Women were excluded</p>	<p><u>Exposure categories:</u> military occupation, combat rank, deployment specific variables</p>	<p>from inpatient and outpatient databased.</p> <p><u>Incidence:</u> Ranging from 1.9% to 17.9% for various participating groups.</p>	<p>OR: 2.02 [1.45 2.80]¹ (1 deployment) OR: 2.27 [1.26 4.08]¹ (2 deployments) OR: 4.37 [1.25 15.28]¹ (3 deployments)</p> <p>Age OR: 0.97 [0.94 0.99]¹ (1 deployment) OR: 0.97 [0.93 1.02]¹ (2 deployments) OR: 0.94 [0.86 1.03]¹ (3 deployments)</p> <p>Rank <u>Enlisted</u> OR: Ref. OR: Ref. <u>Officer</u> OR: 0.35 [0.18 0.65]¹ (1 deployment) OR: 0.54 [0.12 2.47]¹ (2 deployments)</p> <p>Married <u>No</u> OR: Ref. (1 deployment) OR: Ref. (2 deployments) OR: Ref. (3 deployments) <u>Yes</u> OR: 0.93 [0.67 1.30]¹ (1 deployment) OR: 0.54 [0.32 0.89]¹ (2 deployments) OR: 0.96 [0.36 2.56]¹ (3 deployments)</p>
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						<p>Some College</p> <p><u>No</u> OR: Ref. (1 deployment) OR: Ref. (2 deployments) OR: Ref. (3 deployments)</p> <p><u>Yes</u> OR: 1.61 [0.97 2.68]¹ (1 deployment) OR: 0.66 [0.22 1.97]¹ (2 deployments) OR: 0.41 [0.04 3.92]¹ (3 deployments)</p> <p>Medical utilization</p> <p><u>Low</u> OR: Ref. OR: Ref. OR: Ref.</p> <p><u>Moderate</u> OR: 6.64 [3.50 12.60]¹ (1 deployment) OR: 3.40 [1.64 7.06]¹ (2 deployments) OR: 13.84 [1.69 113.49]¹ (3 deployments)</p> <p><u>High</u> OR: 34.52 [19.35 61.59]¹ (1 deployment) OR: 15.25 [7.89 29.49]¹ (2 deployments) OR: 46.96 [5.98 368.58]¹ (3 deployments)</p> <p>Deployment location</p> <p><u>Afghanistan/Iraq</u> OR: Ref.</p>
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						<p>OR: Ref. OR: Ref. <u>Kuwait</u> OR: 0.78 [0.55 1.10]¹ (1 deployment) OR: 0.81 [0.44 1.48]¹ (2 deployments) OR: 1.32 [0.94 1.82]¹ (3 deployments)</p> <p>Number of combat exposures OR: 1.62 [1.46 1.79]¹ (1 deployment) OR: 1.37 [1.17 1.61]¹ (2 deployments) OR: 1.30 [0.94 1.82]¹ (3 deployments)</p> <p>Current Deployment Time OR: 1.00 [1.00 1.01]¹ (1 deployment) OR: 1.00 [1.00 1.01]¹ (2 deployments) OR: 1.00 [0.99 1.01]¹ (3 deployments)</p> <p>Previous deployment time OR: 1.00 [1.00 1.01]¹ (2 deployments) OR: 1.00 [0.99 1.01]¹ (3 deployments)</p> <p>Previous dwell time OR: 1.00 [1.00 1.00]¹ (2 deployments) OR: 1.00 [1.00 1.00]¹ (3 deployments)</p>
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						<p>deployments)</p> <p><i>Only health care occupation below</i></p> <p>Felt in great danger of being killed</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.14 [3.13 5.46]¹ OR: 3.44 [2.50 4.72]²</p> <p>Engaged in direct combat and discharged weapon</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 3.43 [2.42 4.87]¹ OR: 1.67 [1.15 2.44]²</p> <p>Exposed to wounded/dead civilians</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.51 [1.16 1.96]¹</p> <p>Exposed to wounded/dead friendly forces</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.99 [1.52 2.60]¹ OR: 1.53 [1.13 2.07]²</p>
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						<p>Exposed to wounded/dead enemy</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.79 [1.38 2.34]¹</p>
30. MacGregor, 2012 ⁴⁸	<p><u>Name:</u> Defence Manpower Data Center (DMDC)</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4 years</p>	<p><u>n</u>=65,704</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= 22 (19-53)</p> <p><u>Type of job/company</u>= Marine corps personnel deployed to Iraq or Kuwait.</p> <p><u>Inclusion/exclusion</u>= Deployments between 4 and 8 months were considered. Special forces and participants with earlier mental health issues were excluded. Only those with more than one deployment were analysed.</p>	<p><u>Exposure assessment:</u> Deployment administration</p> <p><u>Year of assessment:</u> 2003-2007</p> <p><u>Exposure categories:</u> Dwell-to-deployment ratios were categorised into <1:1, 1:1 and 2:1.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed PTSD with ICD-9-CM criteria were obtained from inpatient and outpatient registers</p> <p><u>Incidence:</u> 1.5%</p>	<p>Adjustment for age and military rank</p>	<p>Dwell to deployment ratio</p> <p><u><1:1</u> OR: Ref.</p> <p><u>1:1</u> OR: 0.83 [0.60 1.13]</p> <p><u>2:1</u> OR: 0.47 [0.32 0.70]</p>
31. Maguen, 2012 ⁴⁹	<p><u>Name:</u> Department of Veterans Affairs (VA) database</p>	<p><u>n</u>= 968</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 12%</p>	<p><u>Exposure assessment:</u> Department of Veterans Affairs administrative data (including self-reports)</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Using the self-</p>	<p>Univariate (model 1) and multivariate (model 2), adjusting for age, sex, race, marital status, unit,</p>	<p>Number of exposures</p> <p><u>None</u> OR: Ref.</p> <p><u>One</u> OR: Ref.</p>

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	<p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> 11 days</p>	<p><u>Age</u>= 30.3(8.4) years</p> <p><u>Type of job/company</u>= War veterans who have been deployed in Iran and Afghanistan.</p> <p><u>Inclusion/exclusion</u>= Participants with either no head injury or a head injury with traumatic brain injury were included, but not those with head injury without brain damage.</p>	<p><u>Year of assessment:</u> 2007-2010</p> <p><u>Exposure categories:</u> Exposure to traumatic brain injury mechanisms</p>	<p>reported Primary Care PTSD Screen (PC-PTSD) screening instrument</p> <p><u>Incidence:</u> -</p>	<p>branch of service, rank and number of deployments.</p>	<p>OR: 4.93 [3.3 7.3]¹ OR: 4.67 [3.1 7.1]² <u>Two +</u> OR: 6.96 [5.1 9.6]¹ OR: 6.15 [4.4 8.7]²</p> <p>Type of exposure</p> <p><u>None</u> OR: Ref. OR: Ref.</p> <p><u>Blast only</u> OR: 5.13 [3.2 8.2]¹ OR: 4.72 [2.9 7.7]²</p> <p><u>Blast plus</u> OR: 7.45 [5.4 10.3]¹ OR: 6.52 [4.6 9.3]²</p> <p><u>1 Non blast</u> OR: 4.53 [2.4 8.6]¹ OR: 4.60 [2.4 8.8]²</p> <p><u>2+ Non blast</u> OR: 2.94 [1.17 7.4]¹ OR: 3.36 [1.32 8.6]²</p>
<p>32. Maguen, 2010⁵⁰</p>	<p><u>Name:</u> Department of Veterans Affairs (VA) database</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 329,049</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 12%</p> <p><u>Age</u>= 31.2(9.0)</p> <p><u>Type of job/company</u>= War veterans who have been deployed in Iran and Afghanistan.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Deployment data</p> <p><u>Year of assessment:</u> 2001</p> <p><u>Exposure categories:</u> Demographic and military service data.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> PTSD obtained from medical health records of those who visited veteran facilities from 2002 to 2008. Diagnosis was done with ICD-9-CM criteria.</p> <p><u>Incidence:</u> 17% among females, 22% among</p>	<p>Univariate models were conducted for females (model 1) and males (model 2) separately.</p>	<p>Age</p> <p><u>16–24</u> RR: Ref. RR: Ref.</p> <p><u>25–29</u> RR: 1.05 [0.99 1.11]¹ RR: 0.96 [0.94 0.97]²</p> <p><u>30–39</u> RR: 1.24 [1.17 1.32]¹ RR: 0.98 [0.96 0.99]²</p> <p><u>40–71</u> RR: 1.21 [1.13 1.30]¹ RR: 0.79 [0.77 0.81]²</p> <p>Race/Ethnicity</p>

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				males.		<p><u>White</u> RR: Ref. RR: Ref.</p> <p><u>Black</u> RR: 0.95 [0.86 0.98]¹ RR: 0.98 [0.96 1.00]²</p> <p><u>Hispanic</u> RR: 0.95 [0.88 1.01]¹ RR: 0.89 [0.88 0.92]²</p> <p><u>Other</u> RR: 0.97 [0.86 1.10]¹ RR: 1.02 [0.98 1.07]²</p> <p>Marital status</p> <p><u>Married</u> RR: Ref. RR: Ref.</p> <p><u>Never married</u> RR: 0.97 [0.92 1.02]¹ RR: 0.82 [0.80 0.83]²</p> <p><u>Divorced/separated/widowed</u> RR: 1.15 [1.08 1.22]¹ RR: 1.08 [1.06 1.10]²</p> <p>Component type</p> <p><u>Active duty</u> RR: Ref. RR: Ref.</p> <p><u>Reserve/National Guard</u> RR: 0.90 [0.86 0.94]¹ RR: 0.74 [0.73 0.75]²</p> <p>Branch of service</p> <p><u>Army</u> RR: Ref. RR: Ref.</p> <p><u>Marine</u></p>
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						RR: 0.94 [0.85 1.05] ¹ RR: 0.95 [0.93 0.97] ² <u>Navy</u> RR: 0.45 [0.41 0.49] ¹ RR: 0.33 [0.32 0.34] ² <u>Air Force</u> RR: 0.45 [0.41 0.49] ¹ RR: 0.26 [0.25 0.27] ² Rank <u>Enlisted</u> RR: Ref. RR: Ref. <u>Officer</u> RR: 0.69 [0.63 0.77] ¹ RR: 0.51 [0.49 0.54] ² Number of deployments <u>One</u> RR: Ref. RR: Ref. <u>More than one</u> RR: 1.14 [1.09 1.19] ¹ RR: 1.15 [1.13 1.16] ²
33. Martindale, 2018 ⁵¹	<u>Name:</u> - <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> Between 6 and 9 years.	n= 19 <u>Country=</u> USA <u>%Female=</u> 16% <u>Age=</u> 39.0(9.4) years. <u>Type of job/company=</u> Military personnel deployed in Afghanistan or Iraq	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 2007-2010 <u>Exposure categories:</u> Blast exposure, traumatic brain injury and re-deployment were assessed.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Via a structured interview, the Structured Clinical Interview for DSM-4 Axis I Disorders (SCID) <u>Incidence:</u> 6/19 and 5/19 had current PTSD at T1 and T2,	-	Only individual participant data were presented, showing associations between the exposures and PTSD.

		<u>Inclusion/exclusion</u> = Participants with a history in traumatic brain injury or other neurological or mental disorders were excluded.		respectively.		
34. Nagamine, 2018 ⁵²	<p><u>Name</u>: -</p> <p><u>Design</u>: Prospective longitudinal, with baseline measurements one month post-deployment.</p> <p><u>Follow-up period</u>: 6 and 12 months post-deployment.</p>	<p><u>n</u>= 56,753</p> <p><u>Country</u>= Japan</p> <p><u>%Female</u>= 3%</p> <p><u>Age</u>=-</p> <p><u>Type of job/company</u>= Members of the ground defence force at 2011 Great East Japan Earthquake.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment</u>: Self-reported</p> <p><u>Year of assessment</u>: -</p> <p><u>Exposure categories</u>: Information on personal attributes and mission duties.</p>	<p><u>Type of symptoms</u>: PTSD symptoms (using a cut-off: >- 25)</p> <p><u>Way of assessment</u>: Self-reported with the Impact of Event Scale-Revised (IES-R).</p> <p><u>Incidence</u>: 2283/56753=4%</p>	Multivariate model	<p>Age OR: 1.39 [1.27 1.52]</p> <p>Sex <u>Male</u> OR: Ref. <u>Female</u> OR: 1.61 [1.29 2.00]</p> <p>Rank <u>Enlisted/private</u> OR: Ref. <u>Officer</u> OR: 0.77 [0.67 0.88] <u>Administrative official</u> OR: 1.24 [0.82 1.87]</p> <p>Deployment length <u>< 1 month</u> OR: Ref. <u>1–3 months</u> OR: 1.53 [1.37 1.70] <u>≥ 3 months</u> OR: 2.64 [2.33 2.99]</p> <p>Personally affected <u>No</u> OR: Ref. <u>Yes</u> OR: 2.19 [1.95 2.44]</p>

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						<p>Body recovery duties <u>No</u> OR: Ref. <u>Yes</u> OR: 1.37 [1.25 1.51]</p> <p>Duties with radiation exposure risk <u>No</u> OR: Ref. <u>Yes</u> OR: 1.08 [0.97 1.20]</p> <p>Timing of post-deployment leave <u>Within two weeks</u> OR: Ref. <u>Over two weeks</u> OR: 1.34 [1.22 1.47] <u>No leave taken</u> OR: 1.50 [1.29 1.75]</p> <p>Post-deployment overwork <u>No</u> OR: Ref. <u>Yes: < 3 months</u> OR: 1.39 [1.26 1.53] <u>Yes: ≥ 3 months</u> OR: 2.02 [1.78 2.29]</p> <p>Post-deployment relocation <u>No</u> OR: Ref. <u>Yes</u> OR: 1.12 [0.98 1.28]</p>
35. Osorio, 2018 ⁵³	<u>Name:</u> Secondary analyses on the	<u>n</u> = 1,635	<u>Exposure assessment:</u> Self-reported	<u>Type of symptoms:</u> PTSD symptoms (re-	Nine different models:	Violent combat <u>No</u>

	<p>Battlemind RCT.</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4-6 months post deployment.</p>	<p><u>Country</u>= UK</p> <p><u>%Female</u>= 2%</p> <p><u>Age</u>= 39% was younger than 25 years.</p> <p><u>Type of job/company</u>= Members of three branches of the army forces, returning from deployment in Afghanistan.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Year of assessment:</u> 2009</p> <p><u>Exposure categories:</u> Violent combat situations, proximity to wounding or death and encountering explosive devices.</p>	<p>experience is extracted for this review - in the paper also: avoidance, numbing, arousal and anxious is reported)</p> <p><u>Way of assessment:</u> Using the National Center for Posttraumatic Stress Disorders Checklist – Civilian Version (PCL-C). PTSD in general, but also avoiding, numbing and arousal behaviour were reported. For this review we only extracted PTSD.</p> <p><u>Incidence:</u> 34%</p>	<p>Model 1: Unadjusted</p> <p>Model 2: Adjusted</p> <p>Model 3: Adjusted for proximity to wounding or death.</p> <p>Model 4: Adjusted for encountering explosive devices.</p> <p>Model 5: adjusted for PTSD re-experiencing, avoidance, numbing, or arousal.</p> <p>Model 6: Adjusted for distress.</p> <p>Model 7: Adjusted for alcohol.</p> <p>Model 8: Ranks, deployment and gender.</p> <p>Model 9: Adjusted for violent combat, proximity to wounding or death, encountering explosive devices, PTSD re-experiencing, avoidance, numbing, arousal, distress, alcohol consumption, rank, gender, reserves, deployment.</p>	<p>RR: Ref.¹</p> <p>RR: Ref.²</p> <p>RR: Ref.³</p> <p>RR: Ref.⁴</p> <p>RR: Ref.⁵</p> <p>RR: Ref.⁶</p> <p>RR: Ref.⁷</p> <p>RR: Ref.⁸</p> <p>RR: Ref.⁹</p> <p><u>Yes</u></p> <p>RR: 2.43 [1.95 3.02]¹</p> <p>RR: —²</p> <p>RR: 1.56 [1.21 2.01]³</p> <p>RR: 2.04 [1.62 2.58]⁴</p> <p>RR: 1.81 [1.43 2.29]⁵</p> <p>RR: 2.63 [2.10 3.31]⁶</p> <p>RR: 2.32 [1.85 2.89]⁷</p> <p>RR: 2.36 [1.89 2.95]⁸</p> <p>RR: 1.35 [1.01 1.81]⁹</p> <p>Proximity to wounding or death</p> <p><u>No</u></p> <p>RR: Ref.¹</p> <p>RR: Ref.²</p> <p>RR: Ref.³</p> <p>RR: Ref.⁴</p> <p>RR: Ref.⁵</p> <p>RR: Ref.⁶</p> <p>RR: Ref.⁷</p> <p>RR: Ref.⁸</p> <p>RR: Ref.⁹</p> <p><u>Yes</u></p> <p>RR: 3.01 [2.42 3.74]¹</p> <p>RR: 2.42 [1.89 3.11]²</p> <p>RR: —³</p> <p>RR: 2.62 [2.08 3.31]⁴</p>
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						RR: 2.02 [1.59 2.56] ⁵ RR: 3.03 [2.42 3.80] ⁶ RR: 2.94 [2.36 3.67] ⁷ RR: 3.01 [2.41 3.75] ⁸ RR: 1.67 [1.25 2.23] ⁹ Encountering explosive devices <u>No</u> RR: Ref. ¹ RR: Ref. ² RR: Ref. ³ RR: Ref. ⁴ RR: Ref. ⁵ RR: Ref. ⁶ RR: Ref. ⁷ RR: Ref. ⁸ RR: Ref. ⁹ <u>Yes</u> RR: 2.14 [1.71 2.67] ¹ RR: 1.66 [1.30 2.10] ² RR: 1.54 [1.21 1.95] ³ RR: — ⁴ RR: 1.70 [1.33 2.16] ⁵ RR: 2.17 [1.72 2.73] ⁶ RR: 2.01 [1.60 2.52] ⁷ RR: 2.06 [1.65 2.59] ⁸ RR: 1.26 [0.95 1.66] ⁹
36. Pihl-Thingvad, 2019 ⁵⁴	<u>Name:</u> Everyday violence project <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 12 months	<u>n</u> = 1,763 <u>Country</u> = Denmark <u>%Female</u> = 78% <u>Age</u> = 48.7 (9.4) years. <u>Type of job/company</u> =	<u>Exposure assessment:</u> Self-reported. <u>Year of assessment:</u> 2016-2017 <u>Exposure categories:</u> Patient-initiated violence.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Self-reported using the International Trauma Questionnaire, with ICD-11 criteria.	Crude model adjusting for age and gender (model 1), additionally adjusting for BMI, alcohol, years of experience, critical incidents outside of work, posttraumatic	Frequency of violence <u>No violence</u> OR: Ref. OR: Ref. OR: Ref. <u>Low frequency</u> OR: 4.4 [1.3 14.8] ¹ OR: 3.0 [0.90 10.4] ² OR: 4.0 [1.0 16.3] ³

		<p>Social educators working with disabled adults.</p> <p><u>Inclusion/exclusion</u>= Participants in leadership position and with PTSD at baseline were excluded.</p>		<p><u>Incidence</u>: 3.5%</p>	<p>stress disorder symptom level at baseline, trauma coping self-efficacy, workplace social capital linking, and training (model 2). In model 3, additional for frequency and severity of violence was done.</p>	<p><u>Medium frequency</u> OR: 6.3 [1.8 22.9]¹ OR: 3.7 [1.0 13.8]² OR: 5.9 [1.4 24.2]³ <u>High frequency</u> OR: 10.2 [2.9 36.3]¹ OR: 4.2 [1.1 15.9]² OR: 6.5 [1.6 25.6]³</p> <p>Severity of violence <u>No violence</u> OR: Ref. OR: Ref. OR: Ref. <u>Max. mild violence</u> OR: 2.3 [0.2 22.8]¹ OR: 2.3 [0.2 24.4]² OR: 3.8 [0.3 46.2]³ <u>Max. threats of violence</u> OR: 5.1 [1.5 17.5]¹ OR: 3.6 [1.0 12.4]² OR: 5.4 [1.2 24.2]³ <u>Max. moderate violence</u> OR: 4.1 [1.1 14.5]¹ OR: 2.1 [0.6 8.1]² OR: 2.6 [0.6 10.8]³ <u>Max. severe violence</u> OR: 13.7 [3.1 37.1]¹ OR: 5.3 [1.5 19.5]² OR: 6.5 [1.6 26.0]³</p>
<p>37. Polusny, 2011⁵⁵</p>	<p><u>Name</u>: Readiness and Resilience in National Guard Soldiers.</p> <p><u>Design</u>: Prospective</p>	<p><u>n</u>= 426</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 12%</p> <p><u>Age</u>= Mostly younger</p>	<p><u>Exposure assessment</u>: Self-reported</p> <p><u>Year of assessment</u>: 2006</p> <p><u>Exposure categories</u>:</p>	<p><u>Type of symptoms</u>: Probable PTSD (new onset)</p> <p><u>Way of assessment</u>: Self-reported using the PCL checklist, with</p>	<p>Adjusting for all other pre-deployment factors (model 1), additionally adjusting for deployment</p>	<p>Baseline PTSD symptoms <u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³ <u>Yes</u> OR: 0.73 [0.34 1.58]¹</p>

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	<p>longitudinal</p> <p><u>Follow-up period:</u> 2 months</p>	<p>than 30.</p> <p><u>Type of job/company=</u> National Guard soldiers</p> <p><u>Inclusion/exclusion=</u> Those with PTSD at baseline were excluded.</p>	<p>Psychosocial risk, protective factors and deployment exposures.</p>	<p>DSM-4 criteria.</p> <p><u>Incidence:</u> 14%</p>	<p>exposures (model 2) and additionally adjusting for post-deployment factors (model 3).</p>	<p>OR: 0.79 [0.34 1.85]² OR: 0.69 [0.27 1.79]³</p> <p>Military preparedness</p> <p><u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³</p> <p><u>Yes</u> OR: 0.58 [0.39 0.87]¹ OR: 0.62 [0.40 0.95]² OR: 0.77 [0.48 1.25]³</p> <p>Concerns about life/family disruptions</p> <p><u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³</p> <p><u>Yes</u> OR: 1.38 [0.97 1.97]¹ OR: 1.31 [0.88 1.95]² OR: 1.12 [0.71 1.77]³</p> <p>Unit support</p> <p><u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³</p> <p><u>Yes</u> OR: 1.43 [0.95 2.15]¹ OR: 1.15 [0.73 1.79]² OR: 1.15 [0.70 1.89]³</p> <p>Combat experiences</p> <p><u>No</u> OR: Ref.²</p>
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						OR: Ref. ³ <u>Yes</u> OR: 2.19 [1.40 3.41] ² OR: 2.35 [1.41 3.92] ³ Exposure to aftermath of battle <u>No</u> OR: Ref. ² OR: Ref. ³ <u>Yes</u> OR: 1.62 [1.04 2.53] ² OR: 1.81 [1.08 3.06] ³ Perceived life threat <u>No</u> OR: Ref. ² OR: Ref. ³ <u>Yes</u> OR: 1.21 [0.81 1.81] ² OR: 1.01 [0.63 1.64] ³ Post-deployment social support <u>No</u> OR: Ref. ³ <u>Yes</u> OR: 0.31 [0.19 0.50] ³ Post-deployment life stressors <u>No</u> OR: Ref. ³ <u>Yes</u> OR: 1.96 [1.17 3.28] ³
38. Reijnen, 2015 ⁵⁶	<u>Name:</u> -	n= 994	<u>Exposure assessment:</u> Self-reported	<u>Type of symptoms:</u> PTSD symptoms	-	Deployment <u>Pre-deployment</u>

	<p><u>Design:</u> Prospective longitudinal with baseline measurements 1 month prior to deployment</p> <p><u>Follow-up period:</u> 2 years post deployment.</p>	<p><u>Country=</u> Netherlands</p> <p><u>%Female=</u> 9%</p> <p><u>Age=</u> 28.5 (9.0)</p> <p><u>Type of job/company=</u> Dutch military personnel who were deployed to Afghanistan</p> <p><u>Inclusion/exclusion=-</u></p>	<p><u>Year of assessment:</u> 2005-2008</p> <p><u>Exposure categories:</u> Different categories of time since deployment (compared to pre-deployment)</p>	<p><u>Way of assessment:</u> Self-reported with the Dutch Self-Rating Inventory for PTSD, using DSM-4 cut-off values</p> <p><u>Incidence:</u> 8.9%</p>		<p>OR: Ref</p> <p><u>1 month post-deployment</u> OR: 2.12 [1.4 3.3]</p> <p><u>6 months post-deployment</u> OR: 2.18 [1.4 3.4]</p> <p><u>1 year post-deployment</u> OR: 1.62 [1.0 2.6]</p> <p><u>2 years post-deployment</u> OR: 1.33 [2.8 5.8]</p>
<p>39. Shea, 2013 57</p>	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 6 months post deployment.</p>	<p><u>n=</u> 238</p> <p><u>Country=</u> USA</p> <p><u>%Female=</u> 8%</p> <p><u>Age=</u> 33.5 (9.5) years.</p> <p><u>Type of job/company=</u> Members of the National Guard units recently returned from deployment to Iraq and Afghanistan.</p> <p><u>Inclusion/exclusion=</u> -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2006-2009</p> <p><u>Exposure categories:</u> Personal characteristics, pre-deployment and deployment characteristics.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed during a CAPS structured interview.</p> <p><u>Incidence:</u> 13%</p>	<p>Adjusting for demographics (model 1), additionally adjusting for pre-deployment characteristics (model 2), additionally adjusting for deployment-related variables (model 3), and additionally adjusting for post-deployment characteristics (model 4).</p>	<p>It is unclear what the reference group is for the below associations</p> <p>Gender OR: 1.03 [0.12 8.89]¹ OR: 0.46 [0.04 5.14]² OR: 0.94 [0.03 28.56]³ OR: 1.12 [0.03 38.70]⁴</p> <p>Ethnicity OR: 0.33 [0.04 2.64]¹ OR: 0.17 [0.02 1.61]² OR: 0.08 [0.00 1.45]³ OR: 0.07 [0.00 1.18]⁴</p> <p>Age OR: 1.09 [0.69 1.72]¹ OR: 1.01 [0.60 1.72]² OR: 0.7 [0.34 1.41]³ OR: 1.12 [0.31 1.45]⁴</p> <p>Negative temperament OR: 2.95 [1.66 5.23]² OR: 2.23 [1.18 4.22]³</p>

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						<p>OR: 1.46 [0.69 3.09]⁴</p> <p>Pre-deployment life events OR: 1.92 [1.19 3.10]² OR: 1.78 [1.00 3.19]³ OR: 1.1 [0.56 2.18]⁴</p> <p>Preparation and training OR: 0.89 [0.52 1.55]² OR: 1.41 [0.68 2.91]³ OR: 1.99 [0.83 4.62]⁴</p> <p>Life and family concerns OR: 2.77 [1.34 5.75]³ OR: 2.77 [1.28 6.01]⁴</p> <p>Deployment environment OR: 1.44 [0.68 3.05]³ OR: 1.31 [0.58 2.99]⁴</p> <p>Unit support OR: 1.03 [0.56 1.90]³ OR: 1.15 [0.58 2.30]⁴</p> <p>Combat exposure OR: 1.88 [1.01 3.50]³ OR: 2.00 [1.01 3.97]⁴</p> <p>Post-deployment support OR: 0.36 [0.15 0.87]⁴</p> <p>Post-deployment life events OR: 1.82 [0.98 3.39]⁴</p>
40. Soo, 2011 ⁵⁸	<p><u>Name:</u> FDNY-WTC-MMP</p> <p><u>Design:</u></p>	<p><u>n=</u> 11,006</p> <p><u>Country=</u> USA</p>	<p><u>Exposure assessment:</u> Demographics and work status and number of colleagues who died</p>	<p><u>Type of symptoms:</u> Probable PTSD</p> <p><u>Way of assessment:</u></p>	<p>Univariate (model 1 & 3) and adjusted for all other exposures (model 2</p>	<p>Arrival group <u>Group 3 and 4</u> HR: Ref¹ HR: Ref²</p>

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	<p>Prospective longitudinal</p> <p><u>Follow-up period:</u> 9 years, with follow-up measurements every 18 months.</p>	<p><u>%Female</u>= 0%</p> <p><u>Age</u>= 39.5 (7.4) years</p> <p><u>Type of job/company</u>= New York firefighters involved in the 9/11 WTC attacks.</p> <p><u>Inclusion/exclusion</u>= Firefighters who arrived at the site more than 14 days before the close of the WTC site were included. Women were excluded.</p>	<p>were obtained from databases. Other variables were self-reported.</p> <p><u>Year of assessment:</u> 2002</p> <p><u>Exposure categories:</u> Exposure to the WTC sites</p>	<p>Self-reported using the PCL-C checklist.</p> <p><u>Incidence:</u> 8% (after the first follow-up).</p>	<p>& 4), for those with PTSD at baseline (model 1 & 2) and without (model 3 & 4).</p>	<p>HR: Ref³ HR: Ref⁴</p> <p><u>Group 1</u> HR: 0.76 [0.58-1.00]¹ HR: 0.74 [0.56-0.99]² HR: 2.21 [1.80-2.70]³ HR: 1.38 [1.12-1.70]⁴</p> <p><u>Group 2</u> HR: 0.97 [0.75-1.25]¹ HR: 0.85 [0.66-1.11]² HR: 1.16 [0.98-1.39]³ HR: 0.90 [0.75-1.08]⁴</p> <p>≥1 death at firehouse on 9/11</p> <p><u>No</u> HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴</p> <p><u>Yes</u> HR: 0.84 [0.71-1.00]¹ HR: 0.87 [0.73-1.04]² HR: 1.31 [1.12-1.54]³ HR: 1.11 [0.95-1.31]⁴</p> <p>Received counselling during year 1</p> <p><u>No</u> HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴</p> <p><u>Yes</u> HR: 0.89 [0.76-1.04]¹ HR: 0.98 [0.83-1.15]² HR: 2.02 [1.74-2.35]³</p>
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						<p>HR: 1.59 [1.36-1.85]⁴</p> <p>Each concurrent aerodigestive symptom</p> <p><u>No</u></p> <p>HR: Ref.¹</p> <p>HR: Ref.²</p> <p>HR: Ref.³</p> <p>HR: Ref.⁴</p> <p><u>Yes</u></p> <p>HR: 0.87 [0.84-0.90]¹</p> <p>HR: 0.89 [0.86-0.93]²</p> <p>HR: 1.62 [1.56-1.67]³</p> <p>HR: 1.45 [1.40-1.51]⁴</p> <p>Concurrent alcohol intake</p> <p><u>No increase since 9/11</u></p> <p><u>Increased since 9/11</u></p> <p>HR: 0.77 [0.53-1.12]¹</p> <p>HR: 0.83 [0.56-1.22]²</p> <p>HR: 5.85 [4.56-7.52]³</p> <p>HR: 3.43 [2.67-4.43]⁴</p> <p><u>Increased since 9/11, now back to pre-9/11 levels</u></p> <p>HR: 0.95 [0.76-1.18]¹</p> <p>HR: 1.01 [0.81-1.27]²</p> <p>HR: 2.95 [2.46-3.55]³</p> <p>HR: 2.06 [1.71-2.47]⁴</p> <p>Concurrent exercise</p> <p><u>No change since last questionnaire</u></p> <p><u>Decreased since last questionnaire</u></p> <p>HR: 0.74 [0.62-0.88]¹</p> <p>HR: 0.76 [0.63-0.92]²</p> <p>HR: 2.65 [2.27-3.09]³</p>
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HR: 1.69 [1.44-1.97] ⁴
<u>Decreased since last questionnaire for health reasons</u>
HR: 0.38 [0.28-0.52] ¹
HR: 0.56 [0.41-0.78] ²
HR: 4.20 [3.53-4.99] ³
HR: 3.19 [2.64-3.86] ⁴
<u>Increased since last questionnaire</u>
HR: 0.95 [0.77-1.18] ¹
HR: 0.92 [0.74-1.14] ²
HR: 1.13 [0.91-1.41] ³
HR: 0.92 [0.74-1.14] ⁴
Concurrent smoking status
<u>Never</u>
<u>Current</u>
HR: 1.03 [0.81-1.32] ¹
HR: 1.04 [0.81-1.33] ²
HR: 1.13 [0.90-1.42] ³
HR: 1.07 [0.85-1.35] ⁴
<u>Former</u>
HR: 0.91 [0.76-1.08] ¹
HR: 0.95 [0.79-1.15] ²
HR: 1.24 [1.07-1.43] ³
HR: 1.23 [1.06-1.42] ⁴
Experience with prior disaster
<u>No</u>
HR: Ref. ¹
HR: Ref. ²
HR: Ref. ³
HR: Ref. ⁴
<u>Yes</u>
HR: 0.82 [0.69-0.96] ¹

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						<p>HR: 0.86 [0.73-1.02]² HR: 1.29 [1.13-1.48]³ HR: 1.11 [0.96-1.27]⁴</p> <p>Non-white race/ethnicity</p> <p><u>No</u> HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴</p> <p><u>Yes</u> HR: 0.98 [0.70-1.36]¹ HR: 1.05 [0.75-1.46]² HR: 1.20 [0.94-1.54]³ HR: 1.37 [1.07-1.75]⁴</p> <p>Age on 9/11 HR: 1.02 [1.01-1.04]² HR: 1.00 [0.99-1.01]⁴</p>
41. Stevelink, 2018 ⁵⁹	<p><u>Name:</u> HERRICK cohort</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>=8,093</p> <p><u>Country</u>= UK</p> <p><u>%Female</u>= 13% and 8% for those who were deployed and not</p> <p><u>Age</u>= 40.0 (13.0) and 40.2 (9.4) for those who were not and were deployed, respectively.</p> <p><u>Type of job/company</u>= Military personnel that were and were not deployed in Iraq.</p>	<p><u>Exposure assessment:</u> Deployment administration</p> <p><u>Year of assessment:</u> 2014-2016</p> <p><u>Exposure categories:</u> Deployment and service status.</p>	<p><u>Type of symptoms:</u> Probable PTSD</p> <p><u>Way of assessment:</u> Self-reported with the PCL-C checklist.</p> <p><u>Incidence:</u> 5.2% and 6.9% for those who were not deployed and deployed, respectively.</p>	<p>Unadjusted (model 1) and adjusted for age, gender, marital status, education, service and rank (model 2).</p>	<p>Deployment</p> <p><u>Regulars</u> <u>Not deployed</u> OR: Ref¹ OR: Ref² <u>Deployed</u> OR: 1.34 [1.00 1.78]¹ OR: 1.41 [1.04 1.90]²</p> <p><u>Reservists</u> <u>Not deployed</u> OR: Ref¹ OR: Ref² <u>Deployed</u> OR: 2.25 [1.14 4.46]¹ OR: 2.48 [1.20 5.16]²</p> <p>Serving status</p>

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		<u>Inclusion/exclusion</u> = -				<u>Not serving</u> OR: Ref ¹ OR: Ref ² <u>Serving</u> OR: 1.60 [1.25 2.06] ¹ OR: 1.73 [1.25 2.40] ² Role during last deployment <u>Serving regulars</u> <u>No combat</u> OR: Ref ¹ OR: Ref ² <u>Combat</u> OR: 1.70 [1.08 2.67] ¹ OR: 1.58 [0.98 2.55] ² <u>Ex-serving regulars</u> <u>No combat</u> OR: Ref ¹ OR: Ref ² <u>Combat</u> OR: 3.39 [2.25 5.11] ¹ OR: 2.53 [1.60 3.99] ²
42. Wittchen, 2012 ⁶⁰	<u>Name:</u> PIT-PTSD+ study <u>Design:</u> Retrospective longitudinal <u>Follow-up period:</u> On average 12 months post-deployment.	<u>n</u> = 1,483 <u>Country</u> = Germany <u>%Female</u> = - <u>Age</u> = - <u>Type of job/company</u> = Soldiers deployed in Afghanistan, and those who have not been deployed.	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2010 <u>Exposure categories:</u> Deployment characteristics.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Diagnosed with a structured interview using DSM-4 criteria. <u>Incidence:</u> 12 month incidence: 2.1% and 0.2% in the deployed and non-deployed group ,respectively.	Unadjusted	Population <u>Control group</u> OR: Ref. (12 month diagnosis) OR: Ref. (12 month incidence) OR: Ref. (lifetime prevalence) <u>Deployed soldiers</u> OR: 2.5 [1.1 5.6] (12 month diagnosis) OR: 4.2 [0.7 24.5] (12 month incidence) OR: 1.7 [0.96 3.1] (lifetime prevalence) Deployed soldiers

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		<u>Inclusion/exclusion= -</u>				<u>Control soldiers</u> OR: Ref. (12 month diagnosis) OR: Ref. (12 month incidence) OR: Ref. (lifetime prevalence) <u>Kunduz</u> OR: 2.1 [0.8 5.8] (12 month diagnosis) OR: 6.6 [1.03 41.9] (12 month incidence) OR: 1.7 [0.8 3.6] (lifetime prevalence) <u>Combat units</u> OR: 3.3 [0.5 23.7] (12 month diagnosis) OR: - (12 month incidence) OR: 2.6 [0.7 9.4] (lifetime prevalence)
OR = Odds ratio RR = Relative risk HR = Hazard ratio						

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Supplementary file 4. Risk of bias of included articles. The risk of bias (i.e. low, moderate and high risk of bias) in six domains (i.e. study participation, study attrition, prognostic factor (i.e. exposure), outcome, study confounding and statistical analysis) is depicted, while also sum scores are shown.

First author, year of publication	Participation	Attrition	Prognostic factor	Outcome	Confounding	Analysis/reporting
1 Armed Forces Health Surveillance Center, 2011	Moderate	Moderate	Moderate	Low	High	High
2 Andersen, 2019	Moderate	Moderate	Moderate	Moderate	Low	Low
3 Anderson, 2019	Low	Moderate	Moderate	Moderate	Low	Low
4 Berninger, 2010	High	High	Low	Moderate	Low	Low
5 Brownlow, 2018	Moderate	Moderate	Moderate	Moderate	High	Low
6 Brundage, 2015	Low	Low	Low	Low	High	High
7 Cameron, 2019	Low	Low	Low	Low	Low	Low
8 Chiu, 2011	Low	Moderate	Moderate	Moderate	Low	Low
9 Ciarleglio, 2018	Low	Moderate	Moderate	Low	Low	Low
10 Cone, 2015	High	High	Moderate	Moderate	Low	Low
11 Connorton, 2011	Moderate	Moderate	High	High	Moderate	Low
12 Cukor, 2011	Low	Moderate	Moderate	Moderate	Low	Low
13 Fear, 2010	High	High	Low	Moderate	Low	Low
14 Ferrajao, 2016	High	High	Moderate	Moderate	High	Low
15 Fichera, 2015	High	High	Moderate	Moderate	Low	Low
16 Fink, 2016	High	High	Moderate	Moderate	High	Low
17 Goodwin, 2012	Low	Low	Moderate	Moderate	Low	Low
18 Green, 2016	Moderate	Moderate	Moderate	Low	High	Low
19 Hansen, 2017	High	Moderate	Moderate	Moderate	Low	Low
20 Harvey, 2012	High	Moderate	Low	Moderate	Low	Low
21 Horesh, 2011	Moderate	Moderate	Moderate	Moderate	High	Moderate
22 Hourani, 2012	Moderate	High	Moderate	Moderate	High	High
23 Ikeda, 2017	Moderate	Moderate	Moderate	Moderate	Low	Low
24 Joseph, 2014	Moderate	Moderate	Moderate	Moderate	Low	Low
25 Karstoft, 2013	Moderate	Low	Moderate	Moderate	High	Low
26 Karstoft, 2015	Moderate	Low	Moderate	Moderate	High	Low
27 Kim, 2014	Low	Low	Moderate	Low	Low	Low
28 Levin-Rector, 2018	Low	Low	Low	Low	Moderate	Low
29 MacGregor, 2015	Moderate	Moderate	Low	Low	Low	Low
30 MacGregor, 2012	Low	Low	Low	Low	Low	Low
31 Maguen, 2012	Moderate	Moderate	Moderate	Moderate	Low	Low
32 Maguen, 2010	Moderate	Moderate	Low	Low	High	Low
33 Martindale, 2018	High	Moderate	Moderate	Low	High	High
34 Nagamine, 2018	Moderate	Moderate	Moderate	Moderate	High	Low
35 Osorio, 2018	High	High	Moderate	Moderate	Low	Low
36 Pihl-Thingvad, 2019	Low	Low	Moderate	Moderate	Low	Low
37 Polusny, 2011	Moderate	Moderate	Moderate	Moderate	Low	Low
38 Reijnen, 2015	High	High	Moderate	Moderate	High	Low
39 Shea, 2013	Moderate	Moderate	Moderate	Low	Low	Low
40 Soo, 2011	Moderate	Moderate	Moderate	Moderate	Low	Low
41 Stevelink, 2018	High	High	Moderate	Moderate	Low	Low
42 Wittchen, 2012	Moderate	Moderate	Moderate	Low	High	Low

Supplementary file 5. Risk of bias of included studies.

First author, Year;	Item	Risk of bias	Reason
1. Armed Forces Health Surveillance Center, 2011 ²¹	Participation	Moderate	All armed forces were eligible, but no non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	Moderate	Although prognostic factors were self-reported, no substantial bias can be expected from self-reports of the current prognostic factors
	Outcome	Low	Outcomes were diagnosed in a hospital
	Confounding	High	No confounding analysis has been conducted
	Analysis/reporting	High	No proper analysis has been conducted, only descriptives were presented.
2. Andersen, 2019 ¹⁹	Participation	Moderate	No non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
3. Anderson, 2019 ²⁰	Participation	Low	86% of eligible participants, participated at baseline.
	Attrition	Moderate	60% of the participants were filled out their follow-up questionnaires
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
4. Berninger, 2010 ²²	Participation	High	There were differences (e.g. in PTSD status) between participants and non-participants
	Attrition	High	Participants without follow-up data were excluded. The above therefore also holds for those lost at follow-up
	Prognostic factor	Low	Prognostic factors were self-reported and from registers
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
5. Brownlow, 2018 ²³	Participation	Moderate	No non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	High	Only univariate analyses were reported

	Analysis/reporting	Low	Adequate analyses were used
6. Brundage, 2015 ²⁴	Participation	Low	It appears as if all eligible participants were analysed.
	Attrition	Low	It appears as if all eligible participants were analysed.
	Prognostic factor	Low	Deployment records were used
	Outcome	Low	Outcomes were diagnosed (it appears).
	Confounding	High	No confounding adjustment were done
	Analysis/reporting	High	Only descriptive statistics were provided
7. Cameron, 2019 ²⁵	Participation	Low	It appears as if all eligible participants were analysed.
	Attrition	Low	It appears as if all eligible participants were analysed.
	Prognostic factor	Low	Deployment records were used
	Outcome	Low	Outcomes were diagnosed
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
8. Chiu, 2011 ²⁶	Participation	Low	There were some differences between responders and non-responders.
	Attrition	Moderate	Since data were gathered retrospective, participation and attrition are similar.
	Prognostic factor	Moderate	Both self-reports and employer data were used
	Outcome	Moderate	Outcomes were self-reported using a validated questionnaire
	Confounding	Low	Confounding adjustment was performed.
	Analysis/reporting	Low	Adequate analyses were used
9. Ciarleglio, 2018 ²⁷	Participation	Low	11% non-response
	Attrition	Moderate	Since data were gathered retrospective, participation and attrition are similar.
	Prognostic factor	Moderate	Both self-reports and employer data were used
	Outcome	Low	Outcome was diagnosed
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
10. Cone, 2015 ²⁸	Participation	High	There are substantial differences between responders and non-responders.
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
11. Connorton, 2011 ²⁹	Participation	Moderate	No non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	High	Prognostic factors were self-reported and it is unclear how
	Outcome	High	Outcomes were self-reported and it is unclear how

	Confounding	Moderate	Multivariate analyses are not reported and it is unclear what was done
	Analysis/reporting	Low	Adequate analyses were done.
12. Cukor, 2011 ³⁰	Participation	Low	There was 86% participation
	Attrition	Moderate	There was 67% participation at follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported.
	Outcome	Moderate	Outcomes were self-reported and obtained from interviews, with interview data used for exposure-outcome associations.
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
13. Fear, 2010 ³¹	Participation	High	There are substantial differences between responders and non-responders.
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Low	Deployment administrative data were used
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
14. Ferrajao, 2016 ³²	Participation	High	Unclear but probably low participation rate
	Attrition	High	Since data were gathered retrospective, participation and attrition are similar.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	High	No adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
15. Fichera, 2015 ³³	Participation	High	There was substantial non-response
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
16. Fink, 2016 ³⁴	Participation	High	There was substantial non-response
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	High	No adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
17. Goodwin, 2012 ³⁵	Participation	Low	There were no substantial differences between responders and non-responders.
	Attrition	Low	There were no substantial differences between responders and non-responders (including

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			those lost to follow-up).
	Prognostic factor	Moderate	Prognostic factors were self-reported.
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
18. Green, 2016 ³⁶	Participation	Moderate	There was a substantial non-response (20%)
	Attrition	Moderate	There was a substantial loss to follow-up (39%)
	Prognostic factor	Moderate	Prognostic factors were self-reported.
	Outcome	Low	Outcome was diagnosed in an interview
	Confounding	High	No confounding adjustment was conducted
	Analysis/reporting	Low	Appropriate analyses were used.
19. Hansen, 2017 ³⁷	Participation	High	There was a substantial amount of non-responders and no non-responder analysis.
	Attrition	Moderate	There was a substantial amount of participants lost to follow-up and no loss to follow-up analysis.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
20. Harvey, 2012 ³⁸	Participation	High	There were substantial differences (e.g. in age and gender) between responders and non-responders.
	Attrition	Moderate	No loss to follow-up analysis were reported
	Prognostic factor	Low	Prospective factors were determined based on deployment characteristics
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
21. Horesh, 2011 ³⁹	Participation	Moderate	No non-responder analysis was performed
	Attrition	Moderate	No loss to follow-up analysis was performed
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No confounding analyses were conducted
	Analysis/reporting	Moderate	The description of the analysis is unclear
22. Hourani, 2012 ⁴⁰	Participation	Moderate	No non-responder analysis was performed
	Attrition	High	There was substantial loss to follow-up in this study
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported

	Confounding	High	No confounding analyses were conducted (at least, not for the exposure-outcome associations)
	Analysis/reporting	High	Only descriptive statistics were reported (at least, for the exposure-outcome associations)
23. Ikeda, 2017 ⁴¹	Participation	Moderate	About 15% non-response.
	Attrition	Moderate	There was substantial loss to follow-up with differences between those who were and were not lost.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
24. Joseph, 2014 ⁴²	Participation	Moderate	There was a substantial non-response
	Attrition	Moderate	There was a substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
25. Karstoft, 2013 ⁴³	Analysis/reporting	Low	Appropriate analyses were used.
	Participation	Moderate	No non-responder analyses were presented
	Attrition	Low	Loss to follow-up analyses indicated no substantial differences between those who remained in the cohort or not.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No adjustment for confounding were performed
26. Karstoft, 2015 ⁴⁴	Analysis/reporting	Low	Adequate statistical analyses were conducted
	Participation	Moderate	No non-responder analyses were presented
	Attrition	Low	Loss to follow-up analyses indicated no substantial differences between those who remained in the cohort or not.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
27. Kim, 2014 ⁴⁵	Confounding	High	No adjustment for confounding were performed
	Analysis/reporting	Low	Adequate statistical analyses were conducted
	Participation	Low	Very high >99% participation rate
	Attrition	Low	Very high >99% participation rate in follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Low	Outcome was diagnosed during an interview
	Confounding	Low	Adjustment for confounding was performed

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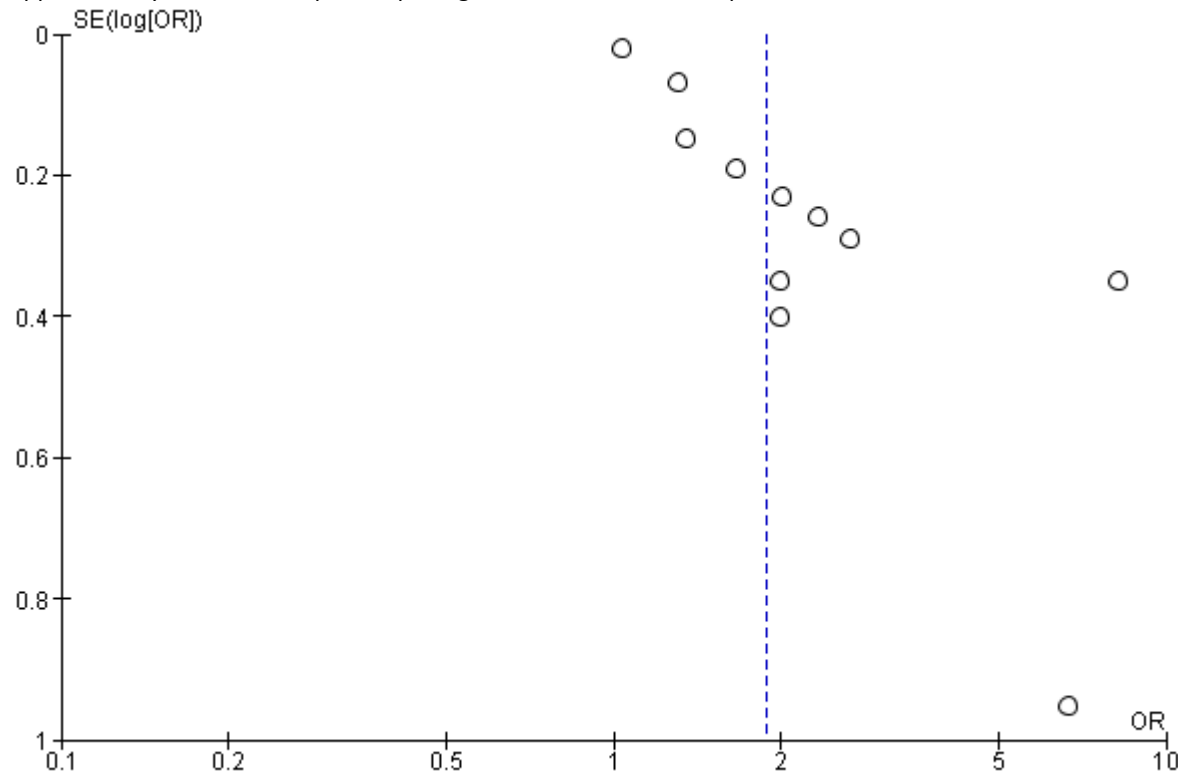
	Analysis/reporting	Low	Adequate analyses were conducted
28. Levin-Rector, 2018 ⁴⁶	Participation	Low	Responders comprised >90% of the eligible population
	Attrition	Low	Participants during follow-up comprised >90% of the cohort
	Prognostic factor	Low	Prognostic factors were obtained from database information
	Outcome	Low	Outcomes were obtained from diagnosed register information
	Confounding	Moderate	Only adjustment for clustering within units was done
	Analysis/reporting	Low	Adequate statistical analyses were conducted
29. MacGregor, 2015 ⁴⁷	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Low	Prognostic factors were obtained from register data
	Outcome	Low	Outcomes were obtained from register data and were diagnosed.
	Confounding	Low	Adjustment for confounding has been conducted
	Analysis/reporting	Low	Adequate statistical analyses were used.
30. MacGregor, 2012 ⁴⁸	Participation	Low	All eligible participants were analysed.
	Attrition	Low	All eligible participants were analysed.
	Prognostic factor	Low	Register data were used
	Outcome	Low	Diagnosed register data were used
	Confounding	Low	Adjustment for confounding has been conducted
	Analysis/reporting	Low	Adequate statistical analyses were used.
31. Maguen, 2012 ⁴⁹	Participation	Moderate	No non-responder analyses were presented
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Adjustment for confounding was done
	Analysis/reporting	Low	Adequate analyses were used
32. Maguen, 2010 ⁵⁰	Participation	Moderate	No non-responder analyses were presented
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Low	Prognostic factors were obtained from company data.
	Outcome	Low	Outcome was diagnosed
	Confounding	High	No adjustment for confounding was done
	Analysis/reporting	Low	Adequate analyses were used
33. Martindale, 2018 ⁵¹	Participation	High	No non-responder analyses were presented, with substantial non-response.
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Moderate	Prognostic factors were obtained from an interview
	Outcome	Low	Outcome was diagnosed during an interview

	Confounding	High	No adjustment for confounding was done
	Analysis/reporting	High	No statistical analysis was done on the exposure-outcome association (only other analysis).
34. Nagamine, 2018 ⁵²	Participation	Moderate	No non-responder analyses were presented
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No adjustment for confounding was done
	Analysis/reporting	Low	Adequate analyses were used
35. Osorio, 2018 ⁵³	Participation	High	A substantial amount of eligible participants did not participate. No non responder analysis was conducted.
	Attrition	High	A substantial amount of participants were lost in the follow-up. No loss to follow-up analysis was conducted.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
36. Pihl-Thingvad, 2019 ⁵⁴	Participation	Low	Responders and non-responders did not differ substantially from one another (only in age)
	Attrition	Low	Variables that predicted loss to follow-up (e.g. baseline PTSD) were adjusted for
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
37. Polusny, 2011 ⁵⁵	Participation	Moderate	There were slight differences between responders and non-responders
	Attrition	Moderate	There were slight differences between those with and without follow-up data
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
38. Reijnen, 2015 ⁵⁶	Participation	High	There were substantial differences (e.g. in mental health) between responders and non-responders.
	Attrition	High	Participants without follow-up data were excluded. The above therefore also holds for those lost at follow-up
	Prognostic factor	Moderate	Prospective factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No confounding adjustment was conducted

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	Analysis/reporting	Low	Appropriate analyses were used.
39. Shea, 2013 ⁵⁷	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Low	Outcome was diagnosed during a structured interview.
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
40. Soo, 2011 ⁵⁸	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
41. Stevelink, 2018 ⁵⁹	Participation	High	There was substantial non-response
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
42. Wittchen, 2012 ⁶⁰	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Low	Outcomes was diagnosed during a structured interview
	Confounding	High	No adjustment for confounding was performed
	Analysis/reporting	Low	Adequate analyses were conducted

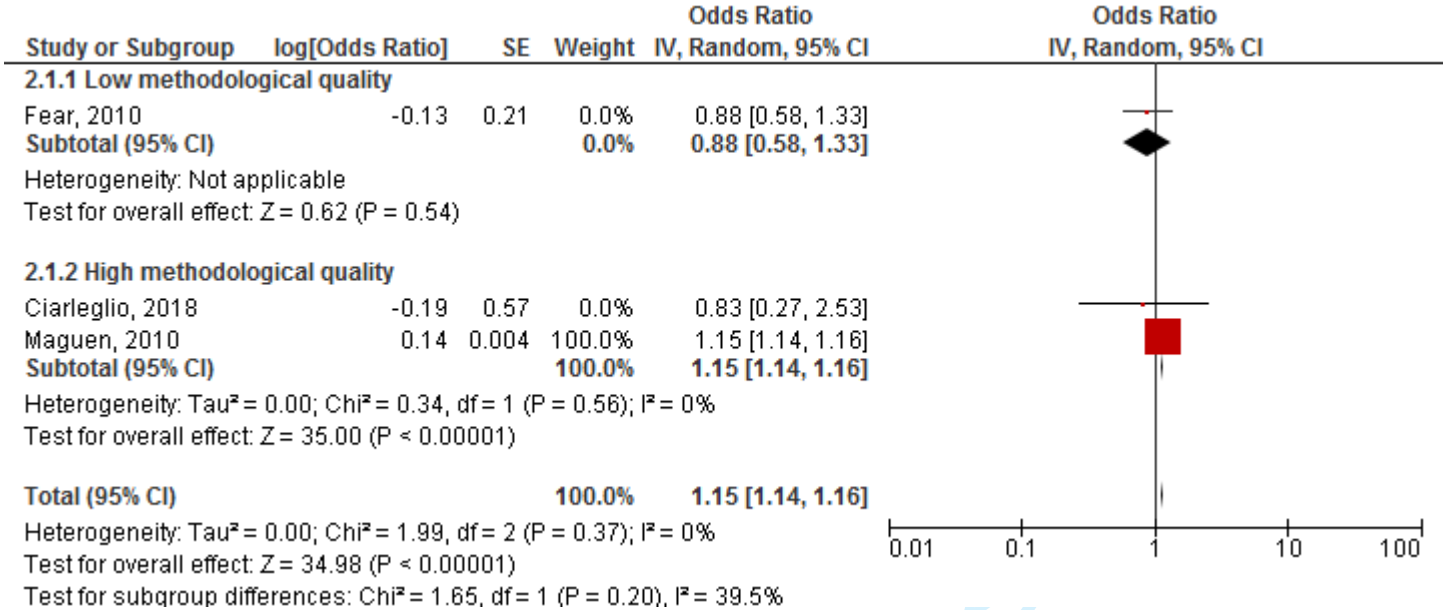
Supplementary file 6. Funnel plot, depicting the effect of combat exposure on PTSD.



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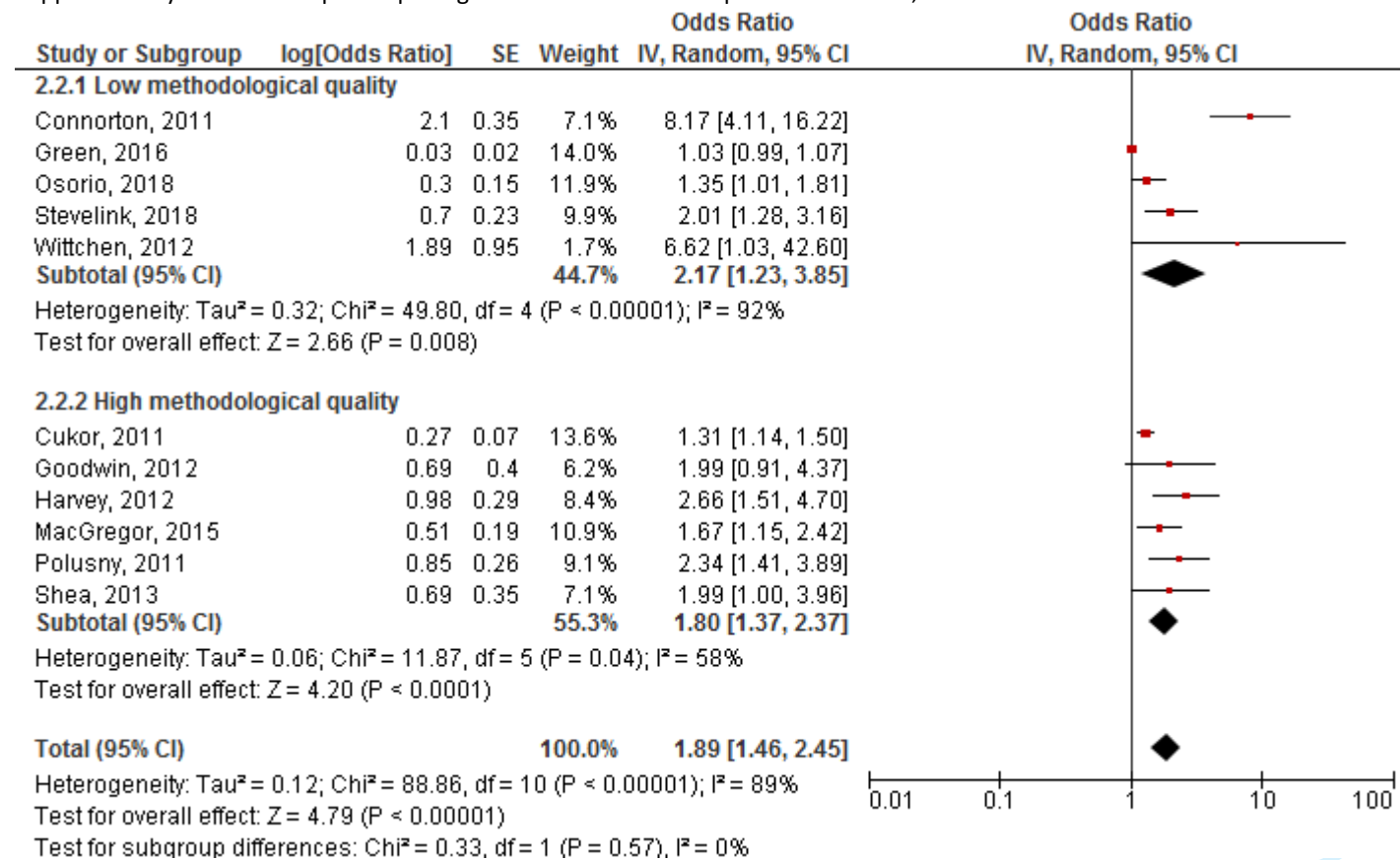
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Supplementary file 7. Forest plot depicting the effect of number of army deployments (one versus multiple) with PTSD, stratified for risk of bias.



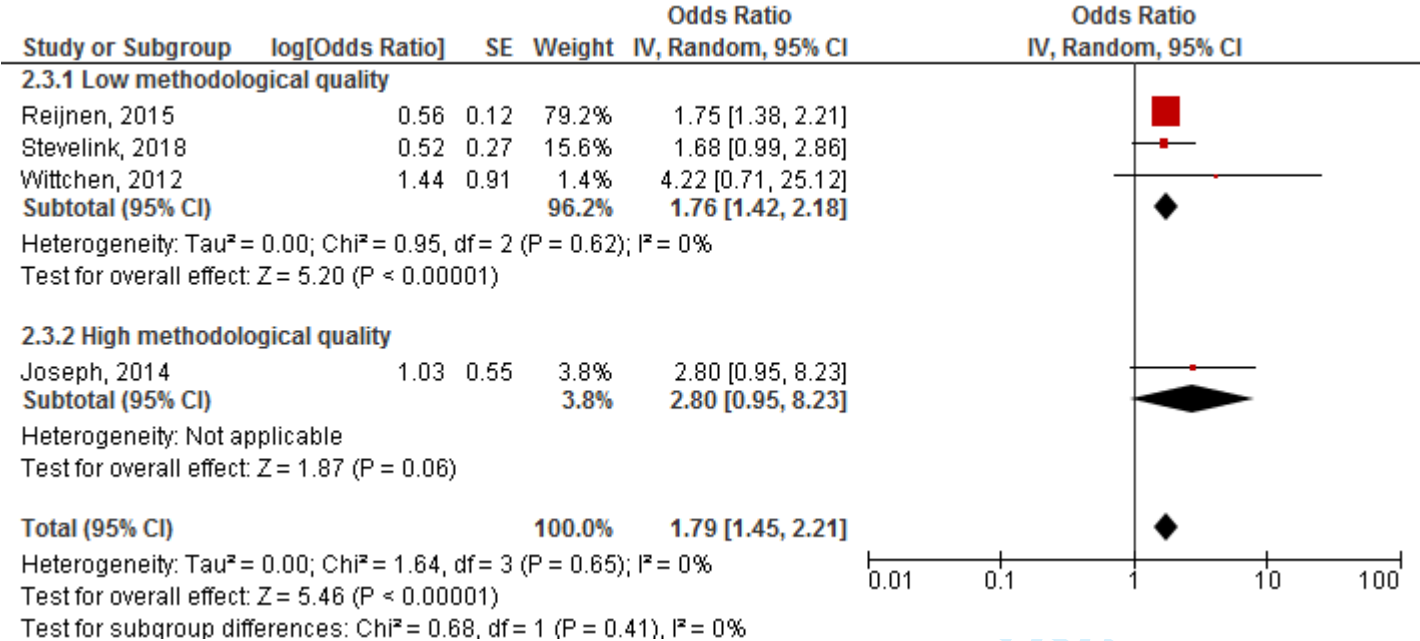
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Supplementary file 8. Forest plot depicting the effect of combat exposure with PTSD, stratified for risk of bias.



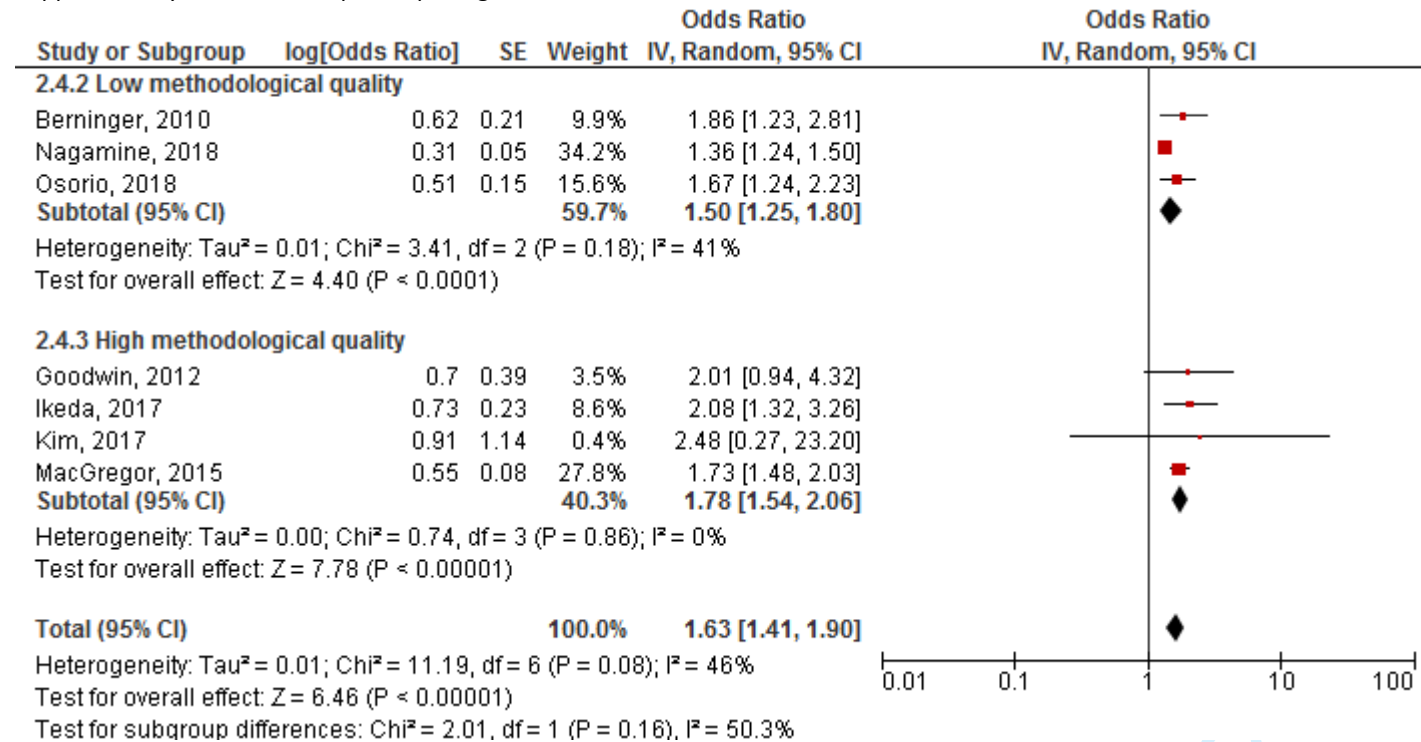
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Supplementary file 9. Forest plot depicting the effect of army deployment with PTSD, stratified for risk of bias.



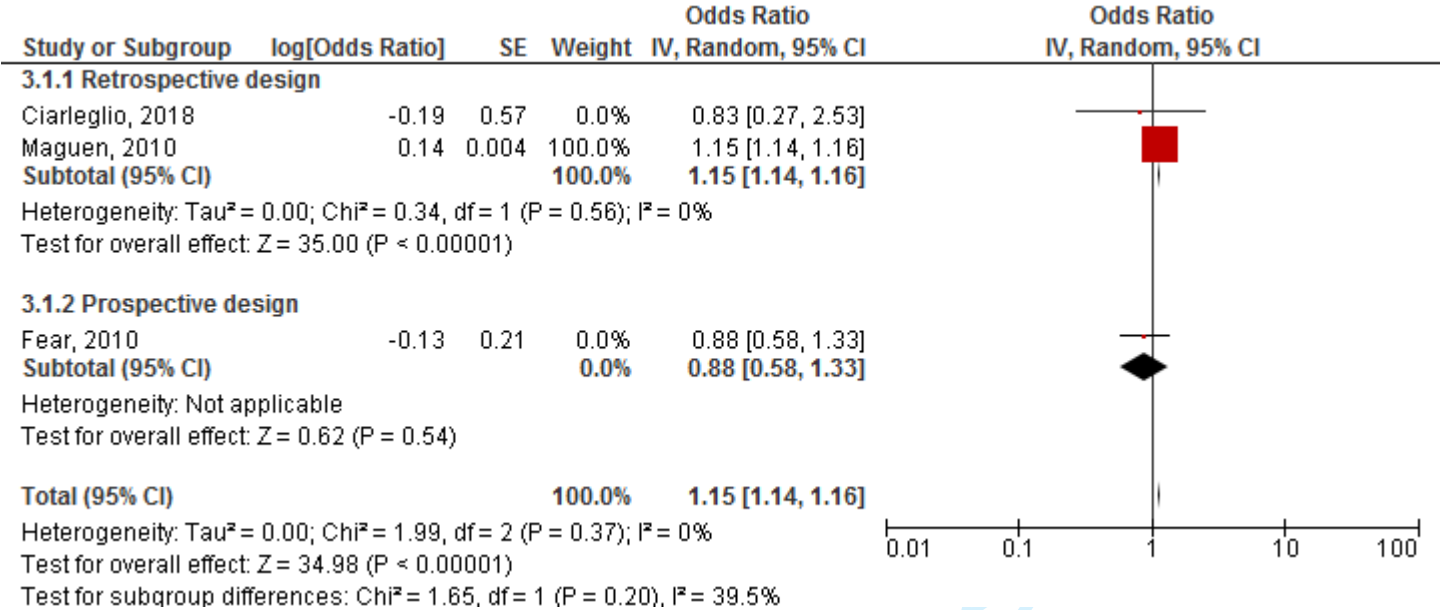
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Supplementary file 10. Forest plot depicting the effect of confrontation with death with PTSD, stratified for risk of bias.



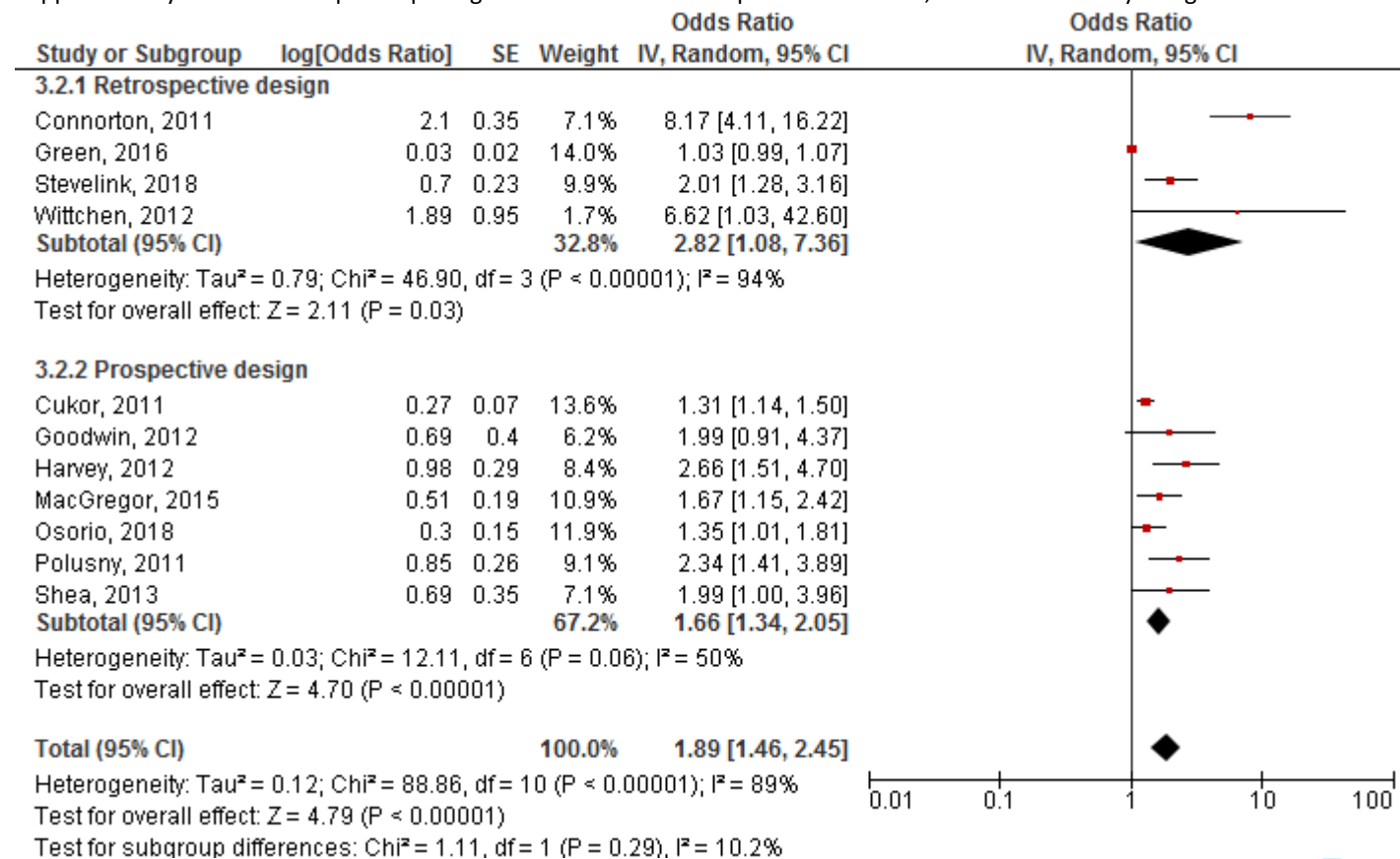
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Supplementary file 11. Forest plot depicting the effect of number of army deployments (one versus multiple) with PTSD, stratified for study design.



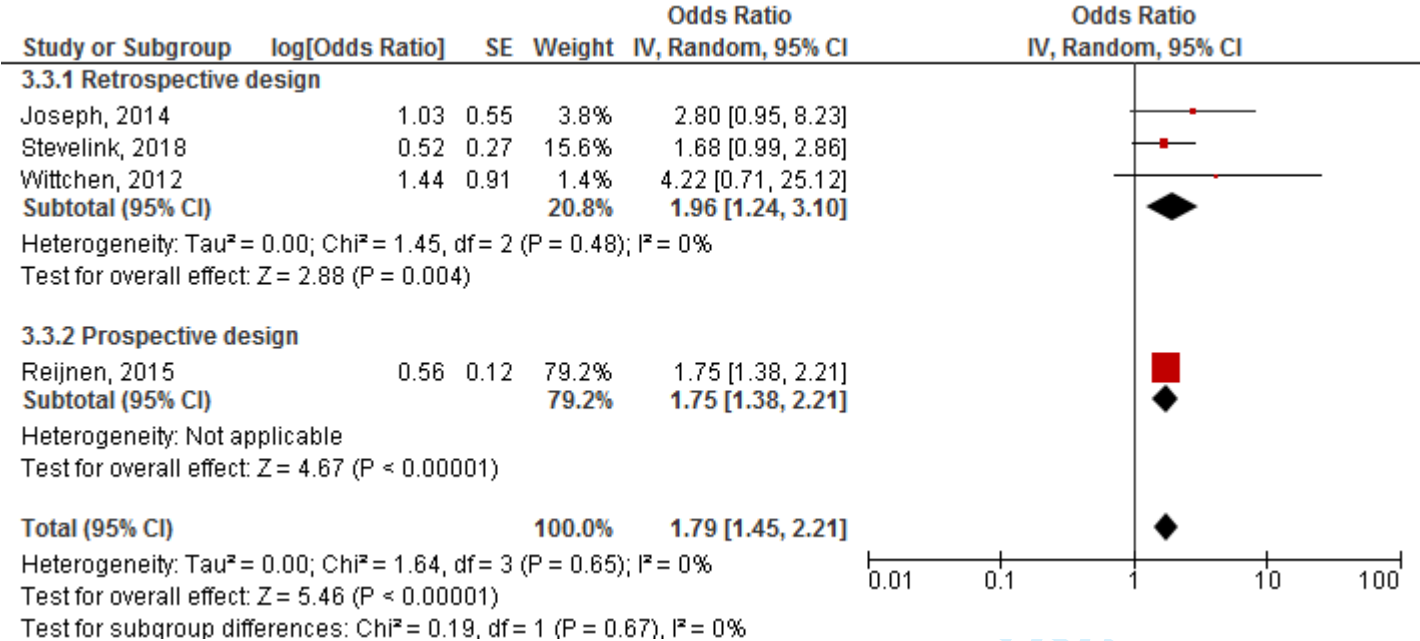
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Supplementary file 12. Forest plot depicting the effect of combat exposure with PTSD, stratified for study design.

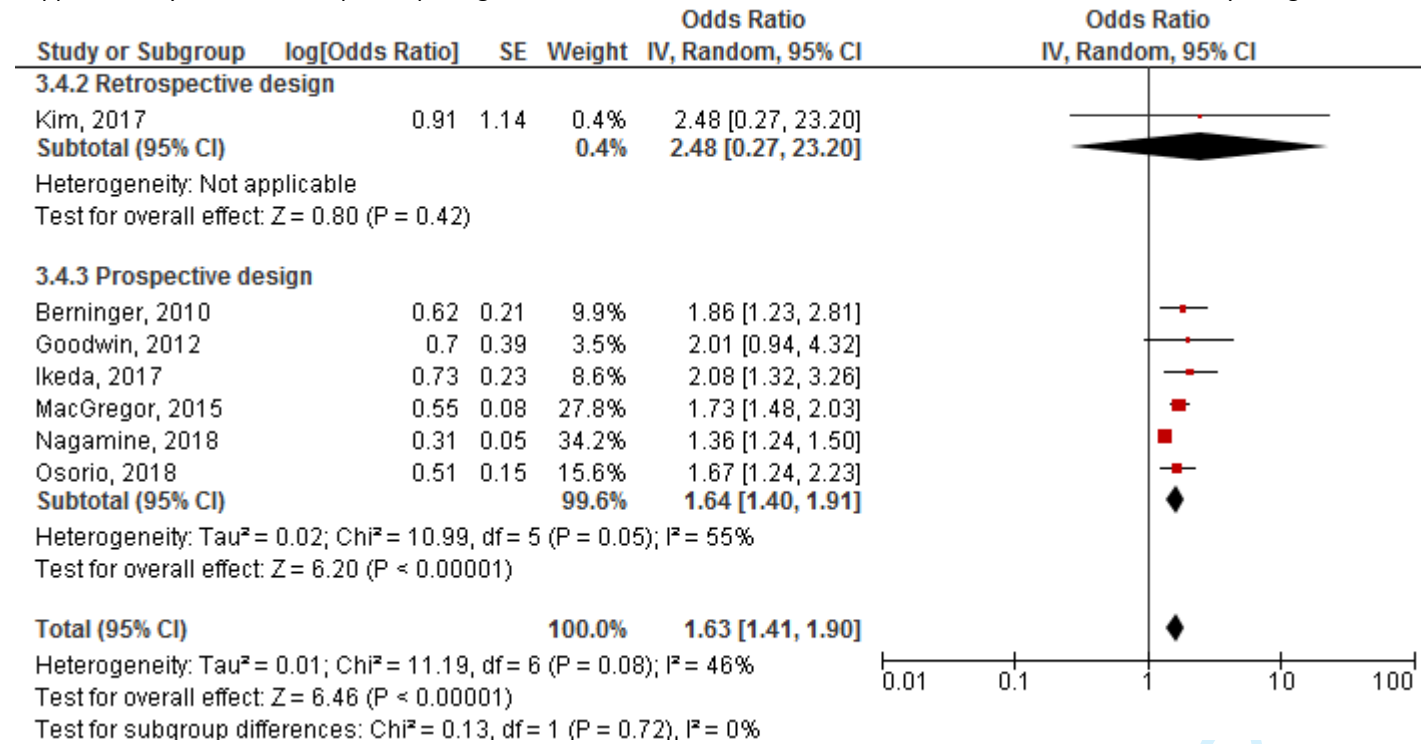


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Supplementary file 13. Forest plot depicting the effect of army deployment with PTSD, stratified for study design.

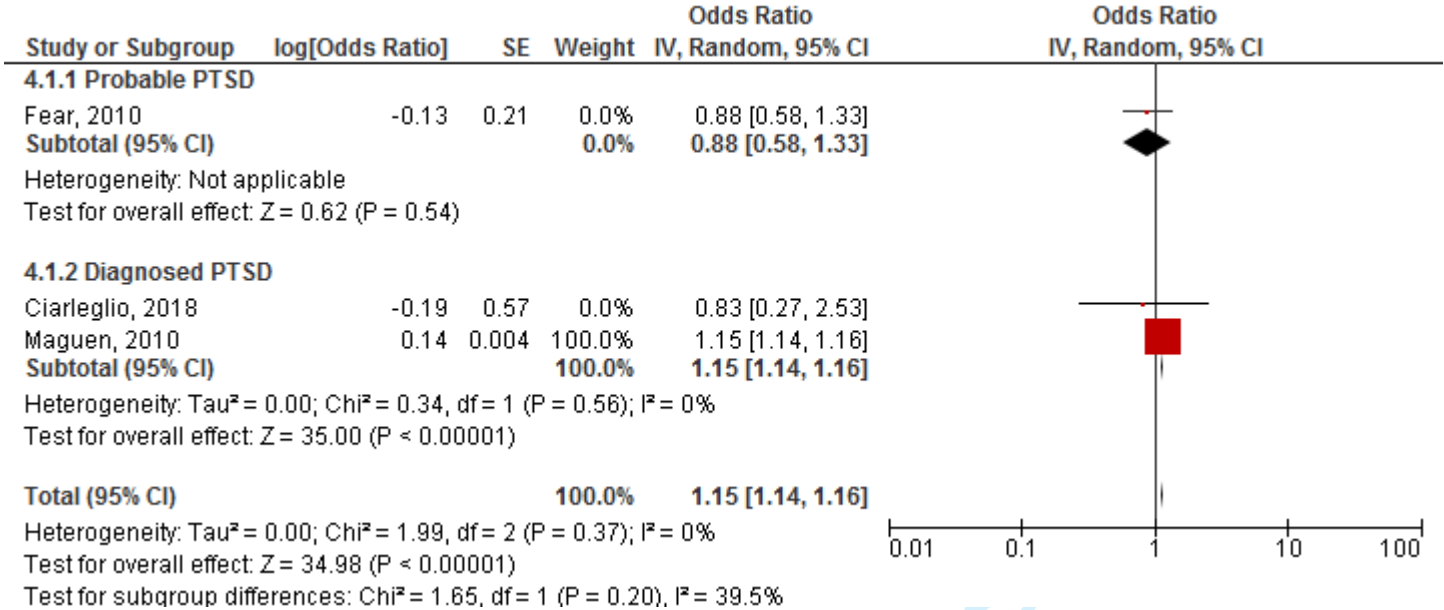


Supplementary file 14. Forest plot depicting the effect of confrontation with death with PTSD, stratified for study design.

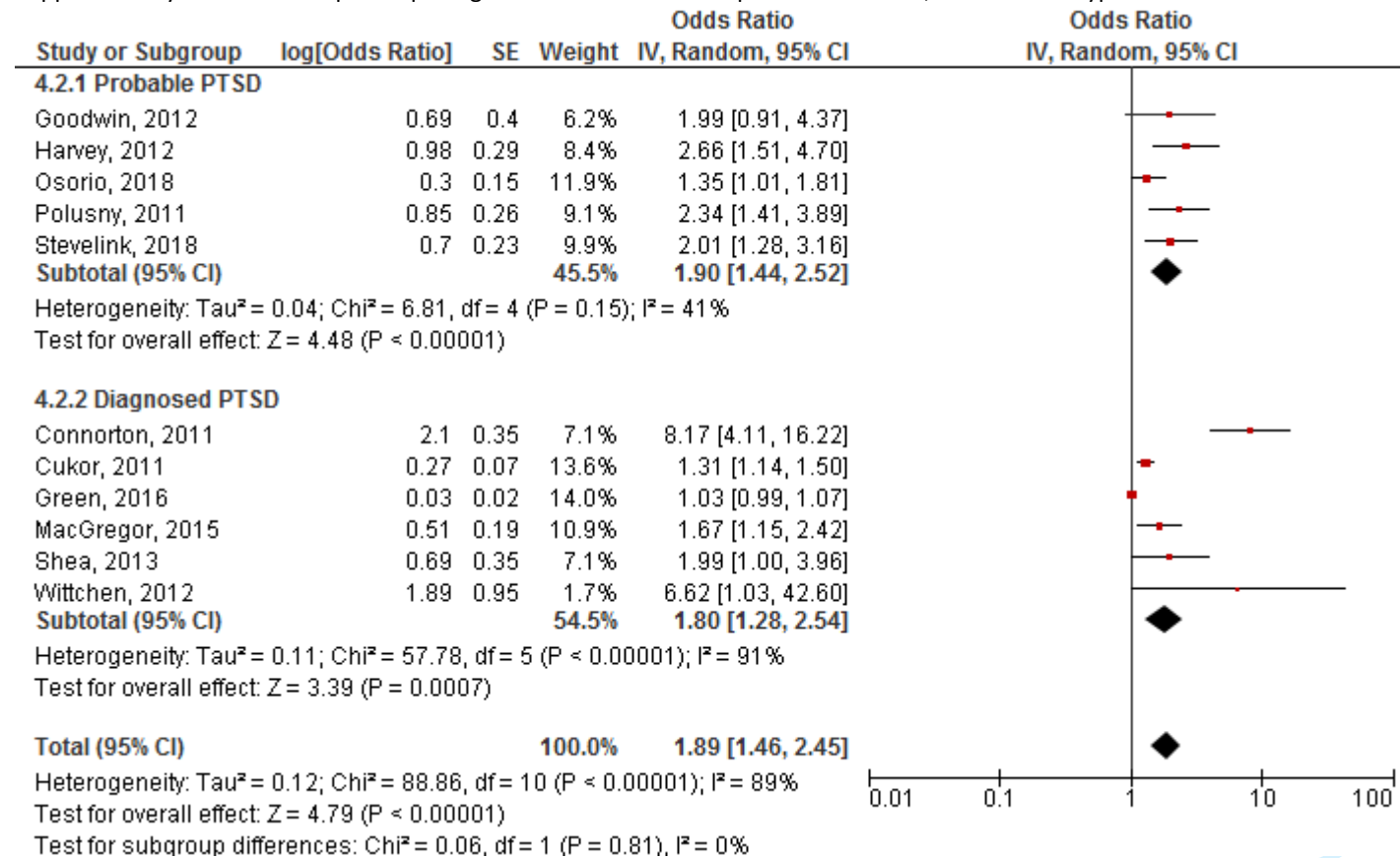


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Supplementary file 15. Forest plot depicting the effect of number of army deployments (one versus multiple) with PTSD, stratified for type of PTSD ascertainment.

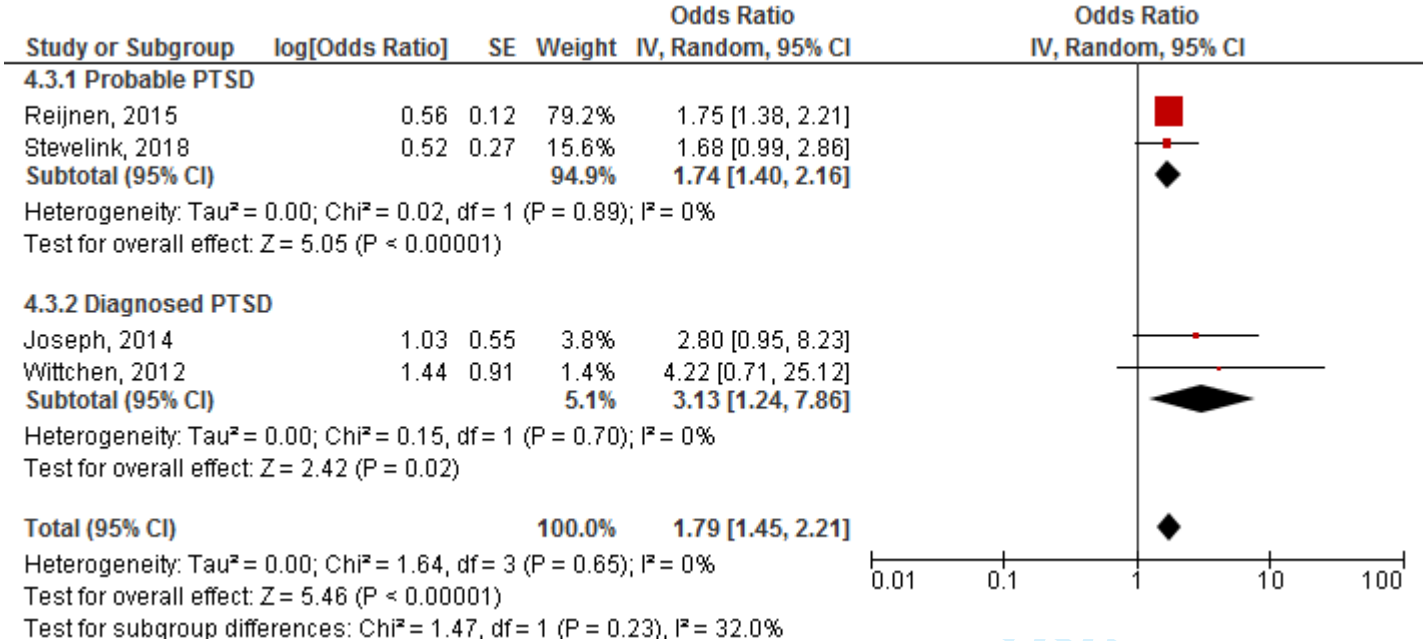


Supplementary file 16. Forest plot depicting the effect of combat exposure with PTSD, stratified for type of PTSD ascertainment.



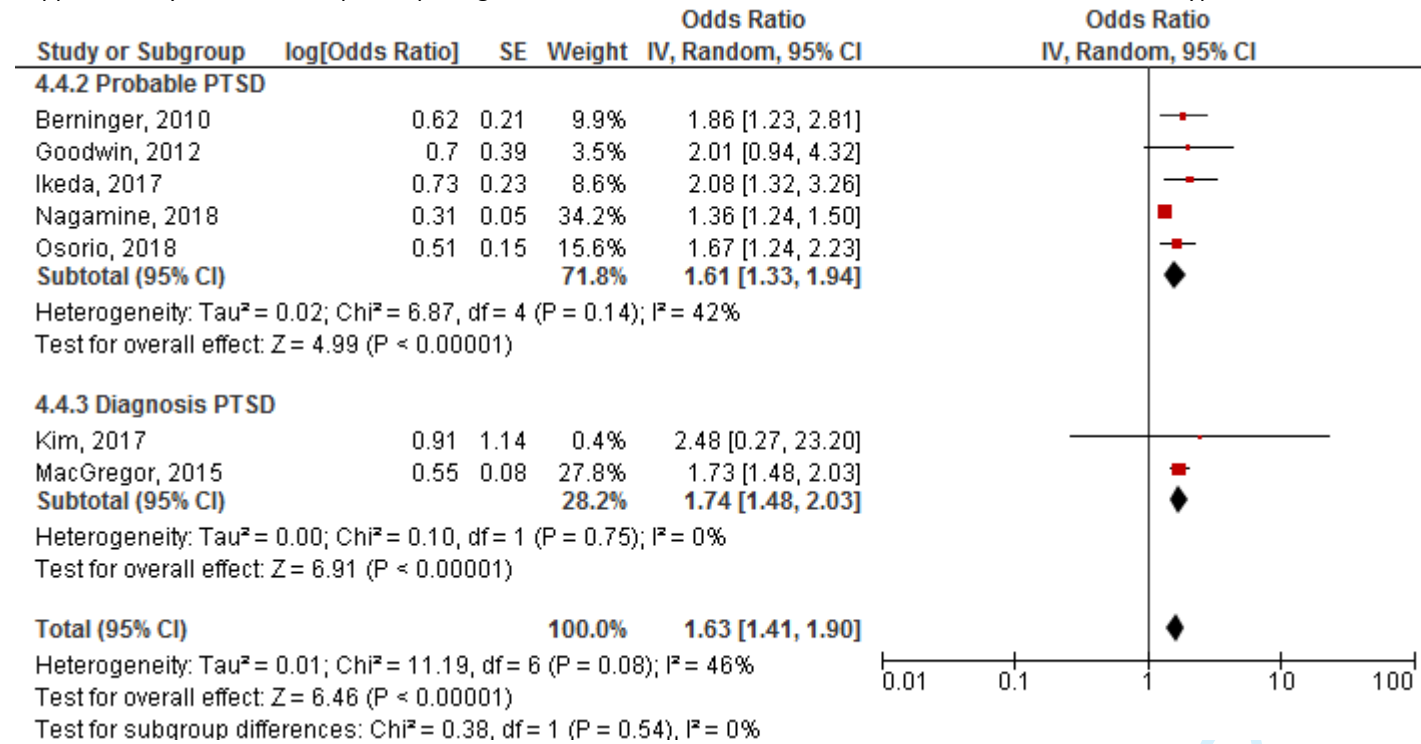
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Supplementary file 17. Forest plot depicting the effect of army deployment with PTSD, stratified for type of PTSD ascertainment.



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Supplementary file 18. Forest plot depicting the effect of confrontation with death with PTSD, stratified for type of PTSD ascertainment.



only



PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	3
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	4
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	4
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	4
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	4
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	4
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	5
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	5
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	5
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I ²) for each meta-analysis.	5



PRISMA 2009 Checklist

Page 1 of 2

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	5
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	5-6
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	7
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	7
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	7
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	7-9
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	7-9
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	7-9
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	7-9
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	10
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	10-11
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	12
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	13

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Page 2 of 2

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BMJ Open

What work-related exposures are associated with post-traumatic stress disorder? A systematic review with meta-analysis

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3 **What work-related exposures are associated with post-traumatic stress disorder? A systematic**
4 **review with meta-analysis**
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Abstract

Objectives: Although there is evidence that work-related exposures cause post-traumatic stress disorder (PTSD), there are few quantitative studies assessing the degree to which these factors contribute to PTSD. This systematic review with meta-analysis identified work-related exposures associated with PTSD, and quantified their contribution to this disorder.

Methods: We searched Medline, PsycINFO, Embase, PILOTS and Web of Science (2005 to 10-09-2019) for longitudinal studies on work-related exposures and PTSD. We described included articles, and conducted meta-analyses for exposures with sufficient homogeneous information. We performed subgroup analyses for risk of bias, study design and PTSD ascertainment. We assessed evidence quality using GRADE, and estimated population attributable fractions.

Results: After screening 8,590 records, we selected 33 studies (n=5,719,236). From what was moderate quality evidence at best, we identified various work-related exposures that were associated with PTSD, mainly involving individuals in the military and first responder (e.g., police or fire brigade) occupations. These exposures included the number of army deployments (odds ratio: 1.15 [1.14 1.16]), combat exposure (1.89 [1.46 2.45]), army deployment (1.79 [1.45 2.21]) and confrontation with death (1.63 [1.41 1.90]). Effects were robust across subgroups and exposures attributed modestly (7%-34%) to PTSD. We identified additional exposures in other occupations, including life threats, being present during an attack, and hearing about a colleague's trauma.

Conclusions: We identified various work-related exposures associated with PTSD and quantified their contribution. While exposure assessment, PTSD ascertainment, and inconsistency may have biased our findings, our data are of importance for development of preventive interventions and occupational health guidelines.

Key words: Post traumatic stress disorder; occupational health; occupational diseases; systematic review; meta-analysis

Strengths and limitation of this study

- Post-traumatic stress disorder (PTSD) is particularly prevalent among certain occupational groups, e.g., first responder (such as police or fire brigade) and military personnel.
- However, the association of work-related exposures with PTSD has not previously been quantified in a meta-analysis.
- We identified 33 studies (with n=5,719,236 participants) in which various work-related exposures were found to be associated with PTSD, based on moderate quality evidence at best.
- These findings can be used to support the development of preventive interventions, and as an aid to the assessment of occupational PTSD in occupational medicine guidelines.

Background

Post-traumatic stress disorder (PTSD) can be triggered when individuals experience or witness traumatic events. PTSD has been a clinical diagnosis since 1980, when the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) was published¹. The most recent DSM-5² states that PTSD results from exposure to severely traumatic event(s), while exhibiting a pattern of symptoms characterised by intrusion, avoidance, negative moods and cognitions, arousal, and reactivity. A diagnosis of PTSD also involves duration and functional impairment criteria, and the patient's symptoms should be exclusive (i.e., not caused by drugs or other illnesses). Estimates of PTSD prevalence among the general population differ widely. For example, lifetime PTSD prevalence ranged from 6% to 9% in United States (US) and Canadian samples, while prevalence rates in Australian samples range from 1% to 2%³. The substantial differences between individual studies could result from different ways in which PTSD was ascertained, varying from any type of clinical diagnosis, to self-reports of DSM-5 criteria and PTSD symptoms assessed as *probable PTSD*.

PTSD can have a major impact on individuals and society as a whole, as it is associated with mental comorbidities⁴, substance abuse⁵ and suicide⁶. PTSD is particularly prevalent among certain occupational groups, such as police officers, firefighters, medical workers and military personnel, all of whom can experience events that might trigger PTSD^{7 8}. One particular systematic review showed that the prevalence of PTSD in military veterans and other high-risk occupational groups can be almost twice as high as among the general population⁸. Another more recent review identified a number of occupational groups, including healthcare workers, police officers, prison workers, and emergency personnel, with an increased risk of PTSD⁹. Also, various specific work-related exposures (i.e., exposures to situations or conditions at work that may have an effect on PTSD) and their association with PTSD have been reported⁷. This included traumatic events experienced by military personnel and first responders (e.g., police officers or fire fighters). The latter review also identified journalists, healthcare workers or individuals in other occupations who are exposed to traumatic events or the aftermath thereof⁷.

Despite this evidence, the association of work-related exposures with PTSD has not yet been quantified in a meta-analysis. Such knowledge is of importance to answer questions regarding work-related causation and prevention, as a prelude to developing interventions. With regard to prevention, we need to quantify the contribution of work-related exposures in the onset of PTSD¹⁰. Such data could be used to formulate clinically relevant exposure threshold limits, as has been done with other disorders^{11 12}. It could also be of use in occupational health guidelines, as many countries provide financial compensation for individuals diagnosed with an occupational disease.

In this study, our aim was to 1) identify the work-related exposures associated with the onset of PTSD, and 2) quantify the extent to which such exposures contribute to this disorder. Evidence on the contribution of work-related factors to PTSD could be used to facilitate decisions in reporting schemes. It could also help to identify and prioritise preventive interventions against those exposures with the strongest effect, in terms of triggering PTSD.

Methods

The protocol for this systematic review with meta-analysis was registered in PROSPERO¹³ a-priori. The review itself was conducted in accordance with the PRISMA statement guidelines¹⁴.

Searches

The Medline, PsycINFO, Embase, PILOTS and Web of Science databases were systematically searched for material published from 2005 (January) to 2019 (September 10). This was an arbitrarily chosen period on the basis of changes in people's exposure to work-related traumatic events and changes in the definition of PTSD over time². The search strategy consisted of a combination of controlled search terms (e.g., Medical Subject Headings/MeSH) and free-text words used to specify search terms related to: 1) PTSD 2) exposure, and 3) work. A methodological filter was used to select longitudinal studies (prospective, retrospective or case-control), studies published in English, and those involving human participants only. The search strategy used is described in detail in supplementary file 1. We validated this search with various key references, to avoid term bias. In addition to the database search, we conducted snowball searches for additional studies. These were based on citation tracking (forwards and backwards) from the articles and reviews retrieved in our electronic search. We also conducted scoping searches for key researchers on this topic, and used ResearchGate profiles to identify relevant records and projects (including unpublished projects). Outcome articles were compared to potential protocol papers, to assess selective reporting.

Inclusion and exclusion criteria

Two reviewers, working independently of one another, used Rayyan (an online tool: <https://rayyan.qcri.org/>) to screen for eligible references. The full texts of any such references (whose eligibility was based on the screening title and abstract) were retrieved for further screening. Any conflicts were resolved during a consensus meeting. We included studies on the association between any work-related exposure and the onset of PTSD (acute or delayed) in paid workers of working age (aged 18-65). Any studies that described work-related exposures in terms of work demands or other occupational factors were eligible for inclusion. However, studies in which exposures were related to job title or work title only were excluded. Studies were included if there was an actual diagnosis of PTSD (either using checklists with defined cut-off values or clinical criteria, e.g., using DSM criteria² and/or coded according to the International Classification of Disorders -ICD-9-CM 309.81-). Studies in which PTSD was assessed by means of self-reports only (not using any criteria) were excluded. We excluded any studies into the persistence or growth of PTSD. Those studies in which the exposure-outcome association was quantified, e.g., in terms of effect sizes such as a hazard ratio (HR), relative risk (RR) or odds ratio (OR), were included. We restricted ourselves to original articles, in English or Dutch, published in peer-reviewed scientific journals from 2005 onwards. Studies with a prospective, retrospective or case-control longitudinal design were included, while cross-sectional studies were excluded, to be able to monitor the time sequence between exposure and the PTSD onset, in which the assessments of exposure precede the actual onset of the disorder. The above-mentioned set of criteria were finalised after a pilot screening of 300 references.

Data extraction and risk of bias assessment

Two reviewers, working independently of one another, extracted data and assessed risk of bias from each of the eligible articles. Any conflicts were resolved during a consensus meeting. We extracted first author and year of publication, study name and design, sample (country, occupational group,

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3 age and sex), exposure assessment, PTSD ascertainment, and effect size. Where it was not possible
4 to retrieve sufficient information from the published articles, additional data were requested from
5 study researchers.
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7 Risk of bias was assessed using the 'Quality in Prognosis Studies' tool¹⁵, with criteria related
8 to study participation, attrition, prognostic factor (i.e., exposure) measurements, outcomes,
9 confounding, and statistical analysis. Here, we attributed a low risk of bias regarding attrition to
10 studies with a >80% participant retention.
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12 13 Data analysis

14 The included articles were described in terms of extracted data and risk of bias. Work-related
15 exposures were categorised according to the DSM-5 criteria for PTSD stressors²: 1) direct exposure to
16 the trauma, 2) witnessing a trauma, 3) hearing about a colleague/co-workers (adapted to work
17 context) was/were exposed to a trauma, or 4) indirect exposure to aversive details of a trauma (e.g.,
18 first responders and medics).
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21 Where sufficient clinically and methodologically homogeneous information were available, a
22 quantitative meta-analysis was conducted to determine a pooled effect size for the association of
23 each exposure with PTSD. Review Manager (RevMan 5) was used for the meta-analyses, and to
24 generate forest and funnel plots. The latter were used to assess publication bias, through visual
25 inspection. According to the Cochrane collaboration handbook, funnel plots were only generated for
26 exposures with effect sizes from ≥ 10 studies¹⁶. Most of the exposure-outcome associations featured
27 statistical heterogeneity ($I^2 > 75\%$), so random-effects estimates were adopted for statistical pooling.
28 We assumed that the interpretation of effect estimates (e.g., HR and OR) was consistent, and we
29 estimated pooled OR with 95% confidence interval (95%CI). We adopted the OR, as this was the most
30 frequently reported effect size in the articles found (being reported in 32 articles, whereas two
31 articles reported HRs and three articles reported RRs).
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34 When more than one article reported on the same study, information from just one of these
35 articles was used for analyses, using effect sizes from the article with the shortest follow-up duration
36 (with a latency time of at least four weeks) to ensure that the work-related exposure of interest is
37 indeed the most likely cause of PTSD. Wherever possible, we used information from fully adjusted
38 models and we did not consider subgroups (e.g., sex differences). Population attributable fractions
39 (PAFs) were estimated¹⁷ to assess the extent to which work-related exposures contributed to the
40 development of PTSD. Here, the proportion of workers exposed to the exposure of interest (P_e) were
41 multiplied by the attributable proportion in the exposed workers: $P_e(OR-1)/(1+P_e(OR-1))$.
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44 In line with our registered protocol¹³, subgroup analyses were based on the risk of bias (with
45 a cut-off score of 60% for the risk of bias scale summary score, to obtain two subgroups), on the
46 study design (prospective vs retrospective) and on PTSD ascertainment (clinically diagnosed PTSD vs
47 probable PTSD). In contrast to the protocol that we registered a-priori,¹³ we were unable to compare
48 other characteristics of PTSD (i.e., acute vs delayed) due to limited available data. Any information
49 that could not be qualitatively analysed was described narratively.
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54 Strength of evidence

55 The strength of the evidence was assessed using the GRADE (Grades of Recommendations,
56 Assessment, Development and Evaluation) framework¹⁸. Four quality levels were distinguished: high,
57 moderate, low, and very low. Our starting point for evidence grading was 'moderate', which has
58 previously been proposed for use in the assessment of prognostic factors¹⁹. Various study limitations
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3 could have detracted from the strength of the evidence (if the majority of the studies scored <60%
4 on the risk of bias scale), as could inconsistency ($I^2>50\%$), indirectness, imprecision (95%CI
5 boundaries are <1 and >2), and publication bias (based on the funnel plots). Study findings with
6 moderate or large effect sizes (i.e., lower limit of 95%CI OR>2.0) or an exposure-response gradient
7 could boost the quality of the evidence.
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10 Patient and public involvement

11 There was no patient or public involvement in designing and conducting this study.
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Results

Study selection

The study selection procedure is described in Figure 1. We identified 14,529 records during database searches. After discarding duplicates, we screened the remaining 8,590 records on title and abstract. Of these, we assessed 107 full text articles and excluded 65 for various reasons (see Supplementary file 2 for more details). As no additional articles were found during snowball and scoping searches, 42 articles from 33 studies were described in this review²⁰⁻⁶¹.

Study description and methodological quality/risk of bias

Supplementary file 3 contains the extracted data, and risk of bias assessment is shown in supplementary file 4-5. The 33 included studies provided data on n=5,719,236 participants, ranging from n=19 to n=2,549,949 participants per study. Eighteen studies were from the US, four were from the United Kingdom, two were from Denmark, and two others from Japan. There was one study from each of the following countries: Israel, The Netherlands, Germany, Portugal, Italy, Norway and Korea. The majority of the studies (N=21) involved participants from armed forces. Five studies featured first responders who had attended the scene of a disaster, three focused on healthcare workers, two on employers at the scene of a disaster, one on bank workers and one on public transport workers.

Four studies reported no details of sex, five studies only used male participants, and 17 used samples in which the majority of participants were male ($\leq 20\%$ females). In only seven studies, did female participants make up a reasonable proportion ($>20\%$) of the study sample. Twenty-eight studies reported exposures obtained from self-reports, 12 studies used deployment administration databases, and two studies were based on a combination of these two measurements. Baseline exposure assessment was carried out for the period 1983-2012. Twenty-five articles assessed PTSD (by clinical diagnosis) while the remaining 17 articles assessed probable PTSD/PTSD symptoms (by self-reports using pre-defined (e.g., DSM-5) criteria). The weighted average for PTSD prevalence during in the follow-up periods was 7.3%, while individual study prevalence ranged from 1.0% to 70.5%. The average prevalence for diagnosed cases of PTSD was slightly higher (7.3%) than for probable PTSD (6.4%).

Twenty-five studies were prospective studies and eight were retrospective studies. On average, methodological quality was 62% (SD:19%), ranging from 25% to 100%. Most articles showed a low risk of bias on analysis/reporting (N=37) and confounding (N=25). Less than half of the articles showed a low risk of bias on participation selection (N=11), attrition (N=9), prognostic factor (exposure) assessment (N=9) and outcome (PTSD) ascertainment (N=13).

Work-related exposures

Each of the exposure-outcome associations presented have been described and categorised according to the DSM-5 criteria for PTSD stressors²: 1) direct exposure, 2) witnessing a trauma, 3) hearing that a colleague or co-worker was exposed to a trauma, or 4) indirect exposure to aversive details of a trauma. An overview of qualitative and quantitative analyses of all exposure-outcome associations is shown in Table 1. Figures 2 and 3 depict quantitative analyses, while Table 2 contains an overview of any exposure-outcome associations that could not be statistically pooled.

Direct exposure

The exposure-outcome associations for direct exposures were quantitatively analysed for: number of army deployments (OR[95%CI]: 1.15[1.14 1.16], $I^2=0\%$, n=333,024, Figure 2), combat exposure

(OR[95%CI]: 1.89[1.46 2.45], $I^2=89%$, $n=28,304$, Figure 2) and army deployment (OR[95%CI]: 1.79 [1.45 2.21], $I^2=0%$, $n=11,023$, Figure 3). The PAFs for these exposures were 7%, 14% and 34%, respectively. Evidence for these exposure-outcome associations was moderate, very low, and low quality, respectively. In some cases, the evidence was downgraded due to high risk of bias and inconsistency. There was some evidence for publication bias, although it was only possible to assess that for the 'combat exposure' variable (Supplementary file 6). Subgroup analyses based on risk of bias (Supplementary file 7-9), study design (Supplementary file 10-12) and PTSD ascertainment (Supplementary file 13-15) showed no statistically significant differences between effects for those subgroups.

In our qualitative analyses of exposures that could not be statistically pooled, we found exposure-outcome associations for exposures related to undergoing a traumatic event, cumulative exposure and the severity of exposure (Table 2). With regard to undergoing a traumatic event, the effect sizes ranged from OR[95%CI]: 0.86[0.32 2.28] (physical contacts with thieves)³⁴ to OR[95%CI]: 5.65[3.27 9.74] (workers fleeing from a tsunami)⁴². Cumulative exposure was e.g. expressed in length of deployment³⁷ (OR[95%CI]: 0.97[0.92 1.03]) and high frequency of violence (compared to no violence)⁵⁵ (OR[95%CI]: 6.5[1.6 25.6]). The effect sizes for exposure severity ranged from OR[95%CI]: 1.01[0.67 1.35] (severity of battles)⁴⁵ to OR[95%CI]: 6.5[1.6 26.0] (severe compared to no violence)⁵⁵

Witnessing a trauma

With regard to the DSM-5 criterion 'witnessing a trauma', there was insufficient homogeneous data to pool studies statistically (Table 2). In five studies (with $n=4,876$ participants), effect sizes ranged from OR[95%CI]: 1.01[0.63 1.64] ('perceiving a life threat')⁵⁶ to OR[95%CI]: 9.3[6.1 14.2] ('being present during an attack')³⁸.

A colleague or co-worker was exposed to a trauma

Only one study ($n=980$) reported on effect sizes regarding 'colleague or co-worker exposed to a trauma'. This study, among public transport workers, found that 'hearing that a close colleague had suffered a person under train experience' was not significantly association with PTSD (OR[95%CI]: 0.55[0.12 2.47])⁴⁶

Indirect exposure to aversive details

Regarding indirect exposure to adverse events, we statistically pooled the effect sizes from seven studies ($n=75,902$ participants) with moderate-quality evidence for an association between confrontation with death and PTSD (Figure 3; OR[95%CI]: 1.63[1.41 1.90]). Subgroup analyses regarding risk of bias (Supplementary file 16), study design (Supplementary file 17) and PTSD ascertainment (Supplementary file 18) showed no statistically significant differences between any of those subgroups.

Additional evidence from four studies ($n=14,085$ participants), which could not be statistically pooled, showed effect sizes ranging from OR[95%CI]: 1.03[1.00 1.06] (being exposed to the aftermath of a battle)³⁷ to OR[95%CI]: 4.0[2.5 6.6] (being present during the morning of the 9/11 attacks)²⁷.

Other exposures

We found additional evidence that could not be categorised into any of the DSM-5 criteria. An increased risk of PTSD was associated with experiencing stress, with evidence ranging from

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3 OR[95%CI]: 1.01[0.98 1.04] (deployment concerns)²⁸ to OR[95%CI]: 3.52[2.94 4.21] (high deployment
4 stress)²¹. Also, the time that has passed since a given traumatic event seems to be associated with
5 PTSD. This factor can either reduce the PTSD risk (OR[95%CI]: 0.47[0.32 0.70] with a longer dwell
6 time between deployments)⁴⁸ or increase it (OR[95%CI]: 1.89[0.99 3.60] if the period since the return
7 from deployment exceeds 6.5 years)³². Other exposures included experiencing discrimination at work
8 (OR[95%CI]: 5.72[3.37 9.71])⁴² and having to perform duties that involved a risk of radiation exposure
9 (OR[95%CI]: 1.08[0.97 1.20])⁵³.
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Discussion

In this systematic review with meta-analysis and evidence grading, we found various associations, albeit based on moderate-quality evidence at best, showing that several work-related exposures are associated with PTSD development. This includes exposures such as the number of army deployments, combat exposure, army deployment and confrontation with death. The corresponding effect sizes ranged from 1.15[1.14 1.16] to 1.89[1.46 2.45] and PAFs varied from 7% (for the number of army deployments) to 34% (for army deployment). The latter values indicate the proportion of PTSD cases that could potentially be avoided in a working population, if the exposure in question were to be totally eliminated. The data suggests that there could be an only moderate relationship between PTSD and work situations. However, they could also indicate that PTSD cannot be attributed to a single work-related exposure and that it is multi-factorial in nature and/or is mediated by other factors. This could, perhaps, also account for the relatively low ORs found for some of the effects.

Only a limited data, which could not be statistically pooled, was available concerning exposures that corresponded to the DSM-5 criteria 'witnessing a trauma' and 'hearing that a colleague/co-worker was exposed to a trauma'. These exposures include 'perceiving a life threat', 'being present during an attack', and 'hearing that a close colleague had suffered a person under train experience'. The additional exposures that could not be categorised according to DSM-5 criteria include 'military deployment', 'deployment stress', and 'time since return from deployment'. In future, it may be worth considering exposures of this kind when diagnosing work-related PTSD.

The details uncovered by this review are key to a better understanding of work-related causes of PTSD, to the selection or development of preventive interventions, and to the identification of thresholds for occupational health guidelines. This review has updated earlier work⁷⁻⁹ and we are the first to quantify the association between work-related exposures and PTSD. This update identifies occupational groups and exposures that do not feature in previous reviews, such as public transport workers⁴⁶ and bank workers (being exposed to robberies)³⁴.

Although the prevention of occupational diseases, including PTSD, is preferable, not all risks can be fully eliminated as witnessing traumatic events, disasters and war situations are likely to remain present in our working situations. In the working environment it is also important to attenuate the impact of exposures on workers or to treat them when having developed work-related PTSD. In the current review we also identified work-related factors that can reduce the risk of PTSD, which can be helpful to attenuate the impact of stressful exposures. For instance, among highly exposed occupational groups, a high level of preparedness (OR[95%CI]: 0.6[0.4 0.9])⁶², unit support (OR[95%CI]: 0.5[0.3 0.8])⁶², post-deployment support (OR[95%CI]: 0.3[0.2 0.4])⁶² and social support (OR[95%CI]: 0.96[0.93 0.98])³⁷ were all found to be associated with a reduced risk of PTSD. These elements can be used in the development of interventions, especially for those in occupations that involve high PTSD risks.

Methodological strengths and limitations

The strengths of this review are the systematic methods used plus a protocol that was registered a-priori, the systematic review with meta-analysis, and the assessment of evidential quality using GRADE¹⁸. The findings appear to be quite robust, since subgroup analyses based on risk of bias, study design and PTSD ascertainment produced results that did not differ between any of those subgroups. Moreover, the PAFs estimated in our study provide insight into the extent to which the identified exposures were occupationally related to PTSD.

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3 We deviated from our a-prior registered protocol¹³ in that we were unable to compare different
4 PTSD diagnoses (acute vs delayed). In our meta-analysis, we used effect sizes from the article with
5 the shortest follow-up duration (with a latency time of at least four weeks). There were, however,
6 also data available from few studies measuring both the short-term and long-term effects of
7 exposure and their association with PTSD. For example, 'being present during a terrorist attack' was
8 strongly associated with PTSD in the acute phase (after 10 months; OR[95%CI]: 9.3[6.1 14.2]), but this
9 association was even stronger in the long term (after 34 months; OR[95%CI]: 10.0[5.4 18.6])³⁸.
10 Regarding 'being exposed to combat', the opposite was true. Stronger effects were seen in short
11 term (OR[95%CI]: 2.91[1.34 6.31]) than long term (OR[95%CI]: 2.42[1.04 5.62])³⁹. This is in line with
12 another review indicating that, following exposure, the risk of PTSD attenuates over time⁷.

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16 Another potential source of heterogeneity stems from the method used to ascertain PTSD. In 25
17 articles, PTSD was assessed by clinical diagnosis while 17 articles assessed probable PTSD/PTSD
18 symptoms, based on self-reports using pre-defined (e.g., DSM-5) criteria. We found that the average
19 prevalence was slightly higher for diagnosed PTSD (7.3%) than for probable PTSD (6.4%). This is in
20 line with a study of disaster workers, following the 9/11 attacks, in which 2-9% had probable self-
21 reported PTSD, respectively³¹. However, 6-15% of these workers were diagnosed with PTSD.
22 Nevertheless, our pooled effect sizes were robust across different methods for ascertaining PTSD.
23 While ascertaining PTSD by clinical diagnosis may be more valid, this source of heterogeneity is
24 unlikely to have substantially affected the findings presented. We have only assessed incidence of
25 PTSD. Accordingly, this review does not address the persistence or growth of PTSD. Future studies
26 should, therefore, focus on different types of PTSD diagnoses. They should also assess the work-
27 relatedness of PTSD persistence and growth, as an aid to the development of occupational health
28 guidelines.

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32 One limitation of our study is that the majority of the studies in this review were based on
33 participants from armed forces (N=21) and first responders (N=5). There was limited information on
34 other occupations, such as public transport workers, bank employees and healthcare workers.
35 Furthermore, most studies of the armed forces and of first responders tend to be male dominated
36 and from Western countries. Future research should address these issues, by assessing previously
37 unexplored occupational sectors and groups, as well as data from other countries. In this review we
38 only included longitudinal studies in which the exposure would precede the outcome, as a result of
39 which a better inference of causality can be provided than with cross-sectional studies only.
40 Moreover, we focussed in our review on articles published from 2005 onwards. This cut-off was
41 based on changes in people's exposure to work-related traumatic events and changes to the
42 definition of PTSD over time².

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47 While our use of the GRADE framework provides an adequate way to assess quality of the
48 evidence, it does not necessarily provide insights into causation of the association of work-related
49 exposures and PTSD, for which other approaches such as the Bradford Hill criteria⁶³ could be used. It
50 has been argued that the majority of the Bradford Hill criteria are to some extent incorporated in
51 GRADE, such as the strength and consistency of the association⁶⁴. Other criteria, such as that of the
52 biological plausibility are not well covered nor are they in the current review evidence regarding
53 work-related PTSD. Future studies should therefore aim at providing more insights into this, to
54 further build the evidence base around work-related PTSD and the biology of risk for PTSD⁶⁵.
55 Although methodological quality of the included studies was of an acceptable level (62%, on
56 average), the quality of the evidence was rated moderate at best. More than half of the articles
57 showed a risk of bias with regard to participation (i.e., selection bias), attrition (with <80% of the
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3 participants being retained during the follow-up period), and misclassification due to a limited
4 assessment of the prognostic factors (i.e., exposure) and the outcome of interest. As mentioned
5 above, the ascertainment of PTSD is unlikely to have caused a substantial bias in our findings.
6 However, exposures were often measured by means of self-reports, which may well have biased our
7 findings. In addition, the quality of the evidence was downgraded due to inconsistency for some of
8 the exposures. Our assessment of publication bias was limited to just one of the pooled exposures. It
9 appeared, however, that none of the studies had published or registered their protocol, which could
10 have caused publication bias.
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Conclusion

In this systematic review with meta-analysis of 33 studies (with n=5,719,236 participants), based on moderate quality evidence at best, we identified a number of work-related exposures (mainly involving individuals in the armed forces and in first responder occupations) that increase the risk of PTSD (by 15% to 89%). These exposures include 'number of army deployments', 'combat exposure', 'army deployment' and 'confrontation with death', for which we found a moderate contribution to the development of PTSD. We identified additional exposures in other occupations, such as bank workers, public transport workers, and medics. These included 'life threats', 'being present during an attack' and 'hearing about a colleague's trauma'. Although exposure assessment, PTSD ascertainment and inconsistency may have biased our findings, the results of this review are quite robust and are of importance for the development of preventive interventions and occupational health guidelines.

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Author contribution

Both authors (PC and HvdM) designed the study and reviewed the manuscript for important intellectual content. Both authors identified relevant articles and conducted data extraction and analyses together. PC drafted the first version of the manuscript. HvdM is the study guarantor.

Data sharing

All data relevant to the study are included in the article and supplementary documents.

Study ethics

Not applicable as this study is a systematic review

Competing interests

The authors declare no competing interests

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Data sharing

Additional data is provided in the supplementary files.

Ethical approval

As this is a systematic review, no ethical approval is required

Patient consent

As this is a systematic review, no patient consent is required

Table 1. Overview of the evidence from both qualitative and quantitative analyses, with exposures categorised according to DSM-5 criteria. For exposures for which quantitative analyses could be performed (Figure 2 and 3), quality of the evidence for the relationship between work-related exposures and PTSD according to the GRADE framework is shown. Other exposures are described qualitatively (Table 2).

DSM-5 criterion	Exposure	N	n	Limit ¹	Incons ²	Indirect ³	Imprec ⁴	Pub bias ⁵	OR [95%CI] ⁶	Grad ⁷	GRADE	PAF	Reference
Direct exposure	Number of army deployments ⁸	3	333,024	No	0%	No	No	N/A	1.15 [1.14 1.16]	No	Moderate	7%	Figure 2
	Combat exposure	11	28,304	Yes	89%	No	No	Yes	1.89 [1.46 2.45]	No	Very low	14%	Figure 2
	Army deployment ⁹	4	11,023	Yes	0%	No	No	N/A	1.79 [1.45 2.21]	No	Low	34%	Figure 3
	Undergoing a traumatic event	13	1,703,107	-	-	-	-	-	Min: 0.86 [0.32 2.28] Max: 5.65 [3.27 9.74]	-	-		Table 2
	Cumulative exposure	8	1,749,762	-	-	-	-	-	Min: 0.97 [0.92 1.03] Max: 6.5 [1.6 25.6]	-	-		Table 2
	Exposure severity	3	2,558	-	-	-	-	-	Min: 1.01 [0.67 1.35] Max: 6.5 [1.6 26.0]	-	-		Table 2
Witnessing trauma	-	5	4,876	-	-	-	-	-	Min: 1.01 [0.63 1.64] Max: 9.3 [6.1 14.2]	-	-		Table 2
Colleague exposed ¹⁰	-	1	980	-	-	-	-	-	0.55 [0.12 2.47]	-	-		Table 2
Indirect exposure	Confrontation with death	7	75,902	No	46%	No	No	N/A	1.63 [1.41 1.90]	No	Moderate	15%	Figure 3
		4	14,085	-	-	-	-	-	Min: 1.03 [1.00 1.06] Max: 4.0 [2.5 6.6]	-	-		Table 2
Other exposures	Stress	4	1,390,641	-	-	-	-	-	Min: 1.01 [0.98 1.04] Max: 3.52 [2.94 4.21]	-	-		Table 2
	Time since event	3	1,358,468	-	-	-	-	-	Min: 0.47 [0.32 0.70] Max: 1.89 [0.99 3.60]	-	-		Table 2
	Other	3	69,176	-	-	-	-	-	Min: 1.08 [0.97 1.20] Max: 5.72 [3.37 9.71]	-	-		Table 2

n = number of participants; N = number of studies; OR = Odds ratio; 95%CI = 95% confidence interval; PAF = population attributable fractions

¹ Limitation: downgraded if the majority of studies score lower than 60% on the risk of bias scale. ² Inconsistency: downgrade if $I^2 \geq 50\%$.

³ Indirectness: downgrade if indirectness is present. ⁴ Imprecision: downgrade if the 95% confidence interval is <1 and >2 .

⁵ Publication bias: downgraded if publication bias is present (based on the funnel plots). ⁶ Effect size: upgrade if the lower limit of the 95% confidence interval is >2.0 .

⁷ Gradient: upgraded if there is a dose-response gradient available.

⁸ Depicting the effect of being deployed more than once, as compared to being deployed once.

⁹ Depicting the effect of being deployed, as compared to not being deployed.

¹⁰ For this study on occupational exposures, the DSM-5 criterion 'relative/friend' was adapted to 'colleague or co-worker'.

Table 2. Overview of all exposure-outcome effect sizes from qualitative analyses, with exposures categorised according to DSM-5 criteria. Odds ratios (OR) with 95% confidence intervals (95%CI) are shown.

DSM-5 criterion	Exposure category	Exposure	Effect size (OR [95%CI])
Direct exposure	Undergoing an event	Work-related threats ²⁰	1.10 [1.04 1.15]
		Work-related violence ²⁰	1.02 [0.98 1.06]
		Previous disaster experience ²³	1.4 [1.2 1.6]
		One injury sustained during the 9/11 attacks ²⁹	1.1 [0.6 2.0]
		Two or more injuries sustained during the 9/11 attacks ²⁹	1.4 [0.6 3.4]
		Participation in abusive violence ³³	3.32 [1.81 6.08]
		Robberies during working life ³⁴	1.18 [0.97 1.44]
		Physical contacts with robbers ³⁴	0.86 [0.32 2.28]
		Scuffle [taking part or being present] ³⁴	1.92 [0.63 5.79]
		Being injured during the robbery ³⁴	1.28 [0.31 5.21]
		Discharged weapon on deployment ³⁶	1.48 [0.61 3.60]
		Experience of life-threatening danger ⁴²	4.32 [2.89 6.48]
		Major property loss ⁴²	3.45 [2.28 5.23]
		Escape from tsunami ⁴²	5.65 [3.27 9.74]
		Life threatening war ⁴⁵	1.91 [1.07 3.24]
		Conflict with passengers ⁴⁶	3.21 [1.14 9.03]
		Felt in great danger of being killed ⁴⁸	3.44 [2.50 4.72]
		Exposure to blast ⁵⁰	4.72 [2.9 7.7]
		Cumulative exposure	Encountering explosive devices ⁵⁴
	Prolonged work at the WTC site ²³		2.0 [1.7 2.3]
	Length of deployment ³⁷		0.97 [0.92 1.03]
	≥5 critical cases per call for traumatic surgeons ⁴³		7 [1.1 8]
	≥7 call duties a month for traumatic surgeons ⁴³		3.8 [0.9 7.2]
	≥15 operative cases per month ⁴³		2.8 [0.4 3.2]
	Cumulative years deployed in navy ⁴⁷		2.04 [1.93 2.15]
	Cumulative years deployed in army ⁴⁷		1.74 [1.71 1.76]
	No. of Combat Exposures ⁴⁸		1.62 [1.46 1.79]
	Two combat exposure deployment ⁴⁸		1.37 [1.17 1.61]
	Three combat exposure deployment ⁴⁸		1.30 [0.94 1.82]
	Two deployments ⁴⁸		1.00 [1.00 1.01]
	Three deployments ⁴⁸		1.00 [0.99 1.01]
	One exposure (compared to no exposure) ⁵⁰		4.67 [3.1 7.1]
	Two or more deployments (compared to no exposure) ⁵⁰		6.15 [4.4 8.7]
	Deployment length 1–3 months ⁵³		1.53 [1.37 1.70]
	Deployment length ≥3 months ⁵³		2.64 [2.33 2.99]
	Exposure severity		Low frequency of violence (compared to no violence) ⁵⁵
		Medium frequency of violence (compared to no violence) ⁵⁵	5.9 [1.4 24.2]
High frequency of violence (compared to no violence) ⁵⁵		6.5 [1.6 25.6]	
Combat exposure scale ³³		1.98 [1.50 2.62]	
Severity of battles ⁴⁵		1.01 [0.67 1.35]	
Max. mild violence (compared to no violence) ⁵⁵		3.8 [0.3 46.2]	
Max. threats of violence (compared to no violence) ⁵⁵		5.4 [1.2 24.2]	
Max. moderate violence (compared to no violence) ⁵⁵		2.6 [0.6 10.8]	
Max. severe violence (compared to no violence) ⁵⁵		6.5 [1.6 26.0]	
Witnessing the trauma		Perceived life threat ⁵⁶	1.01 [0.63 1.64]
		Observation of abusive violence ³³	8.36 [4.56 15.35]
		Presence during attack ³⁸	9.3 [6.1 14.2]
	Witnessing of plant explosions ⁴²	2.09 [1.43 3.06]	
	Person under train experience ⁴⁶	1.54 [0.52 4.55]	
	One person under train experiences ⁴⁶	1.77 [0.31 4.47]	
	Two or more person under train experiences ⁴⁶	2.36 [0.57 9.70]	
	Sudden train stop ⁴⁶	3.66 [0.82 16.4]	
Near train accident ⁴⁶	8.81 [1.96 39.3]		

		Damage to train ⁴⁶	1.71 [0.48 6.14]
Colleague exposed		Person under train experience of colleague ⁴⁶	0.55 [0.12 2.47]
Indirect exposure to aversive details		Aftermath of battle ³⁷	1.03 [1.00 1.06]
		Morning of 9/11 (compared to >3 days) ²⁷	4.0 [2.5 6.6]
		Afternoon of 9/11 (compared to >3 days) ²⁷	2.1 [1.3 3.3]
		Day 2 (compared to >3 days) ²⁷	1.4 [0.9 2.4]
		Morning of 9/11 (compared to >3 days) ²³	2.0 [1.3 2.9]
		Afternoon of 9/11 (compared to >3 days) ²³	1.1 [0.8 1.5]
Other exposures	Stress	Exposure to aftermath of battle ⁵⁶	1.81 [1.08 3.06]
		High deployment stress ²¹	3.52 [2.94 4.21]
		Deployment concerns summary score ²⁸	1.01 [0.98 1.04]
		Worried by other issues related to robbery ³⁴	2.64 [0.95 7.36]
		Unit cumulative high deployment stress rate (marine) ⁴⁷	1.04 [1.03 1.05]
	Time since event	Unit cumulative high deployment stress rate (army) ⁴⁷	1.05 [1.04 1.06]
		Months since most recent deployment ²⁸	1.00 [0.98 1.02]
		Time since return from deployment (up to 2 years) ³²	1.18 [0.75 1.86]
		Time since return from deployment (up to 3 years) ³²	1.80 [1.05 3.10]
		Time since return from deployment (up to 4 years) ³²	1.88 [0.98 3.62]
		Time since return from deployment (up to 5 years) ³²	1.53 [0.92 2.55]
		Time since return from deployment (up to 6.5 years) ³²	1.89 [0.99 3.60]
	Other	Dwell to deployment ratio (1:1 versus <1:1) ⁴⁸	0.83 [0.60 1.13]
		Dwell to deployment ratio (2:1 versus <1:1) ⁴⁸	0.47 [0.32 0.70]
		Supervising responsibilities ²³	2.2 [1.7 2.9]
Discrimination/slurs ⁴²		5.72 [3.37 9.71]	
Duties with radiation exposure risk ⁵³		1.08 [0.97 1.20]	

Figure caption

Figure 1. Flow chart depicting the search for literature.

Figure 2. Study findings (i.e., effect sizes) for articles reporting on the association of number of army deployments (depicting the effect of being deployed more than once, as compared to being deployed once; upper panel) and combat exposure (lower panel) with PTSD. Individual study as well as pooled effects are presented. SE = standard error; CI = confidence interval; IV = Inverse variance.

Figure 3. Study findings (i.e., effect sizes) for articles reporting on the association of deployments status (depicting the effect of being deployed, as compared to not being deployed; upper panel) and confrontation with death (lower panel) with PTSD. Individual study as well as pooled effects are presented. SE = standard error; CI = confidence interval; IV = Inverse variance.

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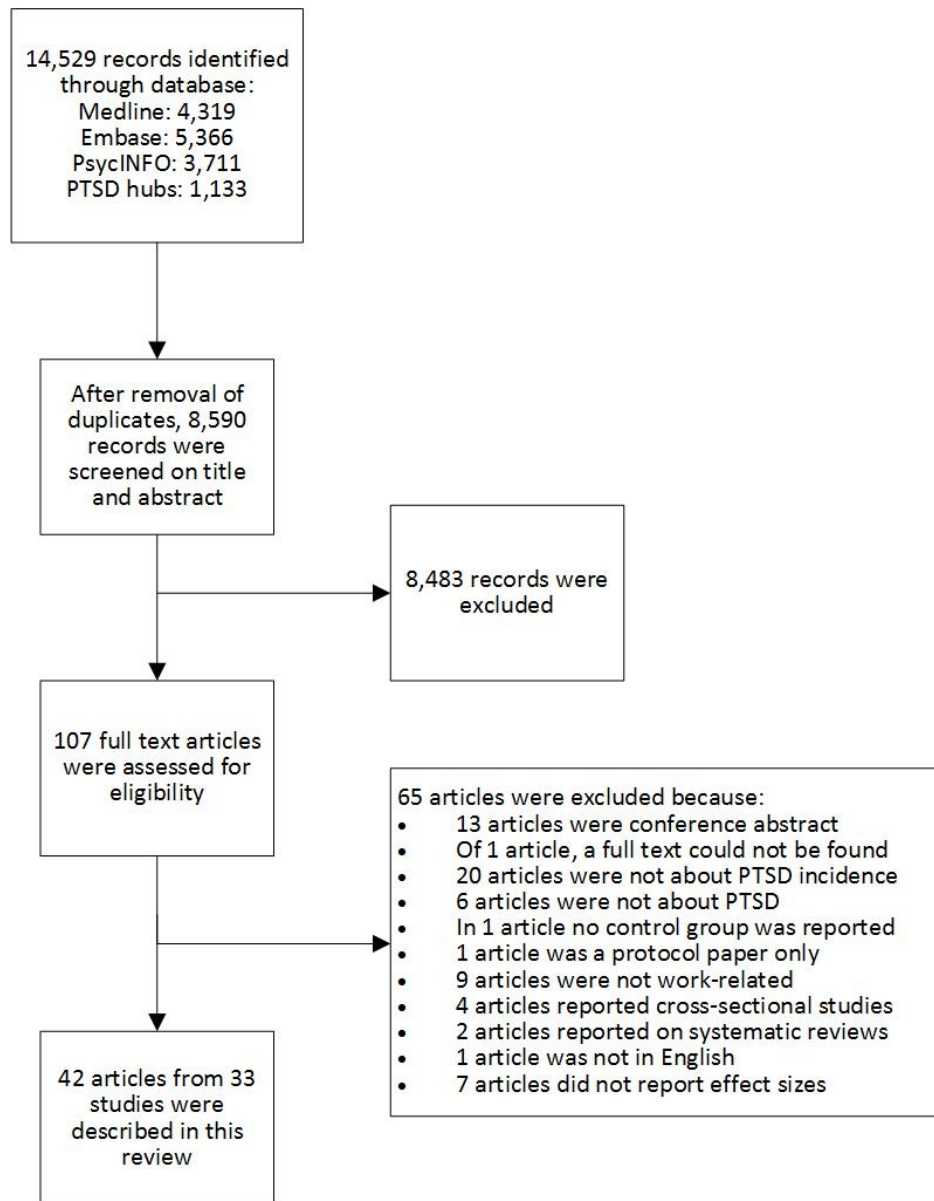
References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 3rd ed. Washington DC, USA1980.
2. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Washington DC, USA2013.
3. Sareen J. Posttraumatic stress disorder in adults: impact, comorbidity, risk factors, and treatment. *Can J Psychiatry* 2014;59(9):460–67.
4. Knowles KA, Sripada RK, Defever M, Rauch SAM. Comorbid mood and anxiety disorders and severity of posttraumatic stress disorder symptoms in treatment-seeking veterans. *Psychol Trauma* 2019;11(4):451-58. doi: 10.1037/tra0000383
5. Debell F, Fear NT, Head M, Batt-Rawden S, Greenberg N, Wessely S, Goodwin L. A systematic review of the comorbidity between PTSD and alcohol misuse. *Soc Psychiatry Psychiatr Epidemiol* 2014;49(9):1401-25. doi: 10.1007/s00127-014-0855-7
6. Pompili M, Sher L, Serafini G, Forte A, Innamorati M, Dominici G, Lester D, Amore M, Girardi P. Posttraumatic stress disorder and suicide risk among veterans: a literature review. *J Nerv Ment Dis* 2013;201(8):802-12. doi: 10.1097/NMD.0b013e3182a21458
7. Skogstad M, Skorstad M, Lie A, Conradi HS, Heir T, Weisæth L. Work-related post-traumatic stress disorder. In-depth review. *Occup Med* 2013;63(3):175-82. doi: 10.1093/occmed/kqt003
8. Utzon-Frank N, Breinegaard N, Bertelsen M, Borritz M, Eller NH, Nordentoft M, Olesen K, Rod NH, Rugulies R, Bonde JP. Occurrence of delayed-onset post-traumatic stress disorder: a systematic review and meta-analysis of prospective studies. *Scand J Work Environ Health* 2014;40(3):215-29.
9. Lee W, Lee YR, Yoon JH, Lee HJ, Kang MY. Occupational post-traumatic stress disorder: an updated systematic review. *BMC Public Health* 2020;20:768. doi: 10.1186/s12889-020-08903-2
10. van der Beek AJ, Dennerlein JT, Huysmans MA, Mathiassen SE, Burdorf A, van Mechelen W, van Dieën JH, Frings-Dresen MH, Holtermann A, Janwantanakul P, van der Molen HF, Rempel D, Straker L, Walker-Bone K, Coenen P. A research framework for the development and implementation of interventions preventing work-related musculoskeletal disorders. *Scand J Work Environ* 2017;43(6):526-39. doi: 10.5271/sjweh.3671
11. van der Molen HF, Foresti C, Daams JG, Frings-Dresen MHW, Kuijer PPFM. Work-related risk factors for specific shoulder disorders: a systematic review and meta-analysis. *Occup Environ Med* 2017;74(10):745–55.
12. Kuijer PPFM, Verbeek JH, Seidler A, Ellegast R, Hulshof CTJ, Frings-Dresen MHW, van der Molen HF. Work-relatedness of lumbosacral radiculopathy syndrome: Review and dose-response meta-analysis *Neurology* 2018;91(12):558–64.
13. Coenen P, Brand T, Sorgdrager B, Daams J, de Groene G, van der Molen HF. What work-related risk factors are associated with post-traumatic stress disorder? *PROSPERO* 2020;CRD42020155434
14. Moher D, Liberati A, Tetzlaff J, Altman DG, Group. P. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ* 2009;21(339):2535. doi: 10.1136/bmj.b2535
15. Hayden JA, van der Windt DA, Cartwright JL, Cote P, Bombardier C. Assessing bias in studies of prognostic factors. *Ann Intern Med* 2013;158(4):280-86.
16. Cochrane Collaboration. Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]. Available from www.cochrane-handbook.org.2011.
17. Poole C. A history of the population attributable fraction and related measures. *Ann Epidemiol* 2015;25(147–154)
18. Huguët A, Hayden JA, Stinson J, McGrath PJ, Chambers CT, Tougas ME, Wozney L. Judging the quality of evidence in reviews of prognostic factor research: adapting the GRADE framework. *Syst Rev* 2013;2:71. doi: 10.1186/2046-4053-2-71
19. Foroutan. F., Guyatt G, Zuk V, Vandvik PO, Carolina Alba AC, Mustafa R, Vernooij R, Arevalo-Rodriguez I, Munn Z, Roshanov P, Riley R, Schandelmaier S, Kuijpers T, Siemieniuk R, Canelo-Aybar C, Schunemann H, Iorio A. GRADE guidelines 28: use of grade for the assessment of evidence about prognostic factors: rating certainty in identification of groups of patients with different absolute risks. *J Clin Epidemiol* 2020;121:62–70.
20. Andersen LP, Hogh A, Elklit A, Andersen JH, Biering K. Work-related threats and violence and post-traumatic symptoms in four high-risk occupations: short- and long-term symptoms. *Int Arch Occup Environ Health* 2019;92(2):195-208. doi: 10.1007/s00420-018-1369-5

21. Anderson L, Campbell-Sills L, Ursano RJ, Kessler RC, Sun X, Heeringa SG, Nock MK, Bliese PD, Gonzalez OI, Wynn GH, Jain S, Stein MB. Prospective associations of perceived unit cohesion with postdeployment mental health outcomes. *Depress Anxiety* 2019;36(6):511-21. doi: 10.1002/da.22884
22. Armed Forces Health Surveillance Center. Associations between repeated deployments to Iraq (OIF/OND) and Afghanistan (OEF) and post-deployment illnesses and injuries, active component, U.S. Armed Forces, 2003-2010. Part II. Mental disorders, by gender, age group, military occupation, and "dwell times" prior to repeat (second through fifth) deployments. *MSMR* 2011;18(9):2-11.
23. Berninger A, Webber MP, Niles JK, Gustave J, Lee R, Cohen HW, Kelly K, Corrigan M, Prezant DJ. Longitudinal study of probable post-traumatic stress disorder in firefighters exposed to the World Trade Center disaster. *Am J Ind Med* 2010;53(12):1177-85. doi: 10.1002/ajim.20894
24. Brownlow JA, Zitnik GA, McLean CP, Gehrman PR. The influence of deployment stress and life stress on Post-Traumatic Stress Disorder (PTSD) diagnosis among military personnel. *J Psychiatr Res* 2018;103:26-32. doi: 10.1016/j.jpsychires.2018.05.005
25. Brundage JF, Taubman SB, Hunt DJ, Clark LL. Whither the "signature wounds of the war" after the war: estimates of incidence rates and proportions of TBI and PTSD diagnoses attributable to background risk, enhanced ascertainment, and active war zone service, active component, U.S. Armed Forces, 2003-2014. *MSMR* 2015;22(2):2-11.
26. Cameron KL, Sturdivant RX, Baker SP. Trends in the incidence of physician-diagnosed posttraumatic stress disorder among active-duty U.S. military personnel between 1999 and 2008. *Mil Med Res* 2019;6(1):8. doi: 10.1186/s40779-019-0198-5
27. Chiu S, Niles JK, Webber MP, Zeig-Owens R, Gustave J, Lee R, Rizzotto L, Kelly KJ, Cohen HW, Prezant DJ. Evaluating risk factors and possible mediation effects in posttraumatic depression and posttraumatic stress disorder comorbidity. *Public Health Rep* 2011;126(2):201-09.
28. Ciarleglio MM, Aslan M, Proctor SP, Concato J, Ko J, Kaiser AP, Vasterling JJ. Associations of stress exposures and social support with long-term mental health outcomes among U.S. Iraq war veterans. *Behav Ther* 2018;49(5):653-67. doi: 10.1016/j.beth.2018.01.002
29. Cone JE, Li J, Kornblith E, Gocheva V, Stellman SD, Shaikh A, Schwarzer R, Bowler RM. Chronic probable PTSD in police responders in the world trade center health registry ten to eleven years after 9/11. *Am J Ind Med* 2015;58(5):483-93. doi: 10.1002/ajim.22446
30. Connorton E, Perry MJ, Hemenway D, Miller M. Occupational trauma and mental illness--combat, peacekeeping, or relief work and the national co-morbidity survey replication. *J Occup Environ Med* 2011;53(12):1360-63. doi: 10.1097/JOM.0b013e318234e2ec
31. Cukor J, Wyka K, Mello B, Olden M, Jayasinghe N, Roberts J, Giosan C, Crane M, Difede J. The longitudinal course of PTSD among disaster workers deployed to the World Trade Center following the attacks of September 11th. *J Trauma Stress* 2011;24(5):506-14. doi: 10.1002/jts.20672
32. Fear NT, Jones M, Murphy D, Hull L, Iversen AC, Coker B, Machell L, Sundin J, Woodhead C, Jones N, Greenberg N, Landau S, Dandeker C, Rona RJ, Hotopf M, Wessely S. What are the consequences of deployment to Iraq and Afghanistan on the mental health of the UK armed forces? A cohort study. *Lancet* 2010;375(9728):1783-97. doi: 10.1016/S0140-6736(10)60672-1
33. Ferrajão PC, Oliveira RA. The effects of combat exposure, abusive violence, and sense of coherence on PTSD and depression in portuguese colonial war veterans. *Psychol Trauma* 2016;8(1):1-8. doi: <http://dx.doi.org/10.1037/tra0000043>
34. Fichera GP, Fattori A, Neri L, Musti M, Coggiola M, Costa G. Post-traumatic stress disorder among bank employee victims of robbery. *Occup Med* 2015;65(4):283-89. doi: 10.1093/occmed/kqu180
35. Fink DS, Cohen GH, Sampson LA, Gifford RK, Fullerton CS, Ursano RJ, Galea S. Incidence of and risk for post-traumatic stress disorder and depression in a representative sample of US Reserve and National Guard. *Ann Epidemiol* 2016;26(3):189-97. doi: 10.1016/j.annepidem.2016.01.003
36. Goodwin L, Jones M, Rona RJ, Sundin J, Wessely S, Fear NT. Prevalence of delayed-onset posttraumatic stress disorder in military personnel: Is there evidence for this disorder? Results of a prospective UK cohort study. *J Nerv Ment Dis* 2012;200(5):429-37. doi: 10.1097/NMD.0b013e31825322fe
37. Green JD, Bovin MJ, Erb SE, Lachowicz M, Gorman KR, Rosen RC, Keane TM, Marx BP. The effect of enemy combat tactics on PTSD prevalence rates: A comparison of operation Iraqi

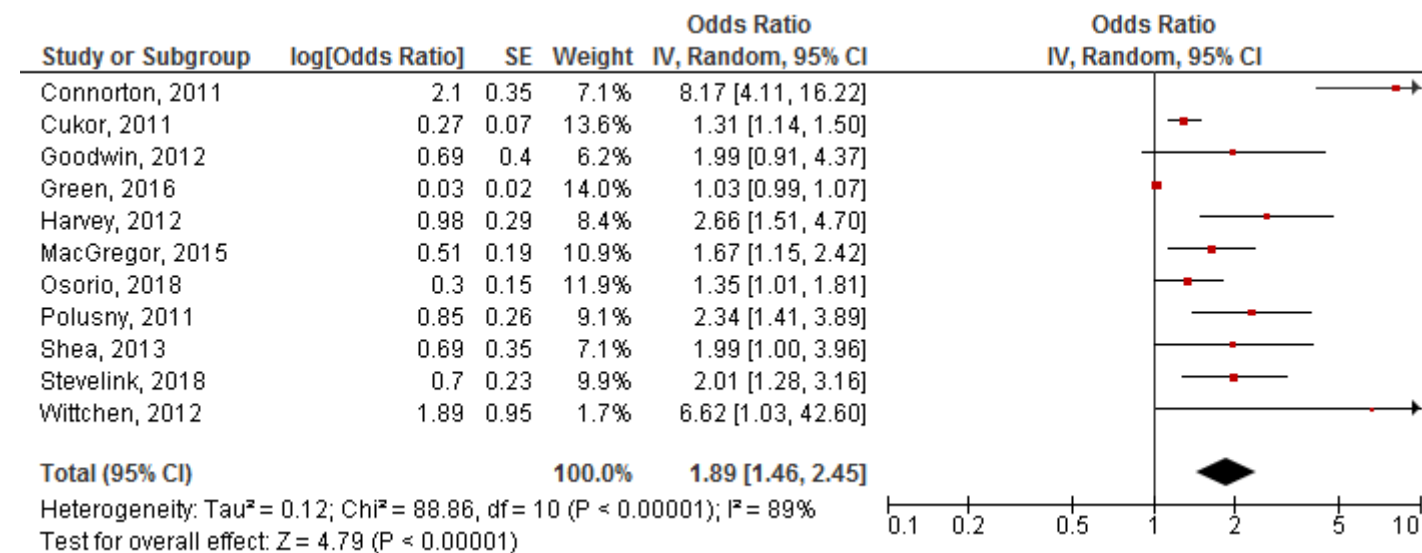
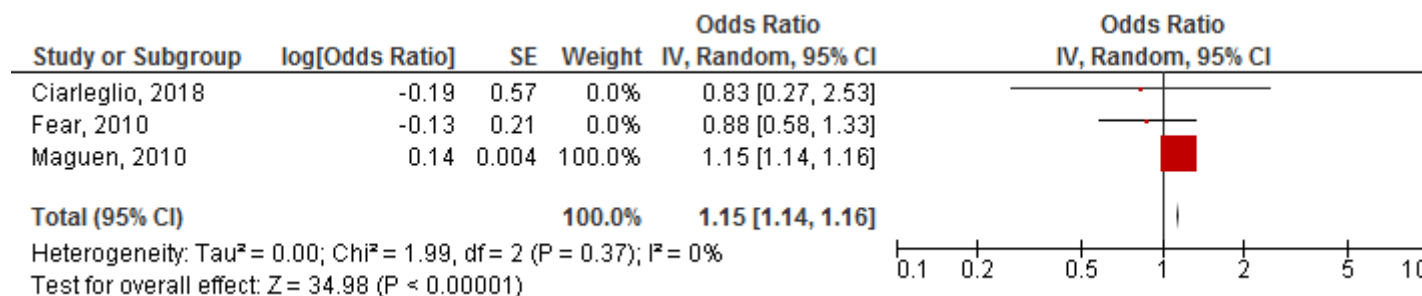
- 1
2
3 freedom deployment phases in a sample of male and female veterans. *Psychol Trauma*
4 2016;8(5):634–40. doi: 10.1037/tra0000086
- 5 38. Hansen MB, Birkeland MS, Nissen A, Blix I, Solberg O, Heir T. Prevalence and course of
6 symptom-defined PTSD in individuals directly or indirectly exposed to terror: A longitudinal
7 study. *Psychiatry* 2017;80(2):171–83. doi: 10.1080/00332747.2016.1230983
- 8 39. Harvey SB, Hatch SL, Jones M, Hull L, Jones N, Greenberg N, Dandeker C, Fear NT, Wessely S.
9 The long-term consequences of military deployment: A 5-year cohort study of United Kingdom
10 reservists deployed to Iraq in 2003. *Am J Epidemiol* 2012;176(12):1177–84. doi:
11 10.1093/aje/kws248
- 12 40. Horesh D, Solomon Z, Zerach G, Ein-Dor T. Delayed-onset PTSD among war veterans: the role of
13 life events throughout the life cycle. *Soc Psychiatry Psychiatr Epidemiol* 2011;46:863–70. doi:
14 10.1007/s00127-010-0255-6
- 15 41. Hourani L, Bender RH, Weimer B, Peeler R, Bradshaw M, Lane M, Larson G. Longitudinal study of
16 resilience and mental health in marines leaving military service. *J Affect Disord* 2012;139 154–
17 65.
- 18 42. Ikeda A, Tanigawa T, Charvat H, Wada H, Shigemura J, Kawachi I. Longitudinal effects of
19 disaster-related experiences on mental health among Fukushima nuclear plant workers: The
20 Fukushima NEWS Project Study. *Psychol Med* 2017;47:1936–46. doi:
21 10.1017/S0033291717000320
- 22 43. Joseph B, Pandit V, Hadeed G, Kulvatunyou N, Zangbar B, Tang A, O'Keeffe T, Wynne J, Green
23 DJ, Friese RS, Rhee R. Unveiling posttraumatic stress disorder in trauma surgeons: A
24 national survey. *J Trauma Acute Care Surg* 2014;77(1):148–54. doi:
25 10.1097/TA.0000000000000271
- 26 44. Karstoft KI, Armour C, Elklit A, Solomon Z. Long-term trajectories of posttraumatic stress disorder
27 in veterans: The role of social resources. *J Clin Psychiatry* 2013;74(12):e1163–e68. doi:
28 10.4088/JCP.13m08428
- 29 45. Karstoft KI, Armour C, Elklit A, Solomon Z. The role of locus of control and coping style in
30 predicting longitudinal PTSD-trajectories after combat exposure. *J Anxiety Disord* 2015;32:89–
31 94.
- 32 46. Kim S, Kim HR, Park JI, Lee HW, Lee J, Byun J, Yim HW. The association between psychiatric
33 disorders and work-related problems among subway drivers in Korea. *Ann Occup Environ*
34 *Med* 2014;26:39.
- 35 47. Levin-Rector A, Hourani LL, van Dorn RA, Bray RB, Stander VA, Cartwright JK, Morgan JK,
36 Trudeau J, Lattimore PK. Predictors of posttraumatic stress disorder, anxiety disorders,
37 depressive disorders, and any mental health condition among U.S. soldiers and marines,
38 2001–2011. *J Trauma Stress* 2018;31:568–78.
- 39 48. MacGregor AJ, Dougherty AL, Mayo JA, Han PP, Galerneau MR. Post-traumatic stress disorder
40 among navy health care personnel following combat deployment. *Mil Med* 2015;180(8):882
- 41 49. MacGregor AJ, Han PP, Dougherty AL, Galerneau MR. Effect of dwell time on the mental health of
42 US military personnel with multiple combat tours. *Am J Public Health* 2012;102:S55–S59. doi:
43 10.2105/AJPH.2011.300341
- 44 50. Maguen S, Madden E, Lau KM, Seal K. The impact of head injury mechanism on mental health
45 symptoms in veterans: Do number and type of exposures matter? *J Trauma Stress*
46 2012;25:3–9.
- 47 51. Maguen S, Ren L, Bosch JO, Marmar CR, Seal KH. Gender differences in mental health
48 diagnoses among Iraq and Afghanistan veterans enrolled in veterans affairs health care. *Am J*
49 *Public Health* 2010;100:2450–56. doi: 10.2105/AJPH.2009.166165
- 50 52. Martindale SL, Rowland JA, Shura RD, Taber KH. Longitudinal changes in neuroimaging and
51 neuropsychiatric status of post-deployment veterans: a CENC pilot study. *Brain Injury*
52 2018;32(10):1208–16. doi: 10.1080/02699052.2018.1492741
- 53 53. Nagamine M, Yamamoto T, Shigemura J, Tanichi M, Yoshino A, Suzuki G, Takahashi Y, Miyazaki
54 M, Uwabe Y, Harada N, Shimizu K. The psychological impact of the great East Japan
55 earthquake on Japan ground self-defense force personnel: A three-wave, one-year
56 longitudinal study. *Psychiatry* 2018;1:1–9. doi:
57 <https://doi.org/10.1080/00332747.2017.1333340>
- 58 54. Osório C, Jones N, Jones E, Robbins I, Wessely S, Greenberg N. Combat experiences and their
59 relationship to post-traumatic stress disorder symptom clusters in UK military personnel
60 deployed to Afghanistan. *Behavioral Medicine* 2017 doi: 10.1080/08964289.2017.1288606

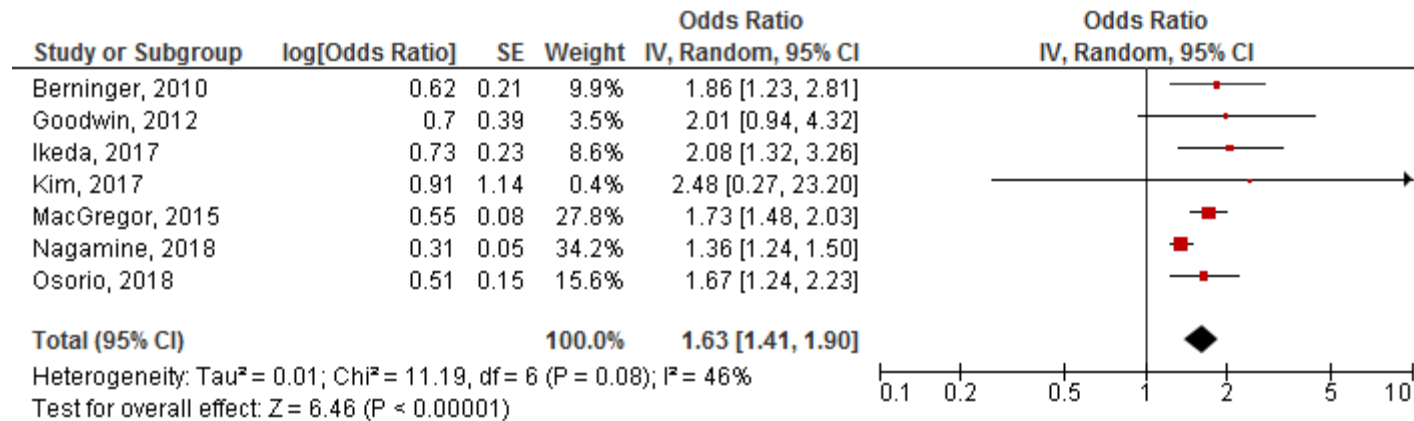
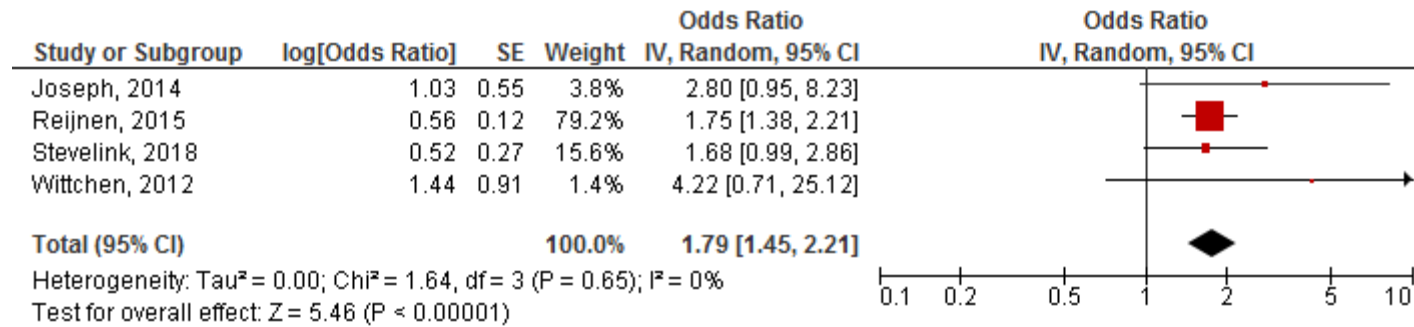
- 1
2
3 55. Pihl-Thingvad J, Andersen AA, Brandt LP, Elklit A. Are frequency and severity of workplace
4 violence etiologic factors of posttraumatic stress disorder? A 1-year prospective study of 1,763
5 social educators. *J Occup Health Psychol* 2019;24(5):543-55. doi: 10.1037/ocp0000148
- 6 56. Polusny MA, Erbes CR, Murdoch M, Arbisi PA, Thuras P, Rath MB. Prospective risk factors for
7 new-onset post-traumatic stress disorder in National Guard soldiers deployed to Iraq. *Psych*
8 *Med* 2011;41:687-98. doi: 10.1017/S0033291710002047
- 9 57. Reijnen A, Rademaker AR, Vermetten E, Geuze E. Prevalence of mental health symptoms in
10 Dutch military personnel returning from deployment to Afghanistan: A 2-year longitudinal
11 analysis. *Eur Psychiat* 2015;30:341-46.
- 12 58. Shea MT, Reddy MK, Tyrka AR, Sevin E. Risk factors for post-deployment post traumatic stress
13 disorder in national guard/reserve service members. *Psychiatry Res* 2013;210:1042-48.
- 14 59. Soo J, Webber MP, Gustave J, Lee R, Hall CB, Cohen HW, Kelly KJ, Prezant DK. Trends in
15 probable PTSD in firefighters exposed to the World Trade Center disaster, 2001-2010.
16 *Disaster Med Public Health Preparedness* 2011;5:S197-S203.
- 17 60. Stevelink SA, Jones M, Hull L, Pernet D, MacCrimmon S, Goodwin L, MacManus D, Murphy D,
18 Jones N, Greenberg N, Rona RJ, Fear NT, Wessely S. Mental health outcomes at the end of
19 the British involvement in the Iraq and Afghanistan conflicts: a cohort study. *Br J Psychiatry*
20 2018;213:690-97. doi: 10.1192/bjp.2018.175
- 21 61. Wittchen HU, Schönfeld S, Kirschbaum C, Thurau C, Trautmann S, Steudte S, Klotsche J, Höfler
22 M, Hauffa R, Zimmermann P. Traumatic experiences and posttraumatic stress disorder in
23 soldiers following deployment abroad: how big is the hidden problem? *Dtsch Arztebl Int*
24 2012;109(35-36):559-68. doi: 10.3238/arztebl.2012.0559
- 25 62. Goldmann E, Calabrese JR, Prescott MR, Tamburrino M, Liberzon I, Slembariski R, Shirley E, Fine
26 T, Goto T, Wilson K, Ganocy S, Chan P, Serrano MB, Sizemore J, Galea S. Potentially
27 modifiable pre-, peri-, and postdeployment characteristics associated with deployment-related
28 posttraumatic stress disorder among ohio army national guard soldiers. *Ann Epidemiol*
29 2012;22(2):71-8. doi: 10.1016/j.annepidem.2011.11.003
- 30 63. Bradford Hill A. The Environment and Disease: Association or Causation? *Proc R Soc Med*
31 1965;58(5):295-300. doi: 10.1177/003591576505800503
- 32 64. Schünemann H, Hill S, Guyatt G, Akl EA, Ahmed F. The GRADE approach and Bradford Hill's
33 criteria for causation. *J Epidemiol Community Health* 2011;65(5):392-95. doi:
34 10.1136/jech.2010.119933
- 35 65. Nievergelt CM, Maihofer AX, Klengel T, Atkinson EG, Chen CY, Choi KW, Coleman JRI, Dalvie S,
36 Duncan LE, Gelernter J, Levey DF, Logue MW, Polimanti R, Provost AC, Ratanatharathorn A,
37 Stein MB, Torres K, Aiello AE, Almlil LM, Amstadter AB, Andersen SB, Andreassen OA, Arbisi
38 PA, Ashley-Koch AE, Austin SB, Avdibegovic E, Babić D, Bækvad-Hansen M, Baker DG,
39 Beckham JC, Bierut LJ, Bisson JI, Boks MP, Bolger EA, Børghlum AD, Bradley B, Brashear M,
40 Breen G, Bryant RA, Bustamante AC, Bybjerg-Grauholm J, Calabrese JR, Caldas-de-Almeida
41 JM, Dale AM, Daly MJ, Daskalakis NP, Deckert J, Delahanty DL, Dennis MF, Disner SG,
42 Domschke K, Dzubur-Kulenovic A, Erbes CR, Evans A, Farrer LA, Feeny NC FJ, Forbes D,
43 Franz CE, Galea S, Garrett ME, Gelaye B, Geuze E, Gillespie C, Uka AG, Gordon SD,
44 Guffanti G, Hammamieh R, Harnal S, Hauser MA, Heath AC, Hemmings SMJ, Hougaard DM
45 JM, Jett M, Johnson EO, Jones I, Jovanovic T, Qin XJ, Junglen AG, Karstoft KI, Kaufman ML,
46 Kessler RC, Khan A, Kimbrel NA, King AP, Koen N, Kranzler HR, Kremen WS, Lawford BR,
47 Lebois LAM, Lewis CE, Linnstaedt SD, Lori A, Lugonja B, Luykx JJ, Lyons MJ, Maples-Keller
48 J, Marmar C, Martin AR, Martin NG, Maurer D, Mavissakalian MR MA, McGlinchey RE,
49 McLaughlin KA, McLean SA, McLeay S, Mehta D, Milberg WP, Miller MW, Morey RA, Morris
50 CP, Mors O, Mortensen PB, Neale BM, Nelson EC, Nordentoft M, Norman SB, O'Donnell M,
51 Orcutt HK, Panizzon MS, Peters ES, Peterson AL, Peverill M, Pietrzak RH, Polusny MA, Rice
52 JP, Ripke S, Risbrough VB, Roberts AL, Rothbaum AO, Rothbaum BO, Roy-Byrne P,
53 Ruggiero K, Rung A, Rutten BPF, Saccone NL, Sanchez SE, Schijven D, Seedat S,
54 Seligowski AV, Seng JS, Sheerin CM, Silove D, Smith AK, Smoller JW, Sponheim SR, Stein
55 DJ, Stevens JS, Sumner JA, Teicher MH, Thompson WK, Trapido E, Uddin M, Ursano RJ,
56 van den Heuvel LL, Van Hooff M, Vermetten E, Vinkers CH, Voisey J, Wang Y, Wang Z,
57 Werge T, Williams MA, Williamson DE, Winternitz S, Wolf C, Wolf EJ, Wolff JD, Yehuda R,
58 Young RM, Young KA, Zhao H, Zoellner LA, Liberzon I, Ressler KJ, Haas M, Koenen KC.
59 International meta-analysis of PTSD genome-wide association studies identifies sex- and
60 ancestry-specific genetic risk loci. 2019;10(1):4558. doi: 10.1038/s41467-019-12576-w



45 Flow chart depicting the search for literature.

46 101x130mm (200 x 200 DPI)





Supplementary file 1.

Ovid MEDLINE(R) ALL <1946 to September 09, 2019>. Search date: 10 September 2019		
#	Search	Results
1	stress disorders, post-traumatic/ or stress disorders, traumatic, acute/	30925
2	(acute stress or (asd and stress) or ptsd or ptss or posttraumatic stress or post traumatic stress or acute stress disorder or posttraumatic symptom? or post traumatic symptom? or traumatic stress).ab,kf,ti,sh.	42697
3	(htsq or trauma screen* or (trauma screen* and stress)).ab,kf,ti. [trauma screening zoals de Harvard Trauma Screening Questionnaire - htsq]	160
4	or/1-3 [ptsd]	51153
5	exp Occupations/ or Workload/ or exp Work/ or Workplace/ or exp Occupational Diseases/ or Rehabilitation, Vocational/ or Occupational Health/ or Sick Leave/ or Absenteeism/ or Retirement/ or workers' compensation/ or exp Employment/ or exp Occupational Exposure/ or Volunteers/	361332
6	(worka* or worke* or workg* or worki* or workl* or workp* or work capacity or work disabilit* or work abilit* or at work or work exposure or work related or workers or job* or employee or staff or personnel or occupation or occupations or occupational or outdoor work* or day shift* or night shift* or shift work* or vocational rehabilitation or sick leave or absenteeism or sickness absen* or absente* or presente* or "return to work" or vocational reintegration or retirement or pension or employment or unemployed or unemployment or work status or industries or industrial sector or volunteer* or voluntary worker* or repetitive work).ab,kf,ti.	2038626
7	exp "personnel, hospital"/ or exp emergency responders/	100417
8	(residents or emergency responder? or first responder? or firefighter? or fire fighter? or Police officer? or emergency medicals or Armed forces or paramedics or veterans or Journalist?).ab,kf,ti.	147998
9	or/5-8 [work]	2360997
10	Epidemiologic studies/	8073
11	exp case control studies/	1016792
12	exp cohort studies/	1894888
13	Case control.tw.	118051
14	(cohort adj (study or studies)).tw.	183886
15	Cohort analy\$.tw.	7241
16	(Follow up adj (study or studies)).tw.	47481
17	(observational adj (study or studies)).tw.	95892
18	Longitudinal.tw.	227916
19	or/10-17 [observationele- en longitudinale studies]	2269321
20	(risk or predict*).mp.	3563653
21	19 or 20	4936872
22	and/4,9,21	6387
23	limit 22 to yr="2010-current"	4319

Ovid Embase Classic+Embase <1947 to 2019 September 09>. Search date: 10 September 2019		
#	Search	Results
1	*posttraumatic stress disorder/ or *acute stress disorder/	30071
2	(acute stress or (asd and stress) or ptsd or ptss or posttraumatic stress or post traumatic stress or acute stress disorder or posttraumatic symptom? or post traumatic symptom? or	56167

	traumatic stress).ab,kw,ti.	
3	(htsq or trauma screen* or (trauma screen* and stress)).ab,kw,ti.	199
4	or/1-3 [ptsd]	60673
5	exp *Occupation/ or exp *occupational health/ or exp *work/ or *Volunteer/ or exp *named groups by occupation/	907358
6	(worka* or worke* or workg* or worki* or workl* or workp* or work capacity or work disabilit* or work abilit* or at work or work exposure or work related or workers or job* or employee or staff or personnel or occupation or occupations or occupational or outdoor work* or day shift* or night shift* or shift work* or vocational rehabilitation or sick leave or absenteeism or sickness absen* or absente* or presente* or "return to work" or vocational reintegration or retirement or pension or employment or unemployed or unemployment or work status or industries or industrial sector or volunteer* or voluntary worker* or repetitive work).ab,kw,ti.	3266921
7	exp *hospital personnel/ or rescue personnel/	46527
8	(residents or emergency responder? or first responder? or firefighter? or fire fighter? or Police officer? or emergency medicals or Armed forces or paramedics or veterans or Journalist?).ab,kw,ti.	195059
9	or/5-8 [work]	3981638
10	*Clinical study/	56379
11	*Case control study/	6905
12	*Family study/	2834
13	*Longitudinal study/	7151
14	*Retrospective study/	19751
15	*Prospective study/	21494
16	Randomized controlled trials/	168154
17	15 not 16	21378
18	*Cohort analysis/	26124
19	(Cohort adj (study or studies)).mp.	275760
20	(Case control adj (study or studies)).tw.	126673
21	(follow up adj (study or studies)).tw.	66352
22	(observational adj (study or studies)).tw.	151582
23	(epidemiologic\$ adj (study or studies)).tw.	106051
24	or/10-15,17-23	799536
25	(risk or predict*).mp.	5152294
26	24 or 25	5545704
27	and/4,9,26	7053
28	limit 27 to yr="2010-current"	5366

	Ovid PsycINFO <1806 to September Week 1 2019>. Search date: 10 September 2019	
#	Search	Results
1	posttraumatic stress disorder/ or acute stress disorder/	31361
2	(acute stress or (asd and stress) or ptsd or ptss or posttraumatic stress or post traumatic stress or acute stress disorder or posttraumatic symptom? or post traumatic symptom? or traumatic stress).ab,id,ti.	49013
3	(htsq or trauma screen* or (trauma screen* and stress)).ab,id,ti,tm.	292
4	or/1-3 [ptsd]	50242

5	exp occupations/ or exp occupational health/ or occupational status/	59891
6	(worka* or worke* or workg* or worki* or workl* or workp* or work capacity or work disabilit* or work abilit* or at work or work exposure or work related or workers or job* or employee or staff or personnel or occupation or occupations or occupational or outdoor work* or day shift* or night shift* or shift work* or vocational rehabilitation or sick leave or absenteeism or sickness absen* or absente* or presente* or "return to work" or vocational reintegration or retirement or pension or employment or unemployed or unemployment or work status or industries or industrial sector or volunteer* or voluntary worker* or repetitive work).ab,id,ti.	866191
7	exp medical personnel/ or exp emergency personnel/	89105
8	(residents or emergency responder? or first responder? or firefighter? or fire fighter? or Police officer? or emergency medicals or Armed forces or paramedics or veterans or Journalist?).ab,id,ti.	68300
9	or/5-8 [work]	972972
10	(Clinical stud* or Case control stud* or Longitudinal stud* or Retrospective stud* or (Prospective stud* not (Randomized controlled trials or rct)) or Cohort analysis or (Cohort adj (study or studies)) or (Case control adj (study or studies)) or (follow up adj (study or studies)) or (observational adj (study or studies)) or (epidemiologic\$ adj (study or studies))).ab,id,ti.	136663
11	(risk or predict*).mp.	730689
12	10 or 11	808563
13	and/4,9,12	5417
14	limit 13 to yr="2010-current"	3711

ProQuest PTSDhubs. Search date: 10 September 2019		
#	Search	Results
1	(su((worka* OR worke* OR workg* OR worki* OR workl* OR workp* OR work capacity OR work disabilit* OR work abilit* OR at work OR work exposure OR work related OR workers OR job* OR employee OR staff OR personnel OR occupation OR occupations OR occupational OR outdoor work* OR day shift* OR night shift* OR shift work* OR vocational rehabilitation OR sick leave OR absenteeism OR sickness absen* OR absente* OR presente* OR "return to work" OR vocational reintegration OR retirement OR pension OR employment OR unemployed OR unemployment OR work status OR industries OR industrial sector OR volunteer* OR voluntary worker* OR repetitive work)) OR su((residents OR emergency responder? OR first responder? OR firefighter? OR fire fighter? OR Police officer? OR emergency medicals OR Armed forces OR paramedics OR veterans OR Journalist?))) AND (su(risk OR predict*) OR su((Clinical stud* OR Case control stud* OR Longitudinal stud* OR Retrospective stud* OR (Prospective stud* NOT (Randomized controlled trials OR rct)) OR Cohort analysis OR Cohort stud* OR Case control stud* OR follow up stud* OR observational stud* OR epidemiologic stud*)))	1849
2	Limit 1 to publication date = 2010-01-01 / 2019-09-10	1133

Supplementary file 2. Excluded articles

Article	Reason for exclusion	No papers
1. Amiri T. Occupational posttraumatic stress disorder: Latent structure and risk pathways. 2019, Dissertation Abstracts International, 80(4).	Conference abstract	1
2. Chin WS, Shiao JSC, Liao SC, Kuo CY, Chen CC, Guo YL. Psychiatric diseases at six years after occupational injuries. 2016. Occupational and Environmental Medicine, 73: A175.	Conference abstract	2
3. Connorton E, Miller M, Perry MJ, Hemenway D. Mental health and combat, peacekeeping, or relief work: Results from the National Comorbidity Survey Replication. 2011. Comprehensive Psychiatry, 52: E4.	Conference abstract	3
4. Geronazzo AL, Shen S, Duarte CS, Wu P, Lord E, Amsel L, Musa GJ, Wicks J, Yip J, Fan B, Guffanti G, Hoven CW. Cumulative exposure to work-related incidents and current posttraumatic stress disorder in new york city's first responders. 2013. European Psychiatry Conference.	Conference abstract	4
5. Goldmann E, Tamburrino M, Liberzon I, Slembariski R, Prescott MR, Calabrese J Galea S. Pre-, peri-, and post-deployment characteristics and risk of posttraumatic stress disorder among ohio national guard soldiers. 2010. American Journal of Epidemiology, 11: S90.	Conference abstract	5
6. Goodwin L, Jones M, Sundin J, Wessely S, Rona RJ, Fear NT. Prevalence and predictors of delayed onset PTSD in military personnel: Is there evidence for this disorder? Results of a prospective UK cohort study. 2011. Occupational and Environmental Medicine,1351-0711,1,A100.	Conference abstract	6
7. Herrell R, Wilk J, Bliese P, Hoge C. Combat intensity, psychopathology, and suicidal ideation in a population of soldiers after deployment to Iraq. 2011. Comprehensive Psychiatry, 52: E8.	Conference abstract	7
8. Herrell RK, Bliese PA, Hoge CW. Effect of combat intensity, depression, alcohol misuse, and family history of depression and alcohol misuse on PTSD in a sample of post-deployment US Soldiers. 2013. Comprehensive Psychiatry, 54: E4-E5.	Conference abstract	8
9. Herrell RK, Bliese PB, Hoge CW. Number of deployments and total months of deployment as predictors of post-traumatic stress disorder in active duty soldiers. 2011. American Journal of Epidemiology, 11: S289.	Conference abstract	9
10. Horesh D, Solomon Z, Ein-Dor T. Delayed-onset PTSD following combat: The role of social resources. 2013. Comprehensive Psychiatry, 54: e24.	Conference abstract	10
11. Kim AR, Sung JH, Cho SW, Jeong KS, Ahn YS. The relationship between the post-traumatic stress syndrome and the occupational stress among the firefighters in Korea. 2018. Occupational and Environmental Medicine, 75: A380.	Conference abstract	11
12. Pierce MD, Wood MD, Reddy M, Sevin E, Shea MT. A prospective examination of posttraumatic stress and alcohol use disorders among returning veterans. 2012. Alcoholism: Clinical and Experimental Research, 1: 303A.	Conference abstract	12
13. Subramaney U. Personality, trauma exposure, PTSD and depression in a cohort of SA metro policemen: A longitudinal study. 2010. South African Journal of Psychiatry, 16: 97-98.	Conference abstract	13
14. Huang, D, Wang X, Kung WW. The impact of job loss on posttraumatic stress disorder among Asian Americans: 11-12 years after the World Trade Center attack. 2019. Traumatology,1085-9373.	Full text could not be found	1
15. Andersen SB, Karstoft KI, Bertelsen M, Madsen T. Latent trajectories of trauma symptoms and resilience: the 3-year longitudinal prospective USPER study of Danish veterans deployed in Afghanistan. 2014. Journal of Clinical Psychiatry, 75(9): 1001-1008.	No PTSD incidence	1
16. Armstrong D, Shakespeare-Finch J, Shochet I. Predicting post-traumatic growth and post-traumatic stress in firefighters. 2014. Australian Journal of Psychology, 66(1): 38-46.	No PTSD incidence	2
17. Boasso AM, Steenkamp MM, Nash, WP, Larson JL, Litz BT. The relationship between course of PTSD symptoms in deployed U.S. Marines and degree of combat exposure. 2015. Journal of Traumatic Stress, 28(1): 73-78.	No PTSD incidence	3
18. Bowler RM, Harris M, Li J, Gocheva V, Stellman SD, Wilson K, Alper H, Schwarzer R,	No PTSD	4

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	Cone JE. Longitudinal mental health impact among police responders to the 9/11 terrorist attack. 2012. <i>American Journal of Industrial Medicine</i> , 55(4): 297-312.	incidence	
19.	Chin WD, Shiao JS, Liao SC, Kuo CY, Chen CC, Guo YL. Depressive, anxiety and post-traumatic stress disorders at six years after occupational injuries. 2017. <i>European Archives of Psychiatry & Clinical Neuroscience</i> , 267(6): 507-516.	No PTSD incidence	5
20.	Eriksson CB, Lopes Cardozo B, Foy DW, Sabin M, Ager A, Snider L, Scholte WF, Kaiser R, Olf M, Rijnen B, Crawford CG, Zhu J, Simon W. Predeployment mental health and trauma exposure of expatriate humanitarian aid workers: Risk and resilience factors. 2013. <i>Traumatology</i> , 19(1): 41-48.	No PTSD incidence	6
21.	Garcia FE, Vazquez C, Inostroza C. Predictors of post-traumatic stress symptoms following occupational accidents: A longitudinal study. 2019. <i>Anxiety, Stress, & Coping</i> , 32(2): 168-178.	No PTSD incidence	7
22.	Hartley TA, Violanti JM, Sarkisian K, Andrew ME, Burchfiel CM. PTSD symptoms among police officers: associations with frequency, recency, and types of traumatic events. 2013. <i>International Journal of Emergency Mental Health</i> , 15(4): 241-253.	No PTSD incidence	8
23.	Huang H, Kashubeck-West S. Exposure, agency, perceived threat, and guilt as predictors of posttraumatic stress disorder in veterans. 2015. <i>Journal of Counseling & Development</i> , 93(1): 3-13.	No PTSD incidence	9
24.	Jaegers LA, Matthieu MM, Vaughn MG, Werth P, Katz IM, Ahmad SO. Posttraumatic Stress Disorder and Job Burnout Among Jail Officers. 2019. <i>Journal of Occupational & Environmental Medicine</i> , 61(6): 505-510.	No PTSD incidence	10
25.	Mac Donald CL, Johnson AM, Wierzechowski L, Kassner E, Stewart T, Nelson EC, Werner NJ, Zonies D, Oh J, Fang R, Brody DL. Prospectively assessed clinical outcomes in concussive blast vs nonblast traumatic brain injury among evacuated US military personnel. 2014. <i>JAMA Neurology</i> , 71(8): 994-1002.	No PTSD incidence	11
26.	Magruder KM, Goldberg J, Forsberg CW, Friedman MJ, Litz BT, Vaccarino V, Heagerty PJ, Gleason TC, Huang GD, Smith NL. Long-Term Trajectories of PTSD in Vietnam-Era Veterans: The Course and Consequences of PTSD in Twins. 2016. <i>Journal of Traumatic Stress</i> , 29(1): 5-16.	No PTSD incidence	12
27.	Marchand A, Nadeau C, Beaulieu-Prevost D, Boyer R, Martin M. Predictors of posttraumatic stress disorder among police officers: A prospective study. 2015. <i>Psychological Trauma: Theory, Research, Practice and Policy</i> , 7(3): 212-221.	No PTSD incidence	13
28.	Nash WP, Boasso AM, Steenkamp MM, Larson JL, Lubin RE, Litz BT. Posttraumatic stress in deployed marines: Prospective trajectories of early adaptation. 2015. <i>Journal of Abnormal Psychology</i> , 124(1): 155-171.	No PTSD incidence	14
29.	Polusny MA, Kumpula MJ, Meis LA, Erbes CR, Arbisi PA, Murdoch M, Thuras P, Kehle-Forbes SM, Johnson AK. Gender differences in the effects of deployment-related stressors and pre-deployment risk factors on the development of PTSD symptoms in National Guard Soldiers deployed to Iraq and Afghanistan. 2014. <i>Journal of Psychiatric Research</i> , 49(1): 1-9.	No PTSD incidence	15
30.	Rona RJ, Jones M, Sundin J, Goodwin L, Hull L, Wessely S, Fear NT. Predicting persistent posttraumatic stress disorder (PTSD) in UK military personnel who served in Iraq: a longitudinal study. 2012. <i>Journal of Psychiatric Research</i> , 46(9): 1191-1198.	No PTSD incidence	16
31.	Ryan-Gonzalez C, Kimbrel N, Meyer EC, Gordon EM, DeBeer BB, Gulliver SB, Elliott TR, Mosissette S. Differences in PTSD symptoms among post-9/11 veterans with blast- and non-blast mild TBI. 2019. <i>Journal of Neurotrauma</i> , 0897-7151.	No PTSD incidence	17
32.	Steenkamp MM, Schlenger WE, Corry N, Henn-Haase C, Qian M, Li M, Horesh D, Karstoft KI, Williams C, Ho CL, Shalev A, Kulka R, Marmar C. Predictors of PTSD 40 years after combat: Findings from the National Vietnam Veterans longitudinal study. 2017. <i>Depression & Anxiety</i> , 34(8): 711-722.	No PTSD incidence	18
33.	Wolf E, Mitchell K, Koenen K, Miller M. Combat exposure severity as a moderator of genetic and environmental liability to post-traumatic stress disorder. 2014. <i>Psychological Medicine</i> , 44(7): 1499-1509.	No PTSD incidence	19
34.	Yuan C, Wang Z, Inslicht SS, McCaslin SE, Metzler TJ, Henn-Haase C, Apfel BA, Tong H, Neylan TC, Fang Y, Marmar CR. Protective factors for posttraumatic stress disorder symptoms in a prospective study of police officers. 2011. <i>Psychiatry Research</i> , 188(1): 45-50.	No PTSD incidence	20

35.	Amster ED, Fertig SS, Green M, Carel R. Occupational exposures and psychological symptoms among fire fighters and police during a major wildfire: The carmel cohort study. 2018. <i>Occupational and Environmental Medicine</i> , 75: A590-A591	Not about PTSD	1
36.	Cavanaugh CE, Campbell JC, Messing JT. A longitudinal study of the impact of cumulative violence victimization on comorbid posttraumatic stress and depression among female nurses and nursing personnel. 2014. <i>Workplace Health and Safety</i> , 62 (6): 224-232.	Not about PTSD	2
37.	Han M, Park S, Park JH, Hwang SS, Kim I. Do police officers and firefighters have a higher risk of disease than other public officers? A 13-year nationwide cohort study in South Korea. 2018, <i>BMJ Open</i> ; 8(1):e019987.	Not about PTSD	3
38.	Jacobson IG, Horton JL, Leardmann CA, Ryan MA, Boyko EJ, Wells TS, Smith B, Smith TC. Posttraumatic stress disorder and depression among U.S. military health care professionals deployed in support of operations in Iraq and Afghanistan. 2012, <i>J Trauma Stress</i> ;25(6):616-23.	Not about PTSD	4
39.	Tvaryanas AP, Maupin GM. Risk of incident mental health conditions among critical care air transport team members. 2014. <i>Aviation Space & Environmental Medicine</i> , 85(1): 30-38.	Not about PTSD	5
40.	Vasterling JJ, Brailey K, Proctor SP, Kane RL, Heeren T, Franz, Molly R. Neuropsychological outcomes of mild traumatic brain injury, post-traumatic stress disorder and depression in Iraq-deployed US Army soldiers. 2012. <i>British Journal of Psychiatry</i> , 201(3): 186-192.	Not about PTSD	6
41.	Bandelow BB, Koch M, Zimmermann P, Biesold KH, Wedekind D, Falkai P. Posttraumatic stress disorder (PTSD) in the German Armed Forces: a retrospective study in inpatients of a German army hospital. 2012. <i>European Archives of Psychiatry & Clinical Neuroscience</i> , 262(6): 459-467.	No control group	1
42.	Aslan M, Concato J, Peduzzi PN, Proctor SP, Schnurr PP, Marx BP, McFall ME, Gleason TC, Huang GD, Vasterling JJ. Design of 'Neuropsychological and mental health outcomes of Operation Iraqi Freedom: a longitudinal cohort study'. 2013. <i>Journal of Investigative Medicine</i> , 61(3):569-577.	Protocol paper only	1
43.	Dinenberg RE, McCaslin SE, Bates MN, Cohen BE. Social support may protect against development of posttraumatic stress disorder: findings from the Heart and Soul Study. 2014. <i>American Journal of Health Promotion</i> , 28(5): 294-297.	Not work-related	1
44.	Erbes CR, Polusny MA, Arbisi PA, Koffel E. PTSD symptoms in a cohort of National Guard soldiers deployed to Iraq: Evidence for nonspecific and specific components. 2012. <i>Journal of Affective Disorders</i> , 142(1): 269-274.	Not work-related	2
45.	Eskridge SL, Macera CA, Galarneau MR, Holbrook TL, Woodruff SI, MacGregor AJ, Morton DJ, Shaffer RA. Influence of combat blast-related mild traumatic brain injury acute symptoms on mental health and service discharge outcomes. 2013. <i>Journal of Neurotrauma</i> , 30(16): 1391-1397.	Not work-related	3
46.	Eskridge SL, Macera CA, Galarneau MR, Holbrook, TL, Woodruff SI, Macgregor AJ, Morton DJ, Shaffer RA. Combat blast injuries: Injury severity and posttraumatic stress disorder interaction on career outcomes in male servicemembers. 2013. <i>Journal of Rehabilitation Research and Development</i> , 50(1): 7-16.	Not work-related	4
47.	Fink DS, Gradus JL, Keyes KM, Calabrese JR, Liberzon I, Tamburrino MB, Cohen GH, Sampson L, Galea S. Subthreshold PTSD and PTSD in a prospective-longitudinal cohort of military personnel: Potential targets for preventive interventions. 2018. <i>Depression & Anxiety</i> , 35(11): 1048-1055.	Not work-related	5
48.	Fitch TJ, Yu X, Chien LC, Karim MM, Alamgir H. Traumatic life events and development of post-traumatic stress disorder among female factory workers in a developing country. 2018. <i>International Journal of Social Psychiatry</i> , 64(4): 351-358.	Not work-related	6
49.	Gilbertson MW, McFarlane AC, Weathers FW, Keane TM, Yehuda R, Shalev AY, Lasko NB, Goetz JM, Pitman RK, Harvard VA. Is trauma a causal agent of psychopathologic symptoms in posttraumatic stress disorder? Findings from identical twins discordant for combat exposure. 2010. <i>Journal of Clinical Psychiatry</i> , 71(10): 1324-1330.	Not work-related	7
50.	Horesh D, Solomon Z, Keinan G, Ein-Dor T. The clinical picture of late-onset PTSD: a 20-year longitudinal study of Israeli war veterans. 2013. <i>Psychiatry Research</i> , 208(3): 265-273.	Not work-related	8

51.	Goldmann E, Calabrese JR, Prescott MR, Tamburrino M, Liberzon I, Slembariski R, Shirley E, Fine T, Goto T, Wilson K, Ganocy S, Chan P, Serrano MB, Sizemore J, Galea S. Potentially modifiable pre-, peri-, and postdeployment characteristics associated with deployment-related posttraumatic stress disorder among ohio army national guard soldiers. <i>Ann Epidemiol.</i> 2012;22(2): 71-78.	No work-related exposure	1
52.	Banducci AN, McCaughey VK, Gradus JL, Street AE. The associations between deployment experiences, PTSD, and alcohol use among male and female veterans. 2019. <i>Addictive Behaviors</i> , 98: 106032,	Cross-sectional	1
53.	Huang, J. and Liu, Q. and Li, J. and Li, X. and You, J. and Zhang, L. and Tian, C. and Luan, R. Post-traumatic stress disorder status in a rescue group after the Wenchuan earthquake relief. 2013. <i>Neural Regeneration Research</i> , 8(20): 1898-1906.	Cross-sectional	2
54.	Jones M, Sundin J, Goodwin G, Hull L, Fear NT, Wessely S, Rona RJ. 2013. What Explains Post-Traumatic Stress Disorder (PTSD) in UK Service Personnel: Deployment or Something Else? <i>Psychological Medicine</i> , 43(8):1703-12.	Cross-sectional	3
55.	Rybojad B, Aftyka A, Baran M, Rzonca P. Risk Factors for Posttraumatic Stress Disorder in Polish Paramedics: A Pilot Study. 2016. <i>Journal of Emergency Medicine</i> , 50(2): 270-276.	Cross-sectional	4
56.	Liu B, Tarigan LH, Bromet EJ, Kim H. World Trade Center disaster exposure-related probable posttraumatic stress disorder among responders and civilians: a meta-analysis. 2014. <i>PLoS ONE</i> , 9(7): e101491.	Systematic review	1
57.	Schutte N, Bar O, Weiss U, Heuft G. Prediction of PTSD in police officers after six months--a prospective study. 2012. <i>Spanish Journal of Psychology</i> , 15(3): 1339-1348.	Systematic review	2
58.	Milosavljevic M, Drakulic B, Crnobaric C, Perunicic I, Tosevski DL. Risk factor assessment for posttraumatic stress disorder in war veterans in former Yugoslavia. 2011. <i>Psihijatrija Danas</i> , 43(2): 141-153.	Not in English	1
59.	Giupponi G, Thoma H, Lamis D, Forte A, Pompili M, Kapfhammer HP. Posttraumatic stress reactions of underground drivers after suicides by jumping to arriving trains; feasibility of an early stepped care outpatient intervention. <i>J Trauma Dissociation</i> . 2019; 20(5):495-510.	No effect sizes	1
60.	Osofsky HJ, Osofsky JD, Arey J, Kronenberg ME, Hansel TC, Many MM. Hurricane Katrina's first responders: the struggle to protect and serve in the aftermath of the disaster. 2011. <i>Disaster Medicine and Public Health Preparedness</i> , 5: S214-S219.	No effect sizes	2
61.	Rosenblatt AS, Li R, Fortier C, Liu X, Fonda JR, Villalon A, McGlinchey RE, Jorge RE. Latent factor structure of PTSD symptoms in veterans with a history of mild traumatic brain injury and close-range blast exposure. 2018. <i>Psychological Trauma: Theory, Research, Practice, and Policy</i> , 442-450.	No effect sizes	3
62.	Sheffler JL, Rushing NC, Stanley IH, Sachs-Ericsson NJ. The long-term impact of combat exposure on health, interpersonal, and economic domains of functioning. 2016. <i>Aging and Mental Health</i> , 20(11): 1202-1212.	No effect sizes	4
63.	Solberg O, Birkeland MS, Blix I, Hansen MB, Heir T. Towards an exposure-dependent model of post-traumatic stress: longitudinal course of post-traumatic stress symptomatology and functional impairment after the 2011 Oslo bombing. 2016. <i>Psychological Medicine</i> , 46(15): 3241-3254.	No effect sizes	5
64.	Taymur I, Sargin AE, Ozdel K, Turkcapar HM, Calisgan L, Zamki E, Demirel B. Possible Risk Factors for Acute Stress Disorder and Post-Traumatic Stress Disorder After an Industrial Explosion. 2014. <i>Noropsikiyatri Arsivi</i> , 51(1): 23-29.	No effect sizes	6
65.	Wisnivesky JP, Teitelbaum S, Todd AC, Boffetta P, Crane M, Crowley L, De la Hoz RE, Dellenbaugh C, Harrison DJ, Herbert R, Kim H, Jeon Y, Kaplan J, Katz CL, Levin SM, Luft BJ, Markowitz S, Moline JM, Ozbay F, Pietrzak RH, Shapiro M, Sharma V, Skloot G, Southwick SM, Stevenson LA, Udasin IG, Wallenstein S, Landrigan PJ. Persistence of multiple illnesses in World Trade Center rescue and recovery workers: a cohort study. 2011. <i>Lancet</i> , 378(9794): 888-897.	No effect sizes	7

Supplementary file 3. Data extraction of included studies.

First author, Year;	Study (name, design and follow-up period)	Sample description (n, Country, Type of job/company, relevant inclusion/exclusion criteria, %Female, Age)	Description of exposure assessment (way and year of baseline exposure assessment and description of categories)	Description of outcome (type of symptoms, way of assessment, and incidence over the follow-up period)	Adjustment	Effect estimates (e.g., HR, RR or OR with 95% confidence interval). Super scripts refer to the models specified in the 'adjustment' column
1. Armed Forces Health Surveillance Center, 2011 ²¹	<p><u>Name:</u> Armed forces health surveillance</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 12 months post deployment</p>	<p><u>n</u>=1,344,668</p> <p><u>Country</u>=USA</p> <p><u>%Female</u>= 11%</p> <p><u>Age</u>= The majority was <25, with lower numbers of participants in the 25-29 and 30+ categories.</p> <p><u>Type of job/company</u>= Active components of the forces (on Afghanistan and Iran missions).</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> between Oct 2001 and Dec 2010</p> <p><u>Exposure categories:</u> % PTSD diagnosis were compared between deployment number, gender, age group, military occupation (combat, health care and other) and 'dwelling time' between employments.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Mental disorders assessed with ICD-9-CM (309.81), reported in military or civilian hospitals</p> <p><u>Incidence:</u> -</p>	No	<p>PTSD incidence was in general higher after the second, third and fourth deployment, compared to the first and fifth.</p> <p>PTSD incidence was in general higher among males, those in lowest age group, health care workers and those with longer dwelling time between the deployments.</p> <p>No effect estimates were reported (only incidences).</p>
2. Andersen, 2019 ¹⁹	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal (with cross-sectional and longitudinal analyses)</p> <p><u>Follow-up period:</u> 4 years</p>	<p><u>n</u>= 2,678</p> <p><u>Country</u>= Denmark</p> <p><u>%Female</u>= 66%</p> <p><u>Age</u>= 45.1(10.1) years</p> <p><u>Type of job/company</u>= Employees working in psychiatric wards, in the</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2011</p> <p><u>Exposure categories:</u> Work-related violence and threats on a 5 point likert scale with 0=never to 4=almost daily, with</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Self-reported with the Impact of Event Scale-Revised</p> <p><u>Incidence:</u> 14% (2 incidences)</p>	Unadjusted (model 1), adjusted for gender, age, bullying, sexual harassment, conflicts at work, negative acts, private traumas and sector (model 2), additionally adjusted for	<p>Work-related threats</p> <p>All four sectors</p> <p>PTSD at 2011</p> <p>OR: 1.11 [1.07 1.14]¹</p> <p>OR: 1.10 [1.05 1.15]²</p> <p>PTSD at 2015</p> <p>OR: 1.10 [1.07 1.13]¹</p> <p>OR: 1.11 [1.07 1.15]²</p> <p>OR: 1.10 [1.04 1.15]³</p> <p>Elder care</p>

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		elder sector, at special schools and in the prison and probation service. <u>Inclusion/exclusion</u> =-	summary scores 0-24 and 0-44, respectively.		baseline PTSD (model 3)	PTSD at 2011 OR: 0.99 [0.88 1.23] ¹ OR: 0.98 [0.82 1.18] ² PTSD at 2015 OR: 1.12 [1.00 1.25] ¹ OR: 1.12 [0.94 1.33] ² OR: 1.22 [0.95 1.56] ³ Prison and probation service PTSD at 2011 OR: 1.21 [1.14 1.28] ¹ OR: 1.18 [1.08 1.27] ² PTSD at 2015 OR: 1.73 [1.20 1.35] ¹ OR: 1.25 [1.17 1.34] ² OR: 1.22 [1.13 1.31] ³ Psychiatry PTSD at 2011 OR: 1.14 [1.06 1.12] ¹ OR: 1.19 [1.09 1.32] ² PTSD at 2015 OR: 1.06 [0.99 1.13] ¹ OR: 1.06 [0.97 1.17] ² OR: 0.94 [0.83 1.07] ³ Special schools PTSD at 2011 OR: 1.01 [0.93 1.09] ¹ OR: 0.95 [0.85 1.05] ² PTSD at 2015 OR: 1.08 [1.01 1.15] ¹ OR: 1.06 [0.98 1.14] ² OR: 1.07 [0.95 1.12] ³ PTSD at 2011 Males
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						<p>OR: 1.19 [1.12 1.26]² Females OR: 1.04 [0.99 1.09]² PTSD at 2015 Males OR: 1.18 [1.09 1.26]³ Females OR: 1.02 [0.96 1.09]³</p> <p>Work-related violence All four sectors PTSD at 2011 OR: 1.05 [1.03 1.08]¹ OR: 1.05 [1.01 1.08]² PTSD at 2015 OR: 1.02 [0.98 1.04]¹ OR: 1.03 [1.00 1.06]² OR: 1.02 [0.98 1.06]³</p> <p>Elder care PTSD at 2011 OR: 1.04 [0.95 1.12]¹ OR: 1.03 [0.94 1.13]² PTSD at 2015 OR: 1.07 [0.97 1.15]¹ OR: 1.03 [0.93 1.14]² OR: 1.02 [0.90 1.16]³</p> <p>Prison and probation service PTSD at 2011 OR: 1.29 [1.15 1.49]¹ OR: 1.26 [1.09 1.46]² PTSD at 2015 OR: 1.50 [1.31 1.73]¹ OR: 1.42 [1.22 1.65]² OR: 1.36 [1.36 1.60]³</p>
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3. Anderson, 2019 ²⁰	<u>Name:</u> Army STARRS study <u>Design:</u> Prospective longitudinal (with baseline measurements 1-2 months before	<u>n</u> =4,645 <u>Country</u> =USA <u>%Female</u> =5% <u>Age</u> =26.9(0.2) years <u>Type of job/company</u> =	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 2012 <u>Exposure categories:</u> Unit cohesion, stressful employment	<u>Type of symptoms:</u> PTSD (30 days) <u>Way of assessment:</u> Composite International Diagnostic Interview screening scales (CIDI-SC) and a six-item	Models were adjusted for all other exposures (model 1) and for lifetime PTSD at baseline (model 2).	<u>Age</u> OR: 1.00 [0.99 1.02] ¹ OR: 1.00 [0.99 1.02] ² <u>Sex</u> <u>Female</u> OR: Ref OR: Ref <u>Male</u>

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	<p>the deployment) <u>Follow-up period:</u> 9 months post-employment</p>	<p>Soldiers from three combat teams employed in Afghanistan <u>Inclusion/exclusion= -</u></p>	<p>characteristics and sociodemographic were assessed</p>	<p>screening version of the PTSD Checklist (PCL) to assess lifetime DSM-4 mental disorders <u>Incidence:</u> 11.9% (lifetime)</p>	<p>OR: 0.73 [0.46 1.14]¹ OR: 0.88 [0.51 1.51]²</p> <p>Race <u>White</u> OR: Ref OR: Ref <u>Black</u> OR: 0.99 [0.67 1.48]¹ OR: 1.04 [0.72 1.49]² <u>Asian</u> OR: 1.28 [0.77 2.12]¹ OR: 1.38 [0.80 2.39]² <u>Other</u> OR: 1.49 [1.04 2.15]¹ OR: 1.25 [0.86 1.82]²</p> <p>Ethnicity <u>Non-Hispanic</u> OR: Ref OR: Ref <u>Hispanic</u> OR: 1.15 [0.83 1.59]¹ OR: 1.22 [0.87 1.73]²</p> <p>Brigade Combat Team <u>Fort #1</u> OR: Ref OR: Ref <u>Fort #2</u> OR: 1.15 [0.90 1.47]¹ OR: 1.31 [0.97 1.77]² <u>Fort #3</u> OR: 1.00 [0.80 1.24]¹ OR: 1.09 [0.82 1.45]²</p> <p>Number of deployments</p>
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<u>Zero</u>
OR: Ref
OR: Ref
<u>One</u>
OR: 1.09 [0.84 1.42] ¹
OR: 0.96 [0.73 1.27] ²
<u>≥Two</u>
OR: 1.12 [0.87 1.43] ¹
OR: 0.92 [0.71 1.19] ²
Time in unit
<u>>6months</u>
OR: Ref
OR: Ref
<u><1month</u>
OR: 1.51 [1.12 2.05] ¹
OR: 1.81 [1.24 2.63] ²
<u>1–6 months</u>
OR: 0.75 [0.58 0.96] ¹
OR: 0.77 [0.64 0.94] ²
Lifetime PTSD at baseline
OR: 3.06 [2.24 4.17] ¹
30-day PTSD at baseline
OR: 2.28 [1.36 3.82] ¹
Deployment stress
<u>Low/moderate</u>
OR: Ref
OR: Ref
<u>High</u>
OR: 3.21 [2.75 3.74] ¹
OR: 3.52 [2.94 4.21] ²
Unit cohesion at baseline
OR: 0.82 [0.73 0.91] ¹

						OR: 0.74 [0.65 0.84] ²
4. Berninger, 2010 ²²	<p>Name: FDNY-WTC-MMP</p> <p>Design: Prospective longitudinal with baseline measurement within 6 months from the disaster.</p> <p>Follow-up period: 2.9 years</p>	<p>n=5,656</p> <p>Country= USA</p> <p>%Female= 0%</p> <p>Age= -</p> <p>Type of job/company= New York fire department rescue workers who were involved in the 9/11 WTC disaster</p> <p>Inclusion/exclusion= Fire fighters who retired during the study, who arrived at the disaster site >14 days after the rescue, and females; firefighters</p>	<p>Exposure assessment: Demographic and retirement from employee databases, all other information from self-reports.</p> <p>Year of assessment: 2001</p> <p>Exposure categories: -</p>	<p>Type of symptoms: Probable PTSD</p> <p>Way of assessment: Self-reported using PTSD checklist (PCL-m)</p> <p>Incidence:16%</p>	<p>Univariate (model 1) and multivariate adjusting for all other exposures that contributed statistically significant in the univariate model (model 2).</p>	<p>Age</p> <p><u>20-29 years</u> OR: Ref</p> <p><u>30-39 years</u> OR: 1.0 [0.8 1.3]¹</p> <p><u>40-49 years</u> OR: 1.0 [0.8 1.3]¹</p> <p><u>50-59 years</u> OR: 0.6 [0.4 1.1]¹</p> <p><u>60+ years</u> OR: -</p> <p><u>Continuous</u> OR: 0.98 [0.97 1.00]²</p> <p>Education</p> <p><u>High School</u> OR: Ref</p> <p><u>Some College</u> OR: 1.1 [0.9 1.3]¹</p> <p><u>College</u> OR: 1.1 [0.9 1.3]¹</p> <p><u>Post-College</u> OR: 1.2 [0.8 1.8]¹</p> <p>Living with a partner</p> <p><u>Yes</u> OR: Ref</p> <p><u>No</u> OR: 1.06 [0.89 1.27]¹</p> <p>Arrival Group</p> <p><u>Morning of 9/11</u> OR: 4.8 [3.0 7.5]¹</p> <p>OR: 2.0 [1.3 2.9]²</p> <p><u>Afternoon of 9/11</u> OR: 2.3 [1.5 3.5]¹</p>

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OR: 1.1 [0.8 1.5]²
Day 2
OR: 1.4 [0.8 2.3]¹
Days 3-14
OR: Ref

Prolonged work at the WTC site
≥4 months
OR: 2.0 [1.7 2.3]¹
<4 months
OR: Ref

Rank
Firefighter
OR: Ref
Line officer
OR: 1.1 [0.95 1.30]¹
Chiefs
OR: 0.96 [0.70 1.32]¹

Number of deaths in firehouse
0 deaths
OR: Ref
1-3 deaths
OR: 1.5 [1.2 1.9]¹
4+ deaths
OR: 2.3 [1.8 2.9]¹

Supervising responsibilities
Yes
OR: 2.2 [1.7 2.9]¹
No
OR: Ref

Previous disaster experience

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						<p><u>Yes</u> OR: 1.4 [1.2 1.6]¹</p> <p><u>No</u> OR: Ref</p> <p>Duration of work at WTC site (per month) OR: 1.1 [1.1 1.2]²</p> <p>Reported increase in alcohol OR: 1.3 [1.0 1.7]²</p> <p>Baseline probable PTSD OR: 5.6 [4.4 7.0]²</p>
5. Brownlow, 2018 ²³	<p><u>Name:</u> Army STARSS study</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 14,254 for AAS and 25,629 for NSS.</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 12% for AAS and 17% for NSS</p> <p><u>Age</u>= 29.0(0.1) for AAS and 21.0(0.0) for NSS</p> <p><u>Type of job/company</u>= Soldiers at all stages of their activity (AAS sub-study) and new recruits (NSS sub-study)</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2011-2013</p> <p><u>Exposure categories:</u> Deployment-related and lifetime stress were assessed (the former only for the AAS cohort).</p>	<p><u>Type of symptoms:</u> Probable PTSD (lifetime and past 30-day prevalence) was assessed using the PTSD Checklist (PCL) using DSM-4 criteria</p> <p><u>Way of assessment:</u> Self-reported</p> <p><u>Incidence</u>:-</p>	-	<p>Diversity of Deployment-Related Traumatic Stress Score [0-15] <i>30-day PTSD</i> OR: 1.15 [1.13 1.16] (AAS) <i>Lifetime PTSD</i> OR: 1.17 [1.16 1.18] (AAS)</p> <p>Cumulative Deployment-Related Traumatic Stress Score [0 60] <i>30-day PTSD</i> OR: 1.03 [1.03 1.04] (AAS) <i>Lifetime PTSD</i> OR: 1.00 [0.99 1.00] (AAS)</p> <p>Diversity of Lifetime Traumatic Stress Score <i>30-day PTSD</i> OR: 1.14 [1.13 1.16] (AAS) OR: 1.34 [1.30 1.38] (NSS) <i>Lifetime PTSD</i> OR: 1.16 [1.15 1.17] (AAS) OR: 1.34 [1.31 1.38] (NSS)</p>

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						Cumulative Lifetime Traumatic Stress Score <i>30-day PTSD</i> OR: 1.02 [1.02 1.03] (AAS) OR: 0.99 [0.98 1.01] (NSS) <i>Lifetime PTSD</i> OR: 1.02 [1.01 1.02] (AAS) OR: 1.00 [0.99 1.01] (NSS)
6. Brundage, 2015 ²⁴	<u>Name:</u> Defense Medical Surveillance System (DMSS) <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 36 months post-deployment.	n= 2,020,340 (Iraq/Afghanistan) and 529,609 (Korea/Japan) <u>Country</u> = USA <u>%Female</u> = - <u>Age</u> = - <u>Type of job/company</u> = Individuals who served in army, air force, navy and marine. Those who were deployed in Iraq and Afghanistan were compared with a reference group who returned from assignments in Korea and Japan. <u>Inclusion/exclusion</u> = -	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2003-2014 <u>Exposure categories:</u> Iraq/Afghanistan vs Korea/Japan, and occupation. Also other factors were assessed but were not considered for this review.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Diagnosis using ICD-9 criteria. <u>Incidence:</u> -	-	There were 4.85 diagnoses per 100 deployments among those who served in Iraq/Afghanistan, this was 1.04 among those who went to Japan/Korea (with a 4.66 ratio between the two groups). Diagnosis per 100 deployments were highest among combat specific (5.62) and health care (8.52) occupations who went to Iraq/Afghanistan, compared to others (4.17).
7. Cameron, 2019 ²⁵	<u>Name:</u> Defence Manpower Data Center (DMDC) Database and Defense Medical	n= 1.35 million <u>Country</u> = USA <u>%Female</u> = 12%	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u>	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Data from the	Unadjusted (model 1) and adjusted for all other exposures (model 2).	Sex <u>Female</u> RR: 1.65 [1.54 1.77] ¹ RR: 1.92 [1.84 2.00] ² <u>Male</u>

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	<p>Surveillance System (DMSS)</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>Age=</u> -</p> <p><u>Type of job/company =</u> Active duty service members between 1999 and 2008.</p> <p><u>Inclusion/exclusion=</u> -</p>	<p>1999-2008</p> <p><u>Exposure categories:</u> Rank and service type.</p>	<p>Defence Medical Surveillance System (DMSS), with ICD-9-CM coded diagnoses, were used.</p> <p><u>Incidence:</u> 52,771 incident cases (~4%)</p>	<p>RR: Ref. RR: Ref.</p> <p>Age</p> <p><u>< 20</u> RR: Ref. RR: Ref.</p> <p><u>20–24</u> RR: 1.41 [1.25 1.60]¹ RR: 1.36 [1.27 1.46]²</p> <p><u>25–29</u> RR: 1.36 [1.20 1.54]¹ RR: 1.52 [1.41 1.65]²</p> <p><u>30–34</u> RR: 1.00 [0.87 1.15]¹ RR: 1.37 [1.25 1.50]²</p> <p><u>35–39</u> RR: 0.88 [0.76 1.02]¹ RR: 1.37 [1.24 1.52]²</p> <p><u>> 39</u> RR: 0.93 [0.80 1.08]¹ RR: 1.68 [1.51 1.87]²</p> <p>Race</p> <p><u>Black</u> RR: Ref. RR: Ref.</p> <p><u>Other</u> RR: 1.32 [1.18 1.47]¹ RR: 1.45 [1.36 1.54]²</p> <p><u>White</u> RR: 1.35 [1.25 1.47]¹ RR: 1.58 [1.51 1.66]²</p> <p>Marital Status</p> <p><u>Married</u> RR: 1.13 [1.06 1.20]¹</p>
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						RR: 1.38 [1.32 1.44] ² <u>Other</u> RR: 1.59 [1.40 1.80] ¹ RR: 1.72 [1.59 1.86] ² <u>Single</u> RR: Ref. RR: Ref. Rank <u>E1-E4</u> RR: 3.90 [3.19 4.77] ¹ RR: 4.93 [4.31 5.63] ² <u>E5-E9</u> RR: 3.02 [2.47 3.70] ¹ RR: 3.42 [3.02 3.89] ² <u>O1-O3</u> RR: 1.08 [0.84 1.38] ¹ RR: 1.17 [1.00 1.36] ² <u>O4-O9</u> RR: Ref. RR: Ref. Service <u>Air Force</u> RR: Ref. RR: Ref. <u>Army</u> RR: 3.80 [3.50 4.12] ¹ RR: 3.80 [3.59 4.02] ² <u>Marines</u> RR: 2.90 [2.63 3.19] ¹ RR: 2.92 [2.73 3.12] ² <u>Navy</u> RR: 1.38 [1.25 1.52] ¹ RR: 1.51 [1.41 1.61] ²
8. Chiu, 2011 26	<u>Name:</u> FDNY pension database	n= 1,915	<u>Exposure assessment:</u> Deployment	<u>Type of symptoms:</u> PTSD symptoms	Unadjusted (model 1) and adjusted for	Exposure group <u>morning of 9/11</u>

	<p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4 years post-attack.</p>	<p><u>Country</u>= USA</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 47.0 (6.9) years</p> <p><u>Type of job/company</u>= New York fire department firefighters who were involved in the 9/11 WTC attacks.</p> <p><u>Inclusion/exclusion</u>= Fire marshals, females, those who retired due to mental health disability and those who did not first arrive at the disaster site were excluded.</p>	<p>administration</p> <p><u>Year of assessment:</u> 2001</p> <p><u>Exposure categories:</u> Retirement status, rank, and exposure.</p>	<p><u>Way of assessment:</u> Self-reported using the PTSD checklist (PCL-17) , using a cut-off ≥ 39 (range 17-85).</p> <p><u>Incidence:</u> 22%</p>	<p>all remaining exposures in the model (model 2).</p>	<p>OR: 4.9 [3.0 7.9]¹ OR: 4.0 [2.5 6.6]² <u>afternoon of 9/11</u> OR: 2.4 [1.5 3.7]¹ OR: 2.1 [1.3 3.3]² <u>day 2</u> OR: 1.7 [1.0 2.8]¹ OR: 1.4 [0.9 2.4]² <u>day 3 to day 14</u> OR: Ref. OR: Ref.</p> <p>Retirement status</p> <p><u>Disability</u> OR: 1.9 [1.5 2.4]¹ OR: 1.7 [1.4 2.2]²</p> <p><u>Non-disability</u> OR: Ref. OR: Ref.</p> <p>AUDIT score</p> <p><u>≥ 8</u> OR: 2.0 [1.5 2.5]¹ OR: 1.9 [1.5 2.4]²</p> <p><u>≤ 8</u> OR: Ref. OR: Ref.</p> <p>Age on 9/11 [in years]</p> <p><u>< 55</u> OR: 2.0 [1.4 3.0]¹ OR: 1.5 [1.0 3.0]²</p> <p><u>≥ 55</u> OR: Ref. OR: Ref.</p> <p>Age on 9/11 - in years</p>
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						<p><u>Continuous</u> OR: 1.0 [1.0 1.0]¹</p> <p>Marital status <u>Married</u> OR: 0.8 [0.6 1.2]¹ <u>Living with a partner</u> OR: 1.1 [0.6 2.1]¹ <u>Never married</u> OR: 0.9 [0.5 1.6]¹ <u>Separated/widowed/divorced</u> OR: Ref.</p> <p>Marital status change since 9/11 <u>Status change</u> OR: 1.3 [0.9 1.9]¹ <u>No change</u> OR: Ref.</p> <p>Previous profession <u>No other profession</u> OR: 1.2 [0.9 1.4]¹ <u>Other professions</u> OR: Ref.</p> <p>Rank <u>Chiefs</u> OR: 0.5 [0.3 0.9]¹ <u>Captains and lieutenants</u> OR: 0.8 [0.6 1.0]¹ <u>Firefighters</u> OR: Ref.</p>
9. Ciarleglio, 2018 ²⁷	<u>Name:</u> VU Cooperative Studies Program Study, combined	<u>n=</u> 375 <u>Country=</u> USA	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u>	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u>	Multivariate models adjusting for all other exposures.	Age in years OR: 1.04 [0.99 1.09] Gender

	<p>with data from Neurocognition Deployment Health Study (NDHS).</p> <p>Design: Retrospective longitudinal</p> <p>Follow-up period: Between 5.7 months (baseline) and 7.5 months post-deployment (long-term follow-up).</p>	<p><u>%Female</u>= 5%</p> <p><u>Age</u>= 35.1 (5.9) years</p> <p><u>Type of job/company</u>= Army soldiers who were deployed in Iraq</p> <p><u>Inclusion/exclusion</u>= -</p>	<p>2003-2005</p> <p>Exposure categories: Deployment history and stress exposure.</p>	<p>Using a clinically administered PTSD scale.</p> <p>Incidence: 24% (prevalence)</p>	<p><u>Male</u> OR: Ref.</p> <p><u>Female</u> OR: 0.31 [0.07 1.53]</p> <p>Number of deployments</p> <p><u>Single deployment</u> OR: Ref.</p> <p><u>Multiple deployments</u> OR: 0.83 [0.27 2.57]</p> <p>Months since most recent deployment OR: 1.00 [0.98 1.02]</p> <p>Composite emotional health factor post-deployment OR: 1.09 [0.79 1.50]</p> <p>Mental health treatment received post-deployment</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 4.12 [2.18 7.80]</p> <p>Early life events summary score OR: 0.92 [0.84 1.00]</p> <p>Combat and post-battle experiences OR: 0.99 [0.95 1.03]</p> <p>Deployment concerns summary score OR: 1.01 [0.98 1.04]</p>
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						<p>Life and family concerns OR: 0.99 [0.94 1.03]</p> <p>Post-deployment life events summary score OR: 1.07 [0.96 1.19]</p> <p>Post-war-zone social support OR: 0.92 [0.89 0.95]</p>
10. Cone, 2015 28	<p><u>Name:</u> World Trade Center Health Registry</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 10 years</p>	<p><u>n=</u> 2,204</p> <p><u>Country=</u> USA</p> <p><u>%Female=</u> 13%</p> <p><u>Age=</u> 38 (median)</p> <p><u>Type of job/company=</u> Police responders to the 9/11 WTC attacks</p> <p><u>Inclusion/exclusion=</u> Those with at least one shift at the disaster site, those without pre-9/11 PTSD and with follow-up measurements.</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2001</p> <p><u>Exposure categories:</u> Demographic, injury, stressors, life threatening event, support.</p>	<p><u>Type of symptoms:</u> Probable PTSD</p> <p><u>Way of assessment:</u> Self-reported using a combination of the PCL checklist and DSM-4 criteria.</p> <p><u>Incidence:</u> 11% (prevalence)</p>	Adjusting for all other exposures.	<p>Age group at 9/11 <u>18-44</u> OR: Ref.</p> <p><u>45-69</u> OR: 0.6 [0.3 1.3]</p> <p>Gender <u>Male</u> OR: Ref.</p> <p><u>Female</u> OR: 1.3 [0.7 2.5]</p> <p>Hispanic <u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 1.2 [0.7 2.0]</p> <p>Household gross income at wave 3 <u>≥75K</u> OR: Ref.</p> <p><u><75K</u> OR: 2.0 [1.2 3.4]</p> <p>Having social support <u>All of the time</u></p>

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						<p>OR: Ref. <u>Most</u> OR: 3.5 [2.0 6.1] <u>Some</u> OR: 3.6 [1.9 6.9] <u>Little or none</u> OR: 2.6 [1.04 6.5]</p> <p>Current employment status at wave 3 <u>Employed</u> OR: Ref. <u>Unable to work because of health</u> OR: 3.7 [1.9 7.3] <u>Retired</u> OR: 1.3 [0.8 2.2] <u>Other</u> OR: 2.9 [0.8 10.1]</p> <p>Number of life stressors in last 12 months <u>None</u> OR: Ref. <u>1 to 2</u> OR: 1.7 [1.0 2.7] <u>≥3</u> OR: 3.2 [1.2 8.5]</p> <p>Number of events threatened your life since 9/11 <u>None</u> OR: Ref. <u>1 to 2</u> OR: 1.0 [0.5 1.9] <u>≥3</u></p>
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						<p>OR: 3.3 [1.9 5.6]</p> <p>Number of injuries sustained during the 9/11 attacks</p> <p><u>None</u> OR: Ref.</p> <p><u>One</u> OR: 1.1 [0.6 2.0]</p> <p><u>Two or more</u> OR: 1.4 [0.6 3.4]</p> <p>Report of unmet mental health care needs at wave 3</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 9.5 [5.3 16.9]</p>
11. Connorton, 2011 ²⁹	<p><u>Name:</u> National Comorbidity Survey Replication (NCS-R)</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 217 exposed and 2,110 unexposed.</p> <p><u>Country</u>=USA</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 55.0(0.9) for exposed workers, 43.8 (0.9) for non-exposed workers</p> <p><u>Type of job/company</u>= Participants employed in combat or service as peacekeeper or relief worker.</p> <p><u>Inclusion/exclusion</u>= Females were excluded</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2001-2002</p> <p><u>Exposure categories:</u> Participants who were exposed to combat and peacekeeping/relieve work or combat only vs non-exposed participants.</p>	<p><u>Type of symptoms:</u> PTSD (according to DSM-4 criteria)</p> <p><u>Way of assessment:</u> Self-reported (no specific questionnaire mentioned)</p> <p><u>Incidence:</u> 29/(217+2110)=1%</p>	<p>Univariate and multivariate analyses adjusting for age of exposure, age of onset diagnoses, race</p>	<p>Exposure</p> <p><u>No exposure</u> OR: Ref</p> <p><u>Exposure to peacekeeping/relieve work and combat</u> OR: 11.2 [2.9 43.2]</p> <p><u>Exposure to combat only</u> OR: 7.3 [3.3 15.8]</p> <p>According to the authors the results remained the same in multivariate analyses (data not reported)</p>

12. Cukor, 2011 30	<p><u>Name:</u> Weill Cornell 9/11 Screening Program</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> Up to 4 years.</p>	<p><u>n</u>= 2,960</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= 9/11 WTC disaster recovery workers.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2002-2004</p> <p><u>Exposure categories:</u> Occupational exposure</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Using the CAPS standardized clinical interview and using the PCL-C questionnaire using DSM-4 criteria. CAPS data were used for exposure-outcome assessment.</p> <p><u>Incidence:</u> 9%, 5% and 2% had probable self-reported PTSD at T1, T2 and T3, respectively. 15%, 8% and 6% had diagnosed PTSD at T1, T2 and T3, respectively.</p>	<p>Adjusting for baseline PTSD and demographic variables.</p>	<p>Occupational exposure</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 1.31 [1.13 1.51]</p>
13. Fear, 2010 31	<p><u>Name:</u> HERRICK cohort (and other samples)</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 3600</p> <p><u>Country</u>= UK</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Armed forces who were deployed in Iraq and Afghanistan, who were compared to armed forces who were not deployed.</p>	<p><u>Exposure assessment:</u> Deployment administration</p> <p><u>Year of assessment:</u> 2003</p> <p><u>Exposure categories:</u> Deployment, rank, number of deployments and time since deployment.</p>	<p><u>Type of symptoms:</u> PTSD symptoms</p> <p><u>Way of assessment:</u> Self-reporting using the PCL-C questionnaire.</p> <p><u>Incidence:</u> 4%</p>	<p>Unadjusted (model 1) and adjusted for age, sex, marital status, education and rank (model 2)</p>	<p>Deployment</p> <p><u>Not deployed</u> OR: Ref.</p> <p><u>Regulars</u> OR: 1.03 [0.79 1.36]¹ OR: 1.13 [0.82 1.54]²</p> <p><u>Reservists</u> OR: 2.90 [1.37 6.12]¹ OR: 2.83 [1.23 6.51]²</p> <p>Location of deployment</p> <p><u>Not deployed in Iraq/Afghanistan</u> OR: Ref.</p>

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		<u>Inclusion/exclusion= -</u>				<u>Deployed in Iraq</u> OR: 1.20 [0.87 1.67] ² <u>Deployed in Afghanistan</u> OR: 0.93 [0.54 1.59] ² <u>Deployed in Iraq and Afghanistan</u> OR: 0.92 [0.58 1.46] ² Role of deployment <u>Combat service report</u> OR: Ref. OR: Ref. <u>Combat</u> OR: 1.99 [1.42 2.78] ¹ OR: 1.87 [1.26 2.78] ² <u>Service support</u> OR: 0.58 [0.28 1.19] ¹ OR: 0.67 [0.32 1.41] ² Number of deployments <u>One deployment</u> OR: Ref. OR: Ref. <u>Two deployments</u> OR: 0.83 [0.51 1.36] ¹ OR: 0.96 [0.58 1.57] ² <u>More than three deployments</u> OR: 0.61 [0.29 1.26] ¹ OR: 0.72 [0.34 1.50] ² Time since return from deployment <u>Up to 1 year</u> OR: Ref. OR: Ref. <u>Up to 2 years</u>
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						<p>OR: 1.19 [0.76 1.86]¹ OR: 1.18 [0.75 1.86]² <u>Up to 3 years</u> OR: 1.95 [1.16 3.27]¹ OR: 1.80 [1.05 3.10]² <u>Up to 4 years</u> OR: 1.98 [1.08 3.65]¹ OR: 1.88 [0.98 3.62]² <u>Up to 5 years</u> OR: 1.59 [0.99 2.57]¹ OR: 1.53 [0.92 2.55]² <u>Up to 6.5 years</u> OR: 1.79 [0.98 3.26]¹ OR: 1.89 [0.99 3.60]²</p>
14. Ferrajao, 2016 ³²	<p><u>Name:</u> -</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 120</p> <p><u>Country</u>= Portugal</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 64 [59-72]</p> <p><u>Type of job/company</u>= Colonial war veterans</p> <p><u>Inclusion/exclusion</u>= Participants who received psychiatric and psychological treatment during the last 5 years, and no history of traumatic brain injury, neurological disorders or physical disability were included.</p>	<p><u>Exposure assessment:</u> Self-reported.</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Combat exposure, abusive violence, sense of coherence.</p>	<p><u>Type of symptoms:</u> PTSD symptoms</p> <p><u>Way of assessment:</u> Self-reported using the Impact of Event Scale Revised (with a cut-off score: >=33)</p> <p><u>Incidence:</u> 41% (prevalence)</p>	Unadjusted	<p>Combat exposure scale [1 5] OR: 1.98 [1.50, 2,62]</p> <p>Sense of coherence OR: -5.08 [-3.32, -7.78]</p> <p>Observation of abusive violence <u>No</u> OR: Ref. <u>Yes</u> OR: 8.36 [4.56, 15.35]</p> <p>Participation in abusive violence <u>No</u> OR: Ref. <u>Yes</u> OR: 3.32 [1.81, 6.08]</p>
15. Fichera,	<u>Name:</u> -	<u>n</u> = 383	<u>Exposure assessment:</u>	<u>Type of symptoms:</u>	Adjusting for all	Number of robberies during

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<p>2015³³</p>	<p><u>Design:</u> Prospective longitudinal, with baseline 7-15 days post-robbery</p> <p><u>Follow-up period:</u> 45 days after the first session</p>	<p><u>Country</u>= Italy</p> <p><u>%Female</u>= 52%</p> <p><u>Age</u>= 43 (9) years</p> <p><u>Type of job/company</u>= Employees of a large bank who were victims of robberies.</p> <p><u>Inclusion/exclusion</u>= Participants who had voluntarily joined and employer sponsored post-robbery support program.</p>	<p>Self-reported (questionnaires and interviews)</p> <p><u>Year of assessment:</u> 2010-2012</p> <p><u>Exposure categories:</u> Personal characteristics and characteristics of the robberies</p>	<p>PTSD</p> <p><u>Way of assessment:</u> Self-reported using the Impact of Events Scale (IES).</p> <p><u>Incidence:</u> 14%</p>	<p>other exposures (model 1), when additionally adjusting for baseline PTSD (model 2), and the latter two models in which random intercepts were adopted (model 3 and 4).</p>	<p>working life OR: 1.25 [1.07 1.44]¹ OR: 1.15 [0.97 1.36]² OR: 1.27 [1.07 1.51]³ OR: 1.18 [0.97 1.44]⁴</p> <p>Gender <u>Males</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴ <u>Females</u> OR: 0.63 [0.31 1.29]¹ OR: 0.72 [0.33 1.58]² OR: 0.77 [0.34 1.78]³ OR: 0.85 [0.33 2.13]⁴</p> <p>Being cashier <u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴ <u>Yes</u> OR: 0.52 [0.22 1.22]¹ OR: 0.94 [0.36 2.42]² OR: 0.40 [0.14 1.07]³ OR: 0.76 [0.25 2.25]⁴</p> <p>Physical contacts with robbers <u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴</p>
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						<p><u>Yes</u> OR: 1.21 [0.58 2.54]¹ OR: 0.83 [0.36 1.87]² OR: 1.23 [0.50 2.98]³ OR: 0.86 [0.32 2.28]⁴</p> <p>Scuffle [taking part or being present]</p> <p><u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴</p> <p><u>Yes</u> OR: 1.41 [0.61 3.27]¹ OR: 1.64 [0.64 4.20]² OR: 1.72 [0.62 4.78]³ OR: 1.92 [0.63 5.79]⁴</p> <p>Being injured during the robbery</p> <p><u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴</p> <p><u>Yes</u> OR: 1.69 [0.58 4.89]¹ OR: 1.44 [0.44 4.73]² OR: 1.81 [0.49 6.61]³ OR: 1.28 [0.31 5.21]⁴</p> <p>Worried by other issues related to robbery</p> <p><u>No</u> OR: Ref¹ OR: Ref²</p>
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						<p>OR: Ref³ OR: Ref⁴ <u>Yes</u> OR: 2.47 [1.16 5.27]¹ OR: 2.11 [0.91 4.91]² OR: 2.88 [1.16 7.19]³ OR: 2.64 [0.95 7.36]⁴</p> <p>Feeling terror and hopelessness <u>True</u> OR: 6.96 [2.25 21.53]¹ OR: 1.19 [0.32 4.36]² OR: 8.64 [2.19 34.10]³ OR: 1.59 [0.33 7.58]⁴ <u>Partly true</u> OR: 2.82 [0.98 8.10]¹ OR: 1.10 [0.33 3.65]² OR: 3.48 [1.00 12.12]³ OR: 1.45 [0.35 6.02]⁴</p> <p>Post-session individual interview requested <u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴ <u>Yes</u> OR: 1.09 [0.29 4.09]¹ OR: 0.41 [0.09 1.81]² OR: 0.75 [0.14 4.07]³ OR: 0.35 [0.06 2.07]⁴</p> <p>PTSD at T1 <u>No</u> OR: Ref¹</p>
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						<p>OR: Ref² OR: Ref³ OR: Ref⁴ Yes OR: – OR: 1.11 [1.07 1.15]² OR: – OR: 1.11 [1.07 1.16]⁴</p>
16. Fink, 2016 ³⁴	<p>Name: Reserve and National Guard (RNG) study.</p> <p>Design: Prospective longitudinal</p> <p>Follow-up period: 4 years</p>	<p>n= 2,003</p> <p>Country= USA</p> <p>%Female= 18%</p> <p>Age= -</p> <p>Type of job/company= Army reservists</p> <p>Inclusion/exclusion= -</p>	<p>Exposure assessment: Self-reported</p> <p>Year of assessment: 2010</p> <p>Exposure categories: Personal characteristics, deployment history and rank.</p>	<p>Type of symptoms: PTSD</p> <p>Way of assessment: Self-reported using the PCL-C checklist, based on DSM-4 criteria. Criteria that sensitive and specific were used leading to two different PTSD definitions.</p> <p>Incidence: 4.7 and 2.9 per 100 person-year for sensitive and specific definition, respectively.</p>	<p>Univariate models using the sensitive (model 1) and specific (model 2) outcome definition.</p>	<p>Effects in incidence rate (IR) per 100/per-years</p> <p>Age</p> <p><u>18–24 years</u> IR: 4.8 [3.0–7.5]¹ IR: 1.9 [0.8–4.3]²</p> <p><u>25–34 years</u> IR: 4.4 [3.2–6.1]¹ IR: 2.9 [1.9–4.4]²</p> <p><u>>35 years</u> IR: 4.9 [3.8–6.3]¹ IR: 3.4 [2.5–4.7]²</p> <p>Sex</p> <p><u>Male</u> IR: 4.6 [3.8–5.7]¹ IR: 3.2 [2.5–4.2]²</p> <p><u>Female</u> IR: 4.9 [3.2–7.4]¹ IR: 1.4 [0.7–2.8]²</p> <p>Race/ethnicity</p> <p><u>Non-Hispanic, white</u> IR: 4.3 [3.4–5.3]¹ IR: 2.4 [1.8–3.3]²</p> <p><u>Non-Hispanic, black</u> IR: 6.4 [4.0–10.2]¹ IR: 4.6 [2.6–8.2]²</p>

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						<p><u>Hispanic</u> IR: 5.5 [3.3–9.1]¹ IR: 4.3 [2.4–7.6]²</p> <p><u>Other</u> IR: 5.3 [3.0–9.1]¹ IR: 3.8 [2.0–7.2]²</p> <p>Education</p> <p><u>< High school</u> IR: 4.2 [1.0–16.6]¹ IR: 7.9 [2.1–29.1]²</p> <p><u>High school</u> IR: 6.1 [3.9–9.4]¹ IR: 3.6 [2.0–6.4]²</p> <p><u>Some college</u> IR: 4.8 [3.7–6.2]¹ IR: 2.8 [2.0–3.8]²</p> <p><u>> College</u> IR: 3.5 [2.6–4.8]¹ IR: 2.3 [1.6–3.4]²</p> <p>Marital status</p> <p><u>Never married</u> IR: 3.9 [2.7–5.7]¹ IR: 2.3 [1.3–4.0]²</p> <p><u>Married</u> IR: 4.9 [3.8–6.2]¹ IR: 2.9 [2.1–4.0]²</p> <p><u>Previously married</u> IR: 6.1 [3.9–9.5]¹ IR: 4.8 [3.0–7.6]²</p> <p>Rank</p> <p><u>Junior enlisted</u> IR: 4.4 [2.2–8.8]¹ IR: 1.2 [0.4–3.4]²</p> <p><u>Non-Commissioned Officers</u></p>
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						<p>IR: 5.1 [4.1–6.2]¹ IR: 3.4 [2.6–4.4]² <u>Officer</u> IR: 3.0 [2.0–4.5]¹ IR: 1.4 [0.8–2.5]²</p> <p>Number of baseline deployments</p> <p><u>Zero</u> IR: 3.9 [2.5–5.9]¹ IR: 1.4 [0.7–2.5]²</p> <p><u>One</u> IR: 4.8 [3.4–6.7]¹ IR: 3.9 [2.6–5.9]²</p> <p><u>Two</u> IR: 5.1 [3.7–7.0]¹ IR: 3.5 [2.4–5.0]²</p> <p><u>More than three</u> IR: 5.5 [3.6–8.3]¹ IR: 2.9 [1.6–5.4]²</p> <p>Past-year deployment</p> <p><u>Yes</u> IR: 7.2 [4.6–11.2]¹ IR: 3.0 [1.4–6.3]²</p> <p><u>No</u> IR: 5.3 [4.4–6.5]¹ IR: 3.6 [2.8–4.6]²</p> <p>Past-year deployment trauma</p> <p><u>Yes</u> IR: 5.3 [3.2–8.7]¹ IR: 2.0 [0.9–4.4]²</p> <p><u>No</u> IR: 4.6 [3.7–5.6]¹ IR: 3.1 [2.4–4.0]²</p>
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						<p>Past-year civilian trauma</p> <p><u>Yes</u> IR: 6.5 [5.2–8.1]¹ IR: 4.2 [3.1–5.6]²</p> <p><u>No</u> IR: 2.9 [2.1–4.0]¹ IR: 1.6 [1.0–2.5]²</p> <p>Component</p> <p><u>Reserve</u> IR: 4.0 [3.0–5.3]¹ IR: 3.0 [2.1–4.2]²</p> <p><u>National Guard</u> IR: 5.3 [4.2–6.8]¹ IR: 2.8 [2.0–4.0]²</p> <p>Branch</p> <p><u>Air Force Reserve</u> IR: 2.7 [1.3–5.6]¹ IR: 1.1 [0.3–3.5]²</p> <p><u>Army Reserve</u> IR: 4.2 [2.8–6.3]¹ IR: 4.2 [2.7–6.6]²</p> <p><u>Marine Reserve</u> IR: 5.3 [3.0–9.7]¹ IR: 2.5 [1.1–5.5]²</p> <p><u>Navy Reserve</u> IR: 4.0 [2.2–7.2]¹ IR: 1.9 [0.9–4.0]²</p> <p><u>Air National Guard</u> IR: 3.4 [1.9–6.1]¹ IR: 0.4 [0.1–1.4]²</p> <p><u>Army National Guard</u> IR: 5.9 [4.5–7.7]¹ IR: 3.6 [2.4–5.0]²</p>
17. Goodwin,	Name: -	n= 1,397	Exposure assessment:	Type of symptoms:	Univariate (model	Sex

<p>2012³⁵</p>	<p>Design: Prospective longitudinal.</p> <p>Follow-up period: 40.3 months (median)</p>	<p>Country= UK</p> <p>%Female= 11%</p> <p>Age= -</p> <p>Type of job/company= Military personnel that were and were not deployed in the Iraq war.</p> <p>Inclusion/exclusion= -</p>	<p>Self-reported.</p> <p>Year of assessment: 2004-2006.</p> <p>Exposure categories: Personal characteristics, service, rank and deployment history.</p>	<p>PTSD symptoms (delayed onset)</p> <p>Way of assessment: Self-reported using the PCL-C checklist.</p> <p>Incidence: 3.5%</p>	<p>1) and multivariate (model 2) adjusting for service, rank, deployment characteristics, depression, anxiety/panic disorder, childhood adversity and general health, alcohol misuse, common mental disorders, and subthreshold PTSD all at phase 1.</p>	<p>Male OR: Ref.</p> <p>Female OR: 1.46 [0.64 3.36]¹</p> <p>Age <35 OR: Ref.</p> <p>≥35 OR: 0.71 [0.38 1.34]¹</p> <p>Marital status In a relationship OR: Ref.</p> <p>Single, divorced, separated, widowed OR: 0.92 [0.39 2.14]¹</p> <p>Service Naval services OR: 0.40 [0.14 1.19]¹ OR: 0.45 [0.16 1.28]²</p> <p>Army OR: Ref. OR: Ref.</p> <p>Royal Air Force OR: 0.23 [0.07 0.81]¹ OR: 0.53 [0.15 1.87]²</p> <p>Rank Officer OR: 0.17 [0.05 0.57]¹ OR: 0.21 [0.06 0.72]²</p> <p>Other rank OR: Ref. OR: Ref.</p>
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						<p>Deployment</p> <p><u>Regular</u> OR: Ref.</p> <p><u>Reservist</u> OR: 0.83 [0.42 1.68]¹</p> <p>In a combat role on deployment</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 3.00 [1.57 5.75]¹ OR: 2.61 [1.20 5.68]²</p> <p>Thought might be killed</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 3.69 [1.61 8.45]¹ OR: 2.38 [1.03 5.46]²</p> <p>Discharged weapon on deployment</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 1.48 [0.61 3.60]¹</p> <p>Handled bodies on deployment</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 2.01 [0.93 4.35]¹</p>
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						<p>History of depression</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 4.31 [2.19 8.49]¹ OR: 3.67 [1.75 7.67]²</p> <p>History of anxiety/panic disorder</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 4.77 [1.92 11.82]¹ OR: 2.85 [0.87 9.30]²</p> <p>Childhood adversity, antisocial behavior</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 3.26 [1.66 6.40]¹ OR: 1.58 [0.73 3.43]²</p> <p>Childhood adversity, family relationship</p> <p><u>0 adversities</u> OR: Ref. OR: Ref.</p> <p><u>1 adversity</u> OR: 1.36 [0.53 3.48]¹ OR: 1.29 [0.46 3.63]²</p> <p><u>2 or more adversities</u> OR: 2.92 [1.41 6.04]¹ OR: 2.18 [0.99 4.77]²</p>
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						<p>General health status</p> <p><u>Fair/ poor</u> OR: 3.05 [1.49 6.23]¹ OR: 1.84 [0.79 4.28]²</p> <p><u>Excellent/ good</u> OR: Ref. OR: Ref.</p> <p>Common mental disorder</p> <p><u>Non-case</u> OR: Ref. OR: Ref.</p> <p><u>Case</u> OR: 5.58 [2.94 10.58]¹ OR: 2.47 [1.12 5.46]²</p> <p>Multiple physical symptoms</p> <p><u>Non-case</u> OR: Ref. OR: Ref.</p> <p><u>Case</u> OR: 7.32 [3.81 14.07]¹ OR: 3.40 [1.54 7.47]²</p> <p>Alcohol misuse</p> <p><u>Non-case</u> OR: Ref.</p> <p><u>Case</u> OR: 2.18 [1.00 4.75]¹</p> <p>Subthreshold PTSD reported at phase 1</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u></p>
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						<p>OR: 9.96 [4.67 21.20]¹ OR: 4.87 [2.05 11.58]²</p> <p>Cumulative physical/psychological morbidity at phase 1</p> <p><u>0 reports</u> OR: Ref. OR: Ref.</p> <p><u>1 report</u> OR: 4.40 [1.88 10.33]¹ OR: 3.37 [1.30 8.73]²</p> <p><u>2 reports</u> OR: 10.72 [4.09 28.08]¹ OR: 6.56 [2.29 8.73]²</p> <p><u>3-4 reports</u> OR: 17.14 [6.84 42.97]¹ OR: 8.14 [2.81 23.57]²</p> <p>Relationship status</p> <p><u>No change</u> OR: Ref.</p> <p><u>In a new relationship since phase 1</u> OR: 1.17 [0.39 3.52]¹</p> <p><u>End of a relationship since phase 1</u> OR: 2.18 [0.84 5.62]¹</p> <p>Serving status</p> <p><u>In service phases 1 and 2</u> OR: Ref. OR: Ref.</p> <p><u>Not in service phases 1 and 2</u> OR: 1.51 [0.58 3.89]¹ OR: 1.14 [0.40 3.29]²</p> <p><u>Left service</u></p>
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OR: 2.24 [1.13 4.42] ¹ OR: 1.46 [0.66 3.23] ²
General health status
<u>Good health stable</u>
OR: Ref.
OR: Ref.
<u>Poor health stable</u>
OR: 7.83 [3.33 18.44] ¹ OR: 3.72 [1.19 11.65] ²
<u>Decline in health since phase 1</u>
OR: 6.44 [2.89 14.35] ¹ OR: 3.74 [1.41 9.91] ²
<u>Improvement in health since phase 1</u>
OR: 1.71 [0.47 6.24] ¹ OR: 0.88 [0.24 3.24] ²
Alcohol misuse
<u>No change [no misuse]</u>
OR: Ref.
OR: Ref.
<u>No change [misuse]</u>
OR: 3.84 [1.37 10.77] ¹ OR: 1.29 [0.40 4.18] ²
<u>Deterioration change since phase 1</u>
OR: 6.10 [2.45 15.17] ¹ OR: 6.15 [2.05 18.48] ²
<u>Improvement change since phase 1</u>
OR: 1.60 [0.47 5.47] ¹ OR: 0.76 [0.21 2.71] ²
Common mental disorders
<u>No change or positive change</u>

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						<p>OR: Ref. OR: Ref. <u>Negative change since phase 1</u> OR: 6.29 [3.24 12.21]¹ OR: 7.12 [3.07 16.52]²</p> <p>Multiple physical symptoms <u>No change or improvement</u> OR: Ref. OR: Ref. <u>Decline in health since phase 1</u> OR: 9.73 [4.56 20.76]¹ OR: 7.85 [2.86 21.52]²</p>
18. Green, 2016 <small>36</small>	<p><u>Name:</u> Project VALOR</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 738</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 51%</p> <p><u>Age</u>= 37.7 (9.9) years.</p> <p><u>Type of job/company</u>= Iraq and Afghanistan army and marine corps veterans.</p> <p><u>Inclusion/exclusion</u>= Participants who had undergone mental health evaluation at a veterans facility were included. Participants with probable PTSD and females were oversampled to get a</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Deployment risk and resilience.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Using a structured clinical interview with DSM-4 criteria.</p> <p><u>Incidence:</u> 73% and 68% for females and males, respectively.</p>	Unadjusted	<p>Age OR: 1.01 [0.81 1.03]</p> <p>Race <u>White</u> OR: Ref. <u>Black</u> OR: 1.83 [0.76 4.41] <u>Other</u> OR: 0.46 [0.19 1.11]</p> <p>Combat experiences OR: 1.03 [1.00 1.07]</p> <p>Aftermath of battle OR: 1.03 [1.00 1.06]</p> <p>Social support OR: 0.96 [0.93 0.98]</p> <p>Length of deployment OR: 0.97 [0.92 1.03]</p>

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		good representation of these groups in the final sample. Only participants with one deployment were included.				Deployment phase <u>Insurgency</u> OR: Ref. <u>Invasion</u> OR: 0.38 [0.16 0.91] <u>Surge</u> OR: 0.44 [0.21 0.93]
19. Hansen, 2017 ³⁷	<u>Name:</u> Mental Health and Work Environment Factors in the Aftermath of the Oslo Terrorist Attack <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 10, 22 and 34 months after the attack	<u>n</u> = 1,933 <u>Country</u> = Norway <u>%Female</u> = 58% <u>Age</u> = 45.4(10.9) years <u>Type of job/company</u> = Employees of the ministries at the moment of the Oslo terrorist attack. <u>Inclusion/exclusion</u> = -	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2011 <u>Exposure categories:</u> Mental health, exposure, work, perceived safety and psychosocial variables.	<u>Type of symptoms:</u> PTS symptoms <u>Way of assessment:</u> Self-reported using a Norwegian version of the Posttraumatic Stress Disorder Checklist – Specific (PCL-C), using DSM-4 criteria. <u>Incidence:</u> 6%, 4%, and 4% during the three follow-up periods, respectively.	Unadjusted (model 1) and multivariate (model 2) with age and gender and traumatic experiences, education level and leadership position.	Presence during attack <u>Not present during attack</u> 10 months OR: Ref. ¹ OR: Ref. ² 22 months OR: Ref. ¹ OR: Ref. ² 34 months OR: Ref. ¹ OR: Ref. ² <u>Present during attack</u> 10 months OR: 8.4 [5.6 12.6] ¹ OR: 9.3 [6.1 14.2] ² 22 months OR: 6.9 [4.3 11.2] ¹ OR: 8.9 [5.2 15.3] ² 34 months OR: 8.8 [5.2 15.1] ¹ OR: 10.0 [5.4 18.6] ²
20. Harvey, 2012 ³⁸	<u>Name:</u> - <u>Design:</u> Prospective longitudinal	<u>n</u> = 552 in combat group, 391 in control group <u>Country</u> = UK <u>%Female</u> = 17% in	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2003	<u>Type of symptoms:</u> PTSD symptoms (using a cut-off >=50) <u>Way of assessment:</u> 17-item National	Univariate (model 1) and adjusted for gender, age, rank and service (model 2).	Combat status <u>Control group</u> Short-term OR: Ref OR: Ref Long-term

	<p><u>Follow-up period:</u> 16 months and 4.8 year post-deployment</p>	<p>combat group, 19% in control group</p> <p><u>Age</u>= 39.4(7.9) in combat group, 42.0(8.9) in control group</p> <p><u>Type of job/company</u>= Military personnel that were and were not deployed in the Iraq war</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure categories:</u> Combat versus control group</p>	<p>Centre for PTSD Checklist (PCL-C)</p> <p><u>Incidence:</u> Short term: 2.2% in control group and 6.3% in the combat group. Long-term: 2.0% in the control group and 5.1 in the combat group.</p>		<p>OR: Ref OR: Ref</p> <p><u>Combat group</u> <i>Short-term</i> OR: 3.01 [1.36 6.64]¹ OR: 2.91 [1.34 6.31]² <i>Long-term</i> OR: 2.62 [1.12 6.16]¹ OR: 2.42 [1.04 5.62]²</p>
21. Horesh, 2011 ³⁹	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 1, 2 and 20 years post-war</p>	<p><u>n</u>= 675</p> <p><u>Country</u>= Israel</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= War veterans from the Lebanon war</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 1983</p> <p><u>Exposure categories:</u> Combat exposure was self-reported.</p>	<p><u>Type of symptoms:</u> PTSD, grouped into four groups: no-PTSD, 1983 PTSD, 1984 delayed onset PTSD and 2002 delayed onset PTSD.</p> <p><u>Way of assessment:</u> Self-reported using the PTSD inventory, using DSM-3 criteria.</p> <p><u>Incidence:</u> 16.5%</p>	-	<p>64.5% of the participants in the 1983 PTSD group reported extreme exposure to danger, compared to 24.5% of the no-PTSD group, 35.8% of the 2002 delayed onset PTSD group and 41.4% of the 1984 delayed onset PTSD group. Whereas 27.9% of the participants in the no-PTSD group reported extreme battles severity, 48.2% of the participants in the 1983 PTSD group reported extreme battles severity. In comparison, 39.6% of the participants in the 2002 delayed onset PTSD group and 34.5% of the participants in the 1984 delayed onset PTSD group reported extreme battles severity.</p>
22. Hourani,	<p><u>Name:</u> -</p>	<p><u>n</u>= 2116</p>	<p><u>Exposure assessment:</u></p>	<p><u>Type of symptoms:</u></p>	-	<p>Those with PTSD symptoms</p>

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<p>2012⁴⁰</p>	<p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 6 months</p>	<p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Marines</p> <p><u>Inclusion/exclusion</u>= Participants who transitioned from active military duty to civilian life were for a minimum of 2 months were included.</p>	<p>Self-reported</p> <p><u>Year of assessment:</u> 2010</p> <p><u>Exposure categories:</u> Exposures like number of deployments and stress were used.</p>	<p>PTSD symptoms</p> <p><u>Way of assessment:</u> Self-reported using the National Centre for PTSD Checklist (PCL-C) of the Department of Veterans Affairs – Civilian Version.</p> <p><u>Incidence:</u> Baseline prevalence 28%, follow-up incidence 10%</p>		<p>also were more likely to report a previous trauma during their lifetime at baseline. High combat exposure scale scores were associated with PTSD. Baseline social support was associated with PTSD.</p>
<p>23. Ikeda, 2017⁴¹</p>	<p><u>Name:</u> Fukushima Nuclear Energy Worker’s Support (NEWS) Project.</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> Baseline at 2-3 months post-disaster, with follow-up 3 years after that.</p>	<p><u>n</u>= 1,417</p> <p><u>Country</u>= Japan</p> <p><u>%Female</u>= 5%</p> <p><u>Age</u>= 39.3 years</p> <p><u>Type of job/company</u>= Employers of the Tokyo Electric Power Company in Fukushima.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2011</p> <p><u>Exposure categories:</u> Sociodemographic, disaster-related experiences and psychological distress.</p>	<p><u>Type of symptoms:</u> PTSD symptoms (using a cut-off >=25)</p> <p><u>Way of assessment:</u> Self-reported using the Japanese version of the Impact of Event Scale-Revisited (IES-R), using DSM-4 criteria.</p> <p><u>Incidence:</u> 26%</p>	<p>Adjusted for age, gender and job location.</p>	<p>Experience of life-threatening danger</p> <p><u>No</u> OR: Ref. (2011) OR: Ref. (2012) OR: Ref. (2013) OR: Ref. (2014)</p> <p><u>Yes</u> OR: 4.32 [2.89 6.48] (2011) OR: 3.47 [2.43 4.95] (2012) OR: 2.78 [1.87 4.14] (2013) OR: 2.23 [1.34 3.72] (2014)</p> <p>Major property loss</p> <p><u>No</u> OR: Ref. (2011) OR: Ref. (2012) OR: Ref. (2013) OR: Ref. (2014)</p> <p><u>Yes</u></p>

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						<p>OR: 3.45 [2.28 5.23] (2011) OR: 2.55 [1.77 3.66] (2012) OR: 1.88 [1.25 2.84] (2013) OR: 1.39 [0.81 2.37] (2014)</p> <p>Discrimination/slurs</p> <p><u>No</u> OR: Ref. (2011) OR: Ref. (2012) OR: Ref. (2013) OR: Ref. (2014)</p> <p><u>Yes</u> OR: 5.72 [3.37 9.71] (2011) OR: 4.47 [2.83 7.08] (2012) OR: 3.50 [2.10 5.84] (2013) OR: 2.74 [1.42 5.30] (2014)</p> <p>Escape from tsunami</p> <p><u>No</u> OR: Ref. (2011) OR: Ref. (2012) OR: Ref. (2013) OR: Ref. (2014)</p> <p><u>Yes</u> OR: 5.65 [3.27 9.74] (2011) OR: 3.72 [2.30 6.02] (2012) OR: 2.45 [1.40 4.27] (2013) OR: 1.61 [0.78 3.35] (2014)</p> <p>Witnessing of plant explosions</p> <p><u>No</u> OR: Ref. (2011)</p> <p><u>Yes</u> OR: 2.09 [1.43 3.06] (2011)</p> <p>Family member deaths</p>
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24. Joseph, 2014 ⁴²	<p><u>Name:</u> -</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 453</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 24%</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Traumatic surgeons</p> <p><u>Inclusion/exclusion</u> = --</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Personal characteristics, and exposure at work.</p>	<p><u>Type of symptoms:</u> PTSD (symptoms and diagnosed PTSD - only diagnosed PTSD was extracted for this review)</p> <p><u>Way of assessment:</u> Self-reported using the PCL checklist (with a cut-off score >=44).</p> <p><u>Incidence:</u> 15% (prevalence)</p>	<p>Univariate (model 1) and adjusting for all other exposure (model 2).</p>	<p>Age</p> <p><u><51 years</u> OR: Ref.¹ OR: Ref.²</p> <p><u>≥51 years</u> OR: 1.8 [0.7 3.4]¹</p> <p>Gender</p> <p><u>Female</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Male</u> OR: 2.1 [1.4 4.6]¹ OR: 1.8 [0.9 5.3]²</p> <p>Marital status</p> <p><u>Other</u> OR: Ref.¹</p> <p><u>Single</u> OR: 1.2 [0.4 2.8]¹</p>

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						<p>Race</p> <p><u>Other</u> OR: Ref.¹</p> <p><u>White</u> OR: 1.1 [0.8 2.6]¹</p> <p>Comorbidities</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 2.4 [0.6 4.1]¹</p> <p>Urban hospital</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.6 [0.5 2.4]¹</p> <p>Academic facility</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 3.6 [0.9 7.8]¹</p> <p>24-h resident coverage</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.8 [1.1 3.2]¹ OR: 1.4 [0.8 4.2]²</p> <p>≥5 critical cases per call</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u></p>
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						<p>OR: 2.4 [1.6 9.4]¹ OR: 7 [1.1 8]²</p> <p>≥7 call duties a month</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.6 [2.1 14.6]¹ OR: 3.8 [0.9 7.2]²</p> <p>≥15 operative cases per month</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 3.1 [1.1 7.2]¹ OR: 2.8 [0.4 3.2]²</p> <p>≥4-h relaxation per day</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.6 [1.8 11.5]¹ OR: 3.1 [0.9 6.7]²</p> <p>≥2-wk vacation per year</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.1 [0.9 6.8]¹ OR: 1.4 [0.6 4.1]²</p> <p>Military experience</p>
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						<p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.4 [0.8 5.6]¹ OR: 1.1 [0.7 3.8]²</p> <p>War deployment</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.2 [2.8 14.1]¹ OR: 2.8 [0.9 7.9]²</p> <p>Smoking</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.2 [0.8 3.1]¹</p> <p>Alcohol</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.1 [0.5 2.3]¹</p> <p>Annual income >\$300,000</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 3.6 [0.9 8.4]¹</p>
25. Karstoft, 2013 ⁴³	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal</p>	n= 675 (369 who were diagnosed with a combat stress reaction and 306 without)	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 1983</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Self-reported using</p>	-	<p>Severity of battles</p> <p>OR: 0.96 [0.63 1.48] (combat stress reaction)</p> <p>OR: 0.87 [0.55 1.36] (no combat stress reaction)</p>

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	<p><u>Follow-up period:</u> 1, 2 and 20 years post-war.</p>	<p><u>Country</u>= Israel</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 25.8(4.7)</p> <p><u>Type of job/company</u>= Combat veterans who were on active duty in the Lebanon war.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure categories:</u> Exposures such as the severity of battles, life threatening war, unit atmosphere and social support were assessed.</p>	<p>the PTSD inventory, using DSM-3 criteria. Latent growth modelling was used to identify PTSD subgroups. For the current review we only assessed the 'delayed onset' PTSD group, as this reflects incidence of PTSD.</p> <p><u>Incidence:</u> -</p>	<p>Life threatening war OR: 1.90 [1.08 3.35] (combat stress reaction) OR: 0.95 [0.64 1.43] (no combat stress reaction)</p> <p>Unit atmosphere OR: 1.08 [1.00 1.17] (combat stress reaction) OR: 1.02 [0.96 1.09] (no combat stress reaction)</p> <p>Social support OR: 0.58 [0.25 1.31] (combat stress reaction) OR: 0.66 [0.29 1.53] (no combat stress reaction)</p>
<p>26. Karstoft, 2015⁴⁴</p>	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 1, 2 and 20 years post-war.</p>	<p>n= 675 (369 who were diagnosed with a combat stress reaction and 306 without)</p> <p><u>Country</u>= Israel</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 25.8(4.7)</p> <p><u>Type of job/company</u>= Combat veterans who were on active duty in the Lebanon war.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 1983</p> <p><u>Exposure categories:</u> Exposures such as the severity of battles, life threatening war, coping were assessed.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Self-reported using the PTSD inventory, using DSM-3 criteria. Latent growth modelling was used to identify PTSD subgroups. For the current review we only assessed the 'delayed onset' PTSD group, as this reflects incidence of PTSD.</p> <p><u>Incidence:</u> -</p>	<p>-</p> <p>Severity of battles OR: 1.01 [0.67 1.35] (combat stress reaction) OR: 0.87 [0.57 1.32] (no combat stress reaction)</p> <p>Life threatening war OR: 1.91 [1.07 3.24] (combat stress reaction) OR: 1.01 [0.68 1.50] (no combat stress reaction)</p> <p>Locus of control OR: 1.12 [0.93 1.35] (combat stress reaction) OR: 0.88 [0.73 1.05] (no combat stress reaction)</p> <p>Problem-focused coping</p>

						<p>OR: 1.72 [0.80 3.73] (combat stress reaction) OR: 3.11 [1.16 8.38] (no combat stress reaction)</p> <p>Emotion-focused coping OR: 0.60 [0.26–1.35] (combat stress reaction) OR: 0.28 [0.09–0.93] (no combat stress reaction)</p>
27. Kim, 2014 ⁴⁵	<p><u>Name:</u> -</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 980</p> <p><u>Country</u>= Korea</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= Most participants were in their 40s.</p> <p><u>Type of job/company</u>= Subway drivers employed by a public company in Seoul</p> <p><u>Inclusion/exclusion</u>= Participants currently on sick leave and female drivers were excluded.</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Person under train experiences and other work-related exposures were assessed.</p>	<p><u>Type of symptoms:</u> PTSD (1 year and lifetime prevalence).</p> <p><u>Way of assessment:</u> The Korean version of the Composite International Diagnostic Interview (K-CIDI) was administered to diagnose PTSD, using DSM-4 criteria.</p> <p><u>Incidence:</u> 1.6% (one year prevalence)</p>	<p>Multi-variate analyses with all other exposures and age. For 1 year prevalence (model 1) and lifetime prevalence (model 2).</p>	<p>Person under train experience <u>No</u> OR: Ref OR: Ref <u>Yes</u> OR: 1.54 [0.52 4.55]¹ OR: 2.06 [0.94 4.55]²</p> <p>Number of person under train experiences <u>0 experiences</u> OR: Ref OR: Ref <u>1 experience</u> OR: 1.77 [0.31 4.47]¹ OR: 1.45 [0.55 3.85]² <u>≥2 experiences</u> OR: 2.36 [0.57 9.70]¹ OR: 3.57 [1.32 3.65]²</p> <p>Severity of victim's injury <u>Alive</u> OR: Ref OR: Ref <u>Death</u> OR: 2.49 [0.27 23.27]¹</p>

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OR: 1.39 [0.40 4.82] ²
Person under train experience
<u>>5 years ago</u>
OR: Ref
OR: Ref
<u>≤5 years</u>
OR: 1.01 [0.11 9.06] ¹
OR: 0.33 [0.03 2.63] ²
Conflict with passengers
<u>No</u>
OR: Ref. ¹
OR: Ref. ²
<u>Yes</u>
OR: 3.21 [1.14 9.03] ¹
OR: 3.32 [1.55 7.12] ²
Sudden stop
<u>No</u>
OR: Ref. ¹
OR: Ref. ²
<u>Yes</u>
OR: 3.66 [0.82 16.4] ¹
OR: 7.53 [1.77 32.02] ²
Near accident
<u>No</u>
OR: Ref. ¹
OR: Ref. ²
<u>Yes</u>
OR: 8.81 [1.96 39.3] ¹
OR: 6.36 [2.40 16.90] ²
Breakdown
<u>No</u>
OR: Ref. ¹
OR: Ref. ²
<u>Yes</u>

						<p>OR: 1.71 [0.48 6.14]¹ OR: 1.89 [0.75 4.75]² Person under train experience of colleague <u>No</u> OR: Ref.¹ OR: Ref.² <u>Yes</u> OR: 0.55 [0.12 2.47]² OR: 2.84 [1.32 6.12]²</p>
28. Levin-Rector, 2018 ⁴⁶	<p><u>Name:</u> Defence Manpower Data Center (DMDC), Career History and Archival Medical Personnel System (CHAMPS), and the Expeditionary Medical Encounter Database (EMED)</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 35-43 months.</p>	<p>n= 332,093 (marine) and 773,359 (army)</p> <p><u>Country=</u> USA</p> <p><u>%Female=</u> 7% (marine) and 17% (army)</p> <p><u>Age=</u> 20.0 (3.9) (marine) and 21.7 (2.1) (army)</p> <p><u>Type of job/company=</u> All service members who went into the army or navy between 2001 and 2011.</p> <p><u>Inclusion/exclusion=</u> -</p>	<p><u>Exposure assessment:</u> Military databases</p> <p><u>Year of assessment:</u> 2001-2011</p> <p><u>Exposure categories:</u> Personal and deployment characteristics.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed PTSD obtained from military records.</p> <p><u>Incidence:</u> 4.3% (marine); 7.6% (army).</p>	<p>Adjusting for clustering within units.</p>	<p>Sex <u>Female</u> HR: Ref. (marine) HR: Ref. (army) <u>Male</u> HR: 0.40 [0.36 0.44] (marine) HR: 0.57 [0.55 0.59] (army)</p> <p>Age at accession HR: 0.99 [0.98 1.00] (marine) HR: 1.01 [1.00 1.01] (army)</p> <p>Race <u>White</u> HR: Ref. (marine) HR: Ref. (army) <u>Non-white</u> HR: 0.95 [0.91 1.00] (marine) HR: 0.96 [0.94 0.98] (army)</p> <p>Ethnicity <u>Non-Hispanic</u> HR: Ref. (marine) HR: Ref. (army) <u>Hispanic</u> HR: 0.80 [0.75 0.84] (marine) HR: 0.86 [0.84 0.89] (army)</p>

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Prior substance abuse disorder diagnosis
 HR: 3.10 [2.92 3.30] (marine)
 HR: 2.05 [2.00 2.10] (army)

Waiver status
No waiver
 HR: Ref. (marine)
 HR: Ref. (army)
Received medical waiver
 HR: 1.13 [1.07 1.20] (marine)
 HR: 1.02 [0.99 1.05] (army)
Received other waiver
 HR: 1.12 [1.08 1.16] (marine)
 HR: 1.12 [1.10 1.15] (army)

Marital status
Single
 HR: Ref. (marine)
 HR: Ref. (army)
Divorced/widowed
 HR: 1.21 [1.06 1.39] (marine)
 HR: 1.18 [1.12 1.24] (army)
Married
 HR: 1.31 [1.24 1.38] (marine)
 HR: 1.20 [1.18 1.23] (army)

Rank
Enlisted
 HR: Ref. (marine)
 HR: Ref. (army)
Officer
 HR: 0.16 [0.13 0.21] (marine)
 HR: 0.20 [0.15 0.26] (army)

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						<p><u>Combat specialist</u> HR: Ref. (marine) HR: Ref. (army)</p> <p><u>Communications/intelligence</u> HR: 0.54 [0.48 0.62] (marine) HR: 0.73 [0.70 0.77] (army)</p> <p><u>Craft/repair specialist</u> HR: 0.46 [0.40 0.54] (marine) HR: 0.62 [0.60 0.65] (army)</p> <p><u>Functional support/other</u> HR: 0.46 [0.41 0.51] (marine) HR: 0.56 [0.53 0.59] (army)</p> <p><u>Service and supply</u> HR: 0.77 [0.68 0.87] (marine) HR: 0.84 [0.80 0.88] (army)</p> <p><u>Healthcare specialist</u> HR: 1.03 [0.98 1.08] (army)</p> <p>Cumulative years deployed HR: 2.04 [1.93 2.15] (marine) HR: 1.74 [1.71 1.76] (army)</p> <p>Unit cumulative high deployment stress rate (per 100) HR: 1.04 [1.03 1.05] (marine) HR: 1.05 [1.04 1.06] (army)</p> <p>Unit stability HR: 1.11 [0.92 1.33] (marine) HR: 0.69 [0.64 0.74] (army)</p>
29. MacGregor, 2015 ⁴⁷	<p><u>Name:</u> Defence Manpower Data Center (DMDC)</p> <p><u>Design:</u> Prospective</p>	<p><u>n</u>= 8,064 (3,416 health care profession, 4,648 no health care profession)</p> <p><u>Country</u>= USA</p>	<p><u>Exposure assessment:</u> Self-reported.</p> <p><u>Year of assessment:</u> 2001-2008</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed, according to ICD-9-CM criteria,</p>	<p>Univariate (model 1) and multivariate (model 1) adjusting for all remaining exposures</p>	<p>Health Care Occupation</p> <p><u>No</u> OR: Ref. (1 deployment) OR: Ref. (2 deployments) OR: Ref. (3 deployments)</p> <p><u>Yes</u></p>

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	<p>longitudinal</p> <p><u>Follow-up period:</u> Up to 60 days.</p>	<p><u>%Female=</u> 0%</p> <p><u>Age=</u> Ranging from 27.9 (5.7) to 30.2 (7.0) in various participating groups.</p> <p><u>Type of job/company=</u> Navy personnel with one, two or three deployments in Iraq and/or Afghanistan.</p> <p><u>Inclusion/exclusion=</u> Participants who completed a health assessment within 60 days post-deployment were included. Women were excluded</p>	<p><u>Exposure categories:</u> military occupation, combat rank, deployment specific variables</p>	<p>from inpatient and outpatient databased.</p> <p><u>Incidence:</u> Ranging from 1.9% to 17.9% for various participating groups.</p>	<p>OR: 2.02 [1.45 2.80]¹ (1 deployment) OR: 2.27 [1.26 4.08]¹ (2 deployments) OR: 4.37 [1.25 15.28]¹ (3 deployments)</p> <p>Age OR: 0.97 [0.94 0.99]¹ (1 deployment) OR: 0.97 [0.93 1.02]¹ (2 deployments) OR: 0.94 [0.86 1.03]¹ (3 deployments)</p> <p>Rank <u>Enlisted</u> OR: Ref. OR: Ref. <u>Officer</u> OR: 0.35 [0.18 0.65]¹ (1 deployment) OR: 0.54 [0.12 2.47]¹ (2 deployments)</p> <p>Married <u>No</u> OR: Ref. (1 deployment) OR: Ref. (2 deployments) OR: Ref. (3 deployments) <u>Yes</u> OR: 0.93 [0.67 1.30]¹ (1 deployment) OR: 0.54 [0.32 0.89]¹ (2 deployments) OR: 0.96 [0.36 2.56]¹ (3 deployments)</p>
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						<p>Some College</p> <p><u>No</u></p> <p>OR: Ref. (1 deployment)</p> <p>OR: Ref. (2 deployments)</p> <p>OR: Ref. (3 deployments)</p> <p><u>Yes</u></p> <p>OR: 1.61 [0.97 2.68]¹ (1 deployment)</p> <p>OR: 0.66 [0.22 1.97]¹ (2 deployments)</p> <p>OR: 0.41 [0.04 3.92]¹ (3 deployments)</p> <p>Medical utilization</p> <p><u>Low</u></p> <p>OR: Ref.</p> <p>OR: Ref.</p> <p>OR: Ref.</p> <p><u>Moderate</u></p> <p>OR: 6.64 [3.50 12.60]¹ (1 deployment)</p> <p>OR: 3.40 [1.64 7.06]¹ (2 deployments)</p> <p>OR: 13.84 [1.69 113.49]¹ (3 deployments)</p> <p><u>High</u></p> <p>OR: 34.52 [19.35 61.59]¹ (1 deployment)</p> <p>OR: 15.25 [7.89 29.49]¹ (2 deployments)</p> <p>OR: 46.96 [5.98 368.58]¹ (3 deployments)</p> <p>Deployment location</p> <p><u>Afghanistan/Iraq</u></p> <p>OR: Ref.</p>
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						<p>OR: Ref. OR: Ref. <u>Kuwait</u> OR: 0.78 [0.55 1.10]¹ (1 deployment) OR: 0.81 [0.44 1.48]¹ (2 deployments) OR: 1.32 [0.94 1.82]¹ (3 deployments)</p> <p>Number of combat exposures OR: 1.62 [1.46 1.79]¹ (1 deployment) OR: 1.37 [1.17 1.61]¹ (2 deployments) OR: 1.30 [0.94 1.82]¹ (3 deployments)</p> <p>Current Deployment Time OR: 1.00 [1.00 1.01]¹ (1 deployment) OR: 1.00 [1.00 1.01]¹ (2 deployments) OR: 1.00 [0.99 1.01]¹ (3 deployments)</p> <p>Previous deployment time OR: 1.00 [1.00 1.01]¹ (2 deployments) OR: 1.00 [0.99 1.01]¹ (3 deployments)</p> <p>Previous dwell time OR: 1.00 [1.00 1.00]¹ (2 deployments) OR: 1.00 [1.00 1.00]¹ (3 deployments)</p>
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						<p>deployments)</p> <p><i>Only health care occupation below</i></p> <p>Felt in great danger of being killed</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.14 [3.13 5.46]¹ OR: 3.44 [2.50 4.72]²</p> <p>Engaged in direct combat and discharged weapon</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 3.43 [2.42 4.87]¹ OR: 1.67 [1.15 2.44]²</p> <p>Exposed to wounded/dead civilians</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.51 [1.16 1.96]¹</p> <p>Exposed to wounded/dead friendly forces</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.99 [1.52 2.60]¹ OR: 1.53 [1.13 2.07]²</p>
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						<p>Exposed to wounded/dead enemy</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.79 [1.38 2.34]¹</p>
30. MacGregor, 2012 ⁴⁸	<p><u>Name:</u> Defence Manpower Data Center (DMDC)</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4 years</p>	<p><u>n</u>=65,704</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= 22 (19-53)</p> <p><u>Type of job/company</u>= Marine corps personnel deployed to Iraq or Kuwait.</p> <p><u>Inclusion/exclusion</u>= Deployments between 4 and 8 months were considered. Special forces and participants with earlier mental health issues were excluded. Only those with more than one deployment were analysed.</p>	<p><u>Exposure assessment:</u> Deployment administration</p> <p><u>Year of assessment:</u> 2003-2007</p> <p><u>Exposure categories:</u> Dwell-to-deployment ratios were categorised into <1:1, 1:1 and 2:1.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed PTSD with ICD-9-CM criteria were obtained from impatient and outpatient registers</p> <p><u>Incidence:</u> 1.5%</p>	<p>Adjustment for age and military rank</p>	<p>Dwell to deployment ratio</p> <p><u><1:1</u> OR: Ref.</p> <p><u>1:1</u> OR: 0.83 [0.60 1.13]</p> <p><u>2:1</u> OR: 0.47 [0.32 0.70]</p>
31. Maguen, 2012 ⁴⁹	<p><u>Name:</u> Department of Veterans Affairs (VA) database</p>	<p><u>n</u>= 968</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 12%</p>	<p><u>Exposure assessment:</u> Department of Veterans Affairs administrative data (including self-reports)</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Using the self-</p>	<p>Univariate (model 1) and multivariate (model 2), adjusting for age, sex, race, marital status, unit,</p>	<p>Number of exposures</p> <p><u>None</u> OR: Ref.</p> <p><u>One</u> OR: Ref.</p>

	<p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> 11 days</p>	<p><u>Age</u>= 30.3(8.4) years</p> <p><u>Type of job/company</u>= War veterans who have been deployed in Iran and Afghanistan.</p> <p><u>Inclusion/exclusion</u>= Participants with either no head injury or a head injury with traumatic brain injury were included, but not those with head injury without brain damage.</p>	<p><u>Year of assessment:</u> 2007-2010</p> <p><u>Exposure categories:</u> Exposure to traumatic brain injury mechanisms</p>	<p>reported Primary Care PTSD Screen (PC-PTSD) screening instrument</p> <p><u>Incidence:</u> -</p>	<p>branch of service, rank and number of deployments.</p>	<p>OR: 4.93 [3.3 7.3]¹ OR: 4.67 [3.1 7.1]² <u>Two +</u> OR: 6.96 [5.1 9.6]¹ OR: 6.15 [4.4 8.7]²</p> <p>Type of exposure</p> <p><u>None</u> OR: Ref. OR: Ref.</p> <p><u>Blast only</u> OR: 5.13 [3.2 8.2]¹ OR: 4.72 [2.9 7.7]²</p> <p><u>Blast plus</u> OR: 7.45 [5.4 10.3]¹ OR: 6.52 [4.6 9.3]²</p> <p><u>1 Non blast</u> OR: 4.53 [2.4 8.6]¹ OR: 4.60 [2.4 8.8]²</p> <p><u>2+ Non blast</u> OR: 2.94 [1.17 7.4]¹ OR: 3.36 [1.32 8.6]²</p>
<p>32. Maguen, 2010⁵⁰</p>	<p><u>Name:</u> Department of Veterans Affairs (VA) database</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 329,049</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 12%</p> <p><u>Age</u>= 31.2(9.0)</p> <p><u>Type of job/company</u>= War veterans who have been deployed in Iran and Afghanistan.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Deployment data</p> <p><u>Year of assessment:</u> 2001</p> <p><u>Exposure categories:</u> Demographic and military service data.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> PTSD obtained from medical health records of those who visited veteran facilities from 2002 to 2008. Diagnosis was done with ICD-9-CM criteria.</p> <p><u>Incidence:</u> 17% among females, 22% among</p>	<p>Univariate models were conducted for females (model 1) and males (model 2) separately.</p>	<p>Age</p> <p><u>16–24</u> RR: Ref. RR: Ref.</p> <p><u>25–29</u> RR: 1.05 [0.99 1.11]¹ RR: 0.96 [0.94 0.97]²</p> <p><u>30–39</u> RR: 1.24 [1.17 1.32]¹ RR: 0.98 [0.96 0.99]²</p> <p><u>40–71</u> RR: 1.21 [1.13 1.30]¹ RR: 0.79 [0.77 0.81]²</p> <p>Race/Ethnicity</p>

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				males.		<p><u>White</u> RR: Ref. RR: Ref.</p> <p><u>Black</u> RR: 0.95 [0.86 0.98]¹ RR: 0.98 [0.96 1.00]²</p> <p><u>Hispanic</u> RR: 0.95 [0.88 1.01]¹ RR: 0.89 [0.88 0.92]²</p> <p><u>Other</u> RR: 0.97 [0.86 1.10]¹ RR: 1.02 [0.98 1.07]²</p> <p>Marital status</p> <p><u>Married</u> RR: Ref. RR: Ref.</p> <p><u>Never married</u> RR: 0.97 [0.92 1.02]¹ RR: 0.82 [0.80 0.83]²</p> <p><u>Divorced/separated/widowed</u> RR: 1.15 [1.08 1.22]¹ RR: 1.08 [1.06 1.10]²</p> <p>Component type</p> <p><u>Active duty</u> RR: Ref. RR: Ref.</p> <p><u>Reserve/National Guard</u> RR: 0.90 [0.86 0.94]¹ RR: 0.74 [0.73 0.75]²</p> <p>Branch of service</p> <p><u>Army</u> RR: Ref. RR: Ref.</p> <p><u>Marine</u></p>
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						RR: 0.94 [0.85 1.05] ¹ RR: 0.95 [0.93 0.97] ² <u>Navy</u> RR: 0.45 [0.41 0.49] ¹ RR: 0.33 [0.32 0.34] ² <u>Air Force</u> RR: 0.45 [0.41 0.49] ¹ RR: 0.26 [0.25 0.27] ² Rank <u>Enlisted</u> RR: Ref. RR: Ref. <u>Officer</u> RR: 0.69 [0.63 0.77] ¹ RR: 0.51 [0.49 0.54] ² Number of deployments <u>One</u> RR: Ref. RR: Ref. <u>More than one</u> RR: 1.14 [1.09 1.19] ¹ RR: 1.15 [1.13 1.16] ²
33. Martindale, 2018 ⁵¹	<u>Name:</u> - <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> Between 6 and 9 years.	<u>n</u> = 19 <u>Country</u> = USA <u>%Female</u> = 16% <u>Age</u> = 39.0(9.4) years. <u>Type of job/company</u> = Military personnel deployed in Afghanistan or Iraq	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 2007-2010 <u>Exposure categories:</u> Blast exposure, traumatic brain injury and re-deployment were assessed.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Via a structured interview, the Structured Clinical Interview for DSM-4 Axis I Disorders (SCID) <u>Incidence:</u> 6/19 and 5/19 had current PTSD at T1 and T2,	-	Only individual participant data were presented, showing associations between the exposures and PTSD.

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		<u>Inclusion/exclusion</u> = Participants with a history in traumatic brain injury or other neurological or mental disorders were excluded.		respectively.		
34. Nagamine, 2018 ⁵²	<u>Name</u> : - <u>Design</u> : Prospective longitudinal, with baseline measurements one month post-deployment. <u>Follow-up period</u> : 6 and 12 months post-deployment.	<u>n</u> = 56,753 <u>Country</u> = Japan <u>%Female</u> = 3% <u>Age</u> =- <u>Type of job/company</u> = Members of the ground defence force at 2011 Great East Japan Earthquake. <u>Inclusion/exclusion</u> = -	<u>Exposure assessment</u> : Self-reported <u>Year of assessment</u> : - <u>Exposure categories</u> : Information on personal attributes and mission duties.	<u>Type of symptoms</u> : PTSD symptoms (using a cut-off: >- 25) <u>Way of assessment</u> : Self-reported with the Impact of Event Scale-Revised (IES-R). <u>Incidence</u> : 2283/56753=4%	Multivariate model	Age OR: 1.39 [1.27 1.52] Sex <u>Male</u> OR: Ref. <u>Female</u> OR: 1.61 [1.29 2.00] Rank <u>Enlisted/private</u> OR: Ref. <u>Officer</u> OR: 0.77 [0.67 0.88] <u>Administrative official</u> OR: 1.24 [0.82 1.87] Deployment length <u>< 1 month</u> OR: Ref. <u>1–3 months</u> OR: 1.53 [1.37 1.70] <u>≥ 3 months</u> OR: 2.64 [2.33 2.99] Personally affected <u>No</u> OR: Ref. <u>Yes</u> OR: 2.19 [1.95 2.44]

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						<p>Body recovery duties <u>No</u> OR: Ref. <u>Yes</u> OR: 1.37 [1.25 1.51]</p> <p>Duties with radiation exposure risk <u>No</u> OR: Ref. <u>Yes</u> OR: 1.08 [0.97 1.20]</p> <p>Timing of post-deployment leave <u>Within two weeks</u> OR: Ref. <u>Over two weeks</u> OR: 1.34 [1.22 1.47] <u>No leave taken</u> OR: 1.50 [1.29 1.75]</p> <p>Post-deployment overwork <u>No</u> OR: Ref. <u>Yes: < 3 months</u> OR: 1.39 [1.26 1.53] <u>Yes: ≥ 3 months</u> OR: 2.02 [1.78 2.29]</p> <p>Post-deployment relocation <u>No</u> OR: Ref. <u>Yes</u> OR: 1.12 [0.98 1.28]</p>
35. Osorio, 2018 ⁵³	<u>Name:</u> Secondary analyses on the	<u>n=</u> 1,635	<u>Exposure assessment:</u> Self-reported	<u>Type of symptoms:</u> PTSD symptoms (re-	Nine different models:	Violent combat <u>No</u>

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	<p>Battlemind RCT.</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4-6 months post deployment.</p>	<p><u>Country</u>= UK</p> <p><u>%Female</u>= 2%</p> <p><u>Age</u>= 39% was younger than 25 years.</p> <p><u>Type of job/company</u>= Members of three branches of the army forces, returning from deployment in Afghanistan.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Year of assessment:</u> 2009</p> <p><u>Exposure categories:</u> Violent combat situations, proximity to wounding or death and encountering explosive devices.</p>	<p>experience is extracted for this review - in the paper also: avoidance, numbing, arousal and anxious is reported)</p> <p><u>Way of assessment:</u> Using the National Center for Posttraumatic Stress Disorders Checklist – Civilian Version (PCL-C). PTSD in general, but also avoiding, numbing and arousal behaviour were reported. For this review we only extracted PTSD.</p> <p><u>Incidence:</u> 34%</p>	<p>Model 1: Unadjusted</p> <p>Model 2: Adjusted</p> <p>Model 3: Adjusted for proximity to wounding or death.</p> <p>Model 4: Adjusted for encountering explosive devices.</p> <p>Model 5: adjusted for PTSD re-experiencing, avoidance, numbing, or arousal.</p> <p>Model 6: Adjusted for distress.</p> <p>Model 7: Adjusted for alcohol.</p> <p>Model 8: Ranks, deployment and gender.</p> <p>Model 9: Adjusted for violent combat, proximity to wounding or death, encountering explosive devices, PTSD re-experiencing, avoidance, numbing, arousal, distress, alcohol consumption, rank, gender, reserves, deployment.</p>	<p>RR: Ref.¹</p> <p>RR: Ref.²</p> <p>RR: Ref.³</p> <p>RR: Ref.⁴</p> <p>RR: Ref.⁵</p> <p>RR: Ref.⁶</p> <p>RR: Ref.⁷</p> <p>RR: Ref.⁸</p> <p>RR: Ref.⁹</p> <p><u>Yes</u></p> <p>RR: 2.43 [1.95 3.02]¹</p> <p>RR: —²</p> <p>RR: 1.56 [1.21 2.01]³</p> <p>RR: 2.04 [1.62 2.58]⁴</p> <p>RR: 1.81 [1.43 2.29]⁵</p> <p>RR: 2.63 [2.10 3.31]⁶</p> <p>RR: 2.32 [1.85 2.89]⁷</p> <p>RR: 2.36 [1.89 2.95]⁸</p> <p>RR: 1.35 [1.01 1.81]⁹</p> <p>Proximity to wounding or death</p> <p><u>No</u></p> <p>RR: Ref.¹</p> <p>RR: Ref.²</p> <p>RR: Ref.³</p> <p>RR: Ref.⁴</p> <p>RR: Ref.⁵</p> <p>RR: Ref.⁶</p> <p>RR: Ref.⁷</p> <p>RR: Ref.⁸</p> <p>RR: Ref.⁹</p> <p><u>Yes</u></p> <p>RR: 3.01 [2.42 3.74]¹</p> <p>RR: 2.42 [1.89 3.11]²</p> <p>RR: —³</p> <p>RR: 2.62 [2.08 3.31]⁴</p>
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						<p>RR: 2.02 [1.59 2.56]⁵ RR: 3.03 [2.42 3.80]⁶ RR: 2.94 [2.36 3.67]⁷ RR: 3.01 [2.41 3.75]⁸ RR: 1.67 [1.25 2.23]⁹</p> <p>Encountering explosive devices</p> <p><u>No</u></p> <p>RR: Ref.¹ RR: Ref.² RR: Ref.³ RR: Ref.⁴ RR: Ref.⁵ RR: Ref.⁶ RR: Ref.⁷ RR: Ref.⁸ RR: Ref.⁹</p> <p><u>Yes</u></p> <p>RR: 2.14 [1.71 2.67]¹ RR: 1.66 [1.30 2.10]² RR: 1.54 [1.21 1.95]³ RR: —⁴ RR: 1.70 [1.33 2.16]⁵ RR: 2.17 [1.72 2.73]⁶ RR: 2.01 [1.60 2.52]⁷ RR: 2.06 [1.65 2.59]⁸ RR: 1.26 [0.95 1.66]⁹</p>
36. Pihl-Thingvad, 2019 ⁵⁴	<p><u>Name:</u> Everyday violence project</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 12 months</p>	<p><u>n</u>= 1,763</p> <p><u>Country</u>= Denmark</p> <p><u>%Female</u>= 78%</p> <p><u>Age</u>= 48.7 (9.4) years.</p> <p><u>Type of job/company</u>=</p>	<p><u>Exposure assessment:</u> Self-reported.</p> <p><u>Year of assessment:</u> 2016-2017</p> <p><u>Exposure categories:</u> Patient-initiated violence.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Self-reported using the International Trauma Questionnaire, with ICD-11 criteria.</p>	<p>Crude model adjusting for age and gender (model 1), additionally adjusting for BMI, alcohol, years of experience, critical incidents outside of work, posttraumatic</p>	<p>Frequency of violence</p> <p><u>No violence</u></p> <p>OR: Ref. OR: Ref. OR: Ref.</p> <p><u>Low frequency</u></p> <p>OR: 4.4 [1.3 14.8]¹ OR: 3.0 [0.90 10.4]² OR: 4.0 [1.0 16.3]³</p>

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		<p>Social educators working with disabled adults.</p> <p><u>Inclusion/exclusion</u>= Participants in leadership position and with PTSD at baseline were excluded.</p>		<p><u>Incidence</u>: 3.5%</p>	<p>stress disorder symptom level at baseline, trauma coping self-efficacy, workplace social capital linking, and training (model 2). In model 3, additional for frequency and severity of violence was done.</p>	<p><u>Medium frequency</u> OR: 6.3 [1.8 22.9]¹ OR: 3.7 [1.0 13.8]² OR: 5.9 [1.4 24.2]³ <u>High frequency</u> OR: 10.2 [2.9 36.3]¹ OR: 4.2 [1.1 15.9]² OR: 6.5 [1.6 25.6]³ Severity of violence <u>No violence</u> OR: Ref. OR: Ref. OR: Ref. <u>Max. mild violence</u> OR: 2.3 [0.2 22.8]¹ OR: 2.3 [0.2 24.4]² OR: 3.8 [0.3 46.2]³ <u>Max. threats of violence</u> OR: 5.1 [1.5 17.5]¹ OR: 3.6 [1.0 12.4]² OR: 5.4 [1.2 24.2]³ <u>Max. moderate violence</u> OR: 4.1 [1.1 14.5]¹ OR: 2.1 [0.6 8.1]² OR: 2.6 [0.6 10.8]³ <u>Max. severe violence</u> OR: 13.7 [3.1 37.1]¹ OR: 5.3 [1.5 19.5]² OR: 6.5 [1.6 26.0]³</p>
<p>37. Polusny, 2011⁵⁵</p>	<p><u>Name</u>: Readiness and Resilience in National Guard Soldiers.</p> <p><u>Design</u>: Prospective</p>	<p><u>n</u>= 426</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 12%</p> <p><u>Age</u>= Mostly younger</p>	<p><u>Exposure assessment</u>: Self-reported</p> <p><u>Year of assessment</u>: 2006</p> <p><u>Exposure categories</u>:</p>	<p><u>Type of symptoms</u>: Probable PTSD (new onset)</p> <p><u>Way of assessment</u>: Self-reported using the PCL checklist, with</p>	<p>Adjusting for all other pre-deployment factors (model 1), additionally adjusting for deployment</p>	<p>Baseline PTSD symptoms <u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³ <u>Yes</u> OR: 0.73 [0.34 1.58]¹</p>

	<p>longitudinal</p> <p><u>Follow-up period:</u> 2 months</p>	<p>than 30.</p> <p><u>Type of job/company=</u> National Guard soldiers</p> <p><u>Inclusion/exclusion=</u> Those with PTSD at baseline were excluded.</p>	<p>Psychosocial risk, protective factors and deployment exposures.</p>	<p>DSM-4 criteria.</p> <p><u>Incidence:</u> 14%</p>	<p>exposures (model 2) and additionally adjusting for post-deployment factors (model 3).</p>	<p>OR: 0.79 [0.34 1.85]² OR: 0.69 [0.27 1.79]³</p> <p>Military preparedness</p> <p><u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³</p> <p><u>Yes</u> OR: 0.58 [0.39 0.87]¹ OR: 0.62 [0.40 0.95]² OR: 0.77 [0.48 1.25]³</p> <p>Concerns about life/family disruptions</p> <p><u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³</p> <p><u>Yes</u> OR: 1.38 [0.97 1.97]¹ OR: 1.31 [0.88 1.95]² OR: 1.12 [0.71 1.77]³</p> <p>Unit support</p> <p><u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³</p> <p><u>Yes</u> OR: 1.43 [0.95 2.15]¹ OR: 1.15 [0.73 1.79]² OR: 1.15 [0.70 1.89]³</p> <p>Combat experiences</p> <p><u>No</u> OR: Ref.²</p>
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						<p>OR: Ref.³ <u>Yes</u> OR: 2.19 [1.40 3.41]² OR: 2.35 [1.41 3.92]³</p> <p>Exposure to aftermath of battle <u>No</u> OR: Ref.² OR: Ref.³ <u>Yes</u> OR: 1.62 [1.04 2.53]² OR: 1.81 [1.08 3.06]³</p> <p>Perceived life threat <u>No</u> OR: Ref.² OR: Ref.³ <u>Yes</u> OR: 1.21 [0.81 1.81]² OR: 1.01 [0.63 1.64]³</p> <p>Post-deployment social support <u>No</u> OR: Ref.³ <u>Yes</u> OR: 0.31 [0.19 0.50]³</p> <p>Post-deployment life stressors <u>No</u> OR: Ref.³ <u>Yes</u> OR: 1.96 [1.17 3.28]³</p>
38. Reijnen, 2015 ⁵⁶	<u>Name:</u> -	n= 994	<u>Exposure assessment:</u> Self-reported	<u>Type of symptoms:</u> PTSD symptoms	-	<p>Deployment <u>Pre-deployment</u></p>

	<p><u>Design:</u> Prospective longitudinal with baseline measurements 1 month prior to deployment</p> <p><u>Follow-up period:</u> 2 years post deployment.</p>	<p><u>Country=</u> Netherlands</p> <p><u>%Female=</u> 9%</p> <p><u>Age=</u> 28.5 (9.0)</p> <p><u>Type of job/company=</u> Dutch military personnel who were deployed to Afghanistan</p> <p><u>Inclusion/exclusion=-</u></p>	<p><u>Year of assessment:</u> 2005-2008</p> <p><u>Exposure categories:</u> Different categories of time since deployment (compared to pre-deployment)</p>	<p><u>Way of assessment:</u> Self-reported with the Dutch Self-Rating Inventory for PTSD, using DSM-4 cut-off values</p> <p><u>Incidence:</u> 8.9%</p>		<p>OR: Ref</p> <p><u>1 month post-deployment</u> OR: 2.12 [1.4 3.3]</p> <p><u>6 months post-deployment</u> OR: 2.18 [1.4 3.4]</p> <p><u>1 year post-deployment</u> OR: 1.62 [1.0 2.6]</p> <p><u>2 years post-deployment</u> OR: 1.33 [2.8 5.8]</p>
39. Shea, 2013 57	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 6 months post deployment.</p>	<p><u>n=</u> 238</p> <p><u>Country=</u> USA</p> <p><u>%Female=</u> 8%</p> <p><u>Age=</u> 33.5 (9.5) years.</p> <p><u>Type of job/company=</u> Members of the National Guard units recently returned from deployment to Iraq and Afghanistan.</p> <p><u>Inclusion/exclusion=</u> -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2006-2009</p> <p><u>Exposure categories:</u> Personal characteristics, pre-deployment and deployment characteristics.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed during a CAPS structured interview.</p> <p><u>Incidence:</u> 13%</p>	<p>Adjusting for demographics (model 1), additionally adjusting for pre-deployment characteristics (model 2), additionally adjusting for deployment-related variables (model 3), and additionally adjusting for post-deployment characteristics (model 4).</p>	<p>It is unclear what the reference group is for the below associations</p> <p>Gender OR: 1.03 [0.12 8.89]¹ OR: 0.46 [0.04 5.14]² OR: 0.94 [0.03 28.56]³ OR: 1.12 [0.03 38.70]⁴</p> <p>Ethnicity OR: 0.33 [0.04 2.64]¹ OR: 0.17 [0.02 1.61]² OR: 0.08 [0.00 1.45]³ OR: 0.07 [0.00 1.18]⁴</p> <p>Age OR: 1.09 [0.69 1.72]¹ OR: 1.01 [0.60 1.72]² OR: 0.7 [0.34 1.41]³ OR: 1.12 [0.31 1.45]⁴</p> <p>Negative temperament OR: 2.95 [1.66 5.23]² OR: 2.23 [1.18 4.22]³</p>

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						<p>OR: 1.46 [0.69 3.09]⁴</p> <p>Pre-deployment life events OR: 1.92 [1.19 3.10]² OR: 1.78 [1.00 3.19]³ OR: 1.1 [0.56 2.18]⁴</p> <p>Preparation and training OR: 0.89 [0.52 1.55]² OR: 1.41 [0.68 2.91]³ OR: 1.99 [0.83 4.62]⁴</p> <p>Life and family concerns OR: 2.77 [1.34 5.75]³ OR: 2.77 [1.28 6.01]⁴</p> <p>Deployment environment OR: 1.44 [0.68 3.05]³ OR: 1.31 [0.58 2.99]⁴</p> <p>Unit support OR: 1.03 [0.56 1.90]³ OR: 1.15 [0.58 2.30]⁴</p> <p>Combat exposure OR: 1.88 [1.01 3.50]³ OR: 2.00 [1.01 3.97]⁴</p> <p>Post-deployment support OR: 0.36 [0.15 0.87]⁴</p> <p>Post-deployment life events OR: 1.82 [0.98 3.39]⁴</p>
40. Soo, 2011 ⁵⁸	<u>Name:</u> FDNY-WTC-MMP <u>Design:</u>	<u>n=</u> 11,006 <u>Country=</u> USA	<u>Exposure assessment:</u> Demographics and work status and number of colleagues who died	<u>Type of symptoms:</u> Probable PTSD <u>Way of assessment:</u>	Univariate (model 1 & 3) and adjusted for all other exposures (model 2)	Arrival group <u>Group 3 and 4</u> HR: Ref ¹ HR: Ref ²

	<p>Prospective longitudinal</p> <p><u>Follow-up period:</u> 9 years, with follow-up measurements every 18 months.</p>	<p><u>%Female</u>= 0%</p> <p><u>Age</u>= 39.5 (7.4) years</p> <p><u>Type of job/company</u>= New York firefighters involved in the 9/11 WTC attacks.</p> <p><u>Inclusion/exclusion</u>= Firefighters who arrived at the site more than 14 days before the close of the WTC site were included. Women were excluded.</p>	<p>were obtained from databases. Other variables were self-reported.</p> <p><u>Year of assessment:</u> 2002</p> <p><u>Exposure categories:</u> Exposure to the WTC sites</p>	<p>Self-reported using the PCL-C checklist.</p> <p><u>Incidence:</u> 8% (after the first follow-up).</p>	<p>& 4), for those with PTSD at baseline (model 1 & 2) and without (model 3 & 4).</p>	<p>HR: Ref³ HR: Ref⁴</p> <p><u>Group 1</u> HR: 0.76 [0.58-1.00]¹ HR: 0.74 [0.56-0.99]² HR: 2.21 [1.80-2.70]³ HR: 1.38 [1.12-1.70]⁴</p> <p><u>Group 2</u> HR: 0.97 [0.75-1.25]¹ HR: 0.85 [0.66-1.11]² HR: 1.16 [0.98-1.39]³ HR: 0.90 [0.75-1.08]⁴</p> <p>≥1 death at firehouse on 9/11</p> <p><u>No</u> HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴</p> <p><u>Yes</u> HR: 0.84 [0.71-1.00]¹ HR: 0.87 [0.73-1.04]² HR: 1.31 [1.12-1.54]³ HR: 1.11 [0.95-1.31]⁴</p> <p>Received counselling during year 1</p> <p><u>No</u> HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴</p> <p><u>Yes</u> HR: 0.89 [0.76-1.04]¹ HR: 0.98 [0.83-1.15]² HR: 2.02 [1.74-2.35]³</p>
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						<p>HR: 1.59 [1.36-1.85]⁴</p> <p>Each concurrent aerodigestive symptom</p> <p><u>No</u></p> <p>HR: Ref.¹</p> <p>HR: Ref.²</p> <p>HR: Ref.³</p> <p>HR: Ref.⁴</p> <p><u>Yes</u></p> <p>HR: 0.87 [0.84-0.90]¹</p> <p>HR: 0.89 [0.86-0.93]²</p> <p>HR: 1.62 [1.56-1.67]³</p> <p>HR: 1.45 [1.40-1.51]⁴</p> <p>Concurrent alcohol intake</p> <p><u>No increase since 9/11</u></p> <p><u>Increased since 9/11</u></p> <p>HR: 0.77 [0.53-1.12]¹</p> <p>HR: 0.83 [0.56-1.22]²</p> <p>HR: 5.85 [4.56-7.52]³</p> <p>HR: 3.43 [2.67-4.43]⁴</p> <p><u>Increased since 9/11, now back to pre-9/11 levels</u></p> <p>HR: 0.95 [0.76-1.18]¹</p> <p>HR: 1.01 [0.81-1.27]²</p> <p>HR: 2.95 [2.46-3.55]³</p> <p>HR: 2.06 [1.71-2.47]⁴</p> <p>Concurrent exercise</p> <p><u>No change since last questionnaire</u></p> <p><u>Decreased since last questionnaire</u></p> <p>HR: 0.74 [0.62-0.88]¹</p> <p>HR: 0.76 [0.63-0.92]²</p> <p>HR: 2.65 [2.27-3.09]³</p>
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						<p>HR: 1.69 [1.44-1.97]⁴ <u>Decreased since last questionnaire for health reasons</u> HR: 0.38 [0.28-0.52]¹ HR: 0.56 [0.41-0.78]² HR: 4.20 [3.53-4.99]³ HR: 3.19 [2.64-3.86]⁴ <u>Increased since last questionnaire</u> HR: 0.95 [0.77-1.18]¹ HR: 0.92 [0.74-1.14]² HR: 1.13 [0.91-1.41]³ HR: 0.92 [0.74-1.14]⁴</p> <p>Concurrent smoking status <u>Never</u> <u>Current</u> HR: 1.03 [0.81-1.32]¹ HR: 1.04 [0.81-1.33]² HR: 1.13 [0.90-1.42]³ HR: 1.07 [0.85-1.35]⁴ <u>Former</u> HR: 0.91 [0.76-1.08]¹ HR: 0.95 [0.79-1.15]² HR: 1.24 [1.07-1.43]³ HR: 1.23 [1.06-1.42]⁴</p> <p>Experience with prior disaster <u>No</u> HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴ <u>Yes</u> HR: 0.82 [0.69-0.96]¹</p>
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						HR: 0.86 [0.73-1.02] ² HR: 1.29 [1.13-1.48] ³ HR: 1.11 [0.96-1.27] ⁴ Non-white race/ethnicity <u>No</u> HR: Ref. ¹ HR: Ref. ² HR: Ref. ³ HR: Ref. ⁴ <u>Yes</u> HR: 0.98 [0.70-1.36] ¹ HR: 1.05 [0.75-1.46] ² HR: 1.20 [0.94-1.54] ³ HR: 1.37 [1.07-1.75] ⁴ Age on 9/11 HR: 1.02 [1.01-1.04] ² HR: 1.00 [0.99-1.01] ⁴
41. Stevelink, 2018 ⁵⁹	<u>Name:</u> HERRICK cohort <u>Design:</u> Retrospective longitudinal <u>Follow-up period:</u> -	<u>n</u> =8,093 <u>Country</u> = UK <u>%Female</u> = 13% and 8% for those who were deployed and not <u>Age</u> = 40.0 (13.0) and 40.2 (9.4) for those who were not and were deployed, respectively. <u>Type of job/company</u> = Military personnel that were and were not deployed in Iraq.	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2014-2016 <u>Exposure categories:</u> Deployment and service status.	<u>Type of symptoms:</u> Probable PTSD <u>Way of assessment:</u> Self-reported with the PCL-C checklist. <u>Incidence:</u> 5.2% and 6.9% for those who were not deployed and deployed, respectively.	Unadjusted (model 1) and adjusted for age, gender, marital status, education, service and rank (model 2).	Deployment <u>Regulars</u> <u>Not deployed</u> OR: Ref ¹ OR: Ref ² <u>Deployed</u> OR: 1.34 [1.00 1.78] ¹ OR: 1.41 [1.04 1.90] ² <u>Reservists</u> <u>Not deployed</u> OR: Ref ¹ OR: Ref ² <u>Deployed</u> OR: 2.25 [1.14 4.46] ¹ OR: 2.48 [1.20 5.16] ² Serving status

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		<u>Inclusion/exclusion</u> = -				<u>Not serving</u> OR: Ref ¹ OR: Ref ² <u>Serving</u> OR: 1.60 [1.25 2.06] ¹ OR: 1.73 [1.25 2.40] ² Role during last deployment <u>Serving regulars</u> <u>No combat</u> OR: Ref ¹ OR: Ref ² <u>Combat</u> OR: 1.70 [1.08 2.67] ¹ OR: 1.58 [0.98 2.55] ² <u>Ex-serving regulars</u> <u>No combat</u> OR: Ref ¹ OR: Ref ² <u>Combat</u> OR: 3.39 [2.25 5.11] ¹ OR: 2.53 [1.60 3.99] ²
42. Wittchen, 2012 ⁶⁰	<u>Name:</u> PIT-PTSD+ study <u>Design:</u> Retrospective longitudinal <u>Follow-up period:</u> On average 12 months post-deployment.	<u>n</u> = 1,483 <u>Country</u> = Germany <u>%Female</u> = - <u>Age</u> = - <u>Type of job/company</u> = Soldiers deployed in Afghanistan, and those who have not been deployed.	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2010 <u>Exposure categories:</u> Deployment characteristics.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Diagnosed with a structured interview using DSM-4 criteria. <u>Incidence:</u> 12 month incidence: 2.1% and 0.2% in the deployed and non-deployed group ,respectively.	Unadjusted	Population <u>Control group</u> OR: Ref. (12 month diagnosis) OR: Ref. (12 month incidence) OR: Ref. (lifetime prevalence) <u>Deployed soldiers</u> OR: 2.5 [1.1 5.6] (12 month diagnosis) OR: 4.2 [0.7 24.5] (12 month incidence) OR: 1.7 [0.96 3.1] (lifetime prevalence) Deployed soldiers

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		<u>Inclusion/exclusion= -</u>				<u>Control soldiers</u> OR: Ref. (12 month diagnosis) OR: Ref. (12 month incidence) OR: Ref. (lifetime prevalence) <u>Kunduz</u> OR: 2.1 [0.8 5.8] (12 month diagnosis) OR: 6.6 [1.03 41.9] (12 month incidence) OR: 1.7 [0.8 3.6] (lifetime prevalence) <u>Combat units</u> OR: 3.3 [0.5 23.7] (12 month diagnosis) OR: - (12 month incidence) OR: 2.6 [0.7 9.4] (lifetime prevalence)
OR = Odds ratio RR = Relative risk HR = Hazard ratio						

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Supplementary file 4. Risk of bias of included articles. The risk of bias (i.e. low, moderate and high risk of bias) in six domains (i.e. study participation, study attrition, prognostic factor (i.e. exposure), outcome, study confounding and statistical analysis) is depicted, while also sum scores are shown.

First author, year of publication	Participation	Attrition	Prognostic factor	Outcome	Confounding	Analysis/reporting
1 Armed Forces Health Surveillance Center, 2011	Moderate	Moderate	Moderate	Low	High	High
2 Andersen, 2019	Moderate	Moderate	Moderate	Moderate	Low	Low
3 Anderson, 2019	Low	Moderate	Moderate	Moderate	Low	Low
4 Berninger, 2010	High	High	Low	Moderate	Low	Low
5 Brownlow, 2018	Moderate	Moderate	Moderate	Moderate	High	Low
6 Brundage, 2015	Low	Low	Low	Low	High	High
7 Cameron, 2019	Low	Low	Low	Low	Low	Low
8 Chiu, 2011	Low	Moderate	Moderate	Moderate	Low	Low
9 Ciarleglio, 2018	Low	Moderate	Moderate	Low	Low	Low
10 Cone, 2015	High	High	Moderate	Moderate	Low	Low
11 Connorton, 2011	Moderate	Moderate	High	High	Moderate	Low
12 Cukor, 2011	Low	Moderate	Moderate	Moderate	Low	Low
13 Fear, 2010	High	High	Low	Moderate	Low	Low
14 Ferrajao, 2016	High	High	Moderate	Moderate	High	Low
15 Fichera, 2015	High	High	Moderate	Moderate	Low	Low
16 Fink, 2016	High	High	Moderate	Moderate	High	Low
17 Goodwin, 2012	Low	Low	Moderate	Moderate	Low	Low
18 Green, 2016	Moderate	Moderate	Moderate	Low	High	Low
19 Hansen, 2017	High	Moderate	Moderate	Moderate	Low	Low
20 Harvey, 2012	High	Moderate	Low	Moderate	Low	Low
21 Horesh, 2011	Moderate	Moderate	Moderate	Moderate	High	Moderate
22 Hourani, 2012	Moderate	High	Moderate	Moderate	High	High
23 Ikeda, 2017	Moderate	Moderate	Moderate	Moderate	Low	Low
24 Joseph, 2014	Moderate	Moderate	Moderate	Moderate	Low	Low
25 Karstoft, 2013	Moderate	Low	Moderate	Moderate	High	Low
26 Karstoft, 2015	Moderate	Low	Moderate	Moderate	High	Low
27 Kim, 2014	Low	Low	Moderate	Low	Low	Low
28 Levin-Rector, 2018	Low	Low	Low	Low	Moderate	Low
29 MacGregor, 2015	Moderate	Moderate	Low	Low	Low	Low
30 MacGregor, 2012	Low	Low	Low	Low	Low	Low
31 Maguen, 2012	Moderate	Moderate	Moderate	Moderate	Low	Low
32 Maguen, 2010	Moderate	Moderate	Low	Low	High	Low
33 Martindale, 2018	High	Moderate	Moderate	Low	High	High
34 Nagamine, 2018	Moderate	Moderate	Moderate	Moderate	High	Low
35 Osorio, 2018	High	High	Moderate	Moderate	Low	Low
36 Pihl-Thingvad, 2019	Low	Low	Moderate	Moderate	Low	Low
37 Polusny, 2011	Moderate	Moderate	Moderate	Moderate	Low	Low
38 Reijnen, 2015	High	High	Moderate	Moderate	High	Low
39 Shea, 2013	Moderate	Moderate	Moderate	Low	Low	Low
40 Soo, 2011	Moderate	Moderate	Moderate	Moderate	Low	Low
41 Stevelink, 2018	High	High	Moderate	Moderate	Low	Low
42 Wittchen, 2012	Moderate	Moderate	Moderate	Low	High	Low

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Supplementary file 5. Risk of bias of included studies.

First author, Year;	Item	Risk of bias	Reason
1. Armed Forces Health Surveillance Center, 2011 ²¹	Participation	Moderate	All armed forces were eligible, but no non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	Moderate	Although prognostic factors were self-reported, no substantial bias can be expected from self-reports of the current prognostic factors
	Outcome	Low	Outcomes were diagnosed in a hospital
	Confounding	High	No confounding analysis has been conducted
	Analysis/reporting	High	No proper analysis has been conducted, only descriptives were presented.
2. Andersen, 2019 ¹⁹	Participation	Moderate	No non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
3. Anderson, 2019 ²⁰	Participation	Low	86% of eligible participants, participated at baseline.
	Attrition	Moderate	60% of the participants were filled out their follow-up questionnaires
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
4. Berninger, 2010 ²²	Participation	High	There were differences (e.g. in PTSD status) between participants and non-participants
	Attrition	High	Participants without follow-up data were excluded. The above therefore also holds for those lost at follow-up
	Prognostic factor	Low	Prognostic factors were self-reported and from registers
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
5. Brownlow, 2018 ²³	Participation	Moderate	No non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	High	Only univariate analyses were reported

	Analysis/reporting	Low	Adequate analyses were used
6. Brundage, 2015 ²⁴	Participation	Low	It appears as if all eligible participants were analysed.
	Attrition	Low	It appears as if all eligible participants were analysed.
	Prognostic factor	Low	Deployment records were used
	Outcome	Low	Outcomes were diagnosed (it appears).
	Confounding	High	No confounding adjustment were done
	Analysis/reporting	High	Only descriptive statistics were provided
7. Cameron, 2019 ²⁵	Participation	Low	It appears as if all eligible participants were analysed.
	Attrition	Low	It appears as if all eligible participants were analysed.
	Prognostic factor	Low	Deployment records were used
	Outcome	Low	Outcomes were diagnosed
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
8. Chiu, 2011 ²⁶	Participation	Low	There were some differences between responders and non-responders.
	Attrition	Moderate	Since data were gathered retrospective, participation and attrition are similar.
	Prognostic factor	Moderate	Both self-reports and employer data were used
	Outcome	Moderate	Outcomes were self-reported using a validated questionnaire
	Confounding	Low	Confounding adjustment was performed.
	Analysis/reporting	Low	Adequate analyses were used
9. Ciarleglio, 2018 ²⁷	Participation	Low	11% non-response
	Attrition	Moderate	Since data were gathered retrospective, participation and attrition are similar.
	Prognostic factor	Moderate	Both self-reports and employer data were used
	Outcome	Low	Outcome was diagnosed
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
10. Cone, 2015 ²⁸	Participation	High	There are substantial differences between responders and non-responders.
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
11. Connorton, 2011 ²⁹	Participation	Moderate	No non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	High	Prognostic factors were self-reported and it is unclear how
	Outcome	High	Outcomes were self-reported and it is unclear how

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	Confounding	Moderate	Multivariate analyses are not reported and it is unclear what was done
	Analysis/reporting	Low	Adequate analyses were done.
12. Cukor, 2011 ³⁰	Participation	Low	There was 86% participation
	Attrition	Moderate	There was 67% participation at follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported.
	Outcome	Moderate	Outcomes were self-reported and obtained from interviews, with interview data used for exposure-outcome associations.
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
13. Fear, 2010 ³¹	Participation	High	There are substantial differences between responders and non-responders.
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Low	Deployment administrative data were used
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
14. Ferrajao, 2016 ³²	Participation	High	Unclear but probably low participation rate
	Attrition	High	Since data were gathered retrospective, participation and attrition are similar.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	High	No adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
15. Fichera, 2015 ³³	Participation	High	There was substantial non-response
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
16. Fink, 2016 ³⁴	Participation	High	There was substantial non-response
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	High	No adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
17. Goodwin, 2012 ³⁵	Participation	Low	There were no substantial differences between responders and non-responders.
	Attrition	Low	There were no substantial differences between responders and non-responders (including

			those lost to follow-up).
	Prognostic factor	Moderate	Prognostic factors were self-reported.
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
18. Green, 2016 ³⁶	Participation	Moderate	There was a substantial non-response (20%)
	Attrition	Moderate	There was a substantial loss to follow-up (39%)
	Prognostic factor	Moderate	Prognostic factors were self-reported.
	Outcome	Low	Outcome was diagnosed in an interview
	Confounding	High	No confounding adjustment was conducted
	Analysis/reporting	Low	Appropriate analyses were used.
19. Hansen, 2017 ³⁷	Participation	High	There was a substantial amount of non-responders and no non-responder analysis.
	Attrition	Moderate	There was a substantial amount of participants lost to follow-up and no loss to follow-up analysis.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Confounding was properly adjusted for
20. Harvey, 2012 ³⁸	Analysis/reporting	Low	Appropriate analyses were used.
	Participation	High	There were substantial differences (e.g. in age and gender) between responders and non-responders.
	Attrition	Moderate	No loss to follow-up analysis were reported
	Prognostic factor	Low	Prospective factors were determined based on deployment characteristics
	Outcome	Moderate	Outcome was self-reported
21. Horesh, 2011 ³⁹	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
	Participation	Moderate	No non-responder analysis was performed
	Attrition	Moderate	No loss to follow-up analysis was performed
	Prognostic factor	Moderate	Prognostic factors were self-reported
22. Hourani, 2012 ⁴⁰	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No confounding analyses were conducted
	Analysis/reporting	Moderate	The description of the analysis is unclear
	Participation	Moderate	No non-responder analysis was performed
22. Hourani, 2012 ⁴⁰	Attrition	High	There was substantial loss to follow-up in this study
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Analysis/reporting	Moderate	The description of the analysis is unclear

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	Confounding	High	No confounding analyses were conducted (at least, not for the exposure-outcome associations)
	Analysis/reporting	High	Only descriptive statistics were reported (at least, for the exposure-outcome associations)
23. Ikeda, 2017 ⁴¹	Participation	Moderate	About 15% non-response.
	Attrition	Moderate	There was substantial loss to follow-up with differences between those who were and were not lost.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
24. Joseph, 2014 ⁴²	Participation	Moderate	There was a substantial non-response
	Attrition	Moderate	There was a substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
25. Karstoft, 2013 ⁴³	Analysis/reporting	Low	Appropriate analyses were used.
	Participation	Moderate	No non-responder analyses were presented
	Attrition	Low	Loss to follow-up analyses indicated no substantial differences between those who remained in the cohort or not.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No adjustment for confounding were performed
26. Karstoft, 2015 ⁴⁴	Analysis/reporting	Low	Adequate statistical analyses were conducted
	Participation	Moderate	No non-responder analyses were presented
	Attrition	Low	Loss to follow-up analyses indicated no substantial differences between those who remained in the cohort or not.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No adjustment for confounding were performed
27. Kim, 2014 ⁴⁵	Analysis/reporting	Low	Adequate statistical analyses were conducted
	Participation	Low	Very high >99% participation rate
	Attrition	Low	Very high >99% participation rate in follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Low	Outcome was diagnosed during an interview
	Confounding	Low	Adjustment for confounding was performed

	Analysis/reporting	Low	Adequate analyses were conducted
28. Levin-Rector, 2018 ⁴⁶	Participation	Low	Responders comprised >90% of the eligible population
	Attrition	Low	Participants during follow-up comprised >90% of the cohort
	Prognostic factor	Low	Prognostic factors were obtained from database information
	Outcome	Low	Outcomes were obtained from diagnosed register information
	Confounding	Moderate	Only adjustment for clustering within units was done
	Analysis/reporting	Low	Adequate statistical analyses were conducted
29. MacGregor, 2015 ⁴⁷	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Low	Prognostic factors were obtained from register data
	Outcome	Low	Outcomes were obtained from register data and were diagnosed.
	Confounding	Low	Adjustment for confounding has been conducted
	Analysis/reporting	Low	Adequate statistical analyses were used.
30. MacGregor, 2012 ⁴⁸	Participation	Low	All eligible participants were analysed.
	Attrition	Low	All eligible participants were analysed.
	Prognostic factor	Low	Register data were used
	Outcome	Low	Diagnosed register data were used
	Confounding	Low	Adjustment for confounding has been conducted
	Analysis/reporting	Low	Adequate statistical analyses were used.
31. Maguen, 2012 ⁴⁹	Participation	Moderate	No non-responder analyses were presented
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Adjustment for confounding was done
	Analysis/reporting	Low	Adequate analyses were used
32. Maguen, 2010 ⁵⁰	Participation	Moderate	No non-responder analyses were presented
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Low	Prognostic factors were obtained from company data.
	Outcome	Low	Outcome was diagnosed
	Confounding	High	No adjustment for confounding was done
	Analysis/reporting	Low	Adequate analyses were used
33. Martindale, 2018 ⁵¹	Participation	High	No non-responder analyses were presented, with substantial non-response.
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Moderate	Prognostic factors were obtained from an interview
	Outcome	Low	Outcome was diagnosed during an interview

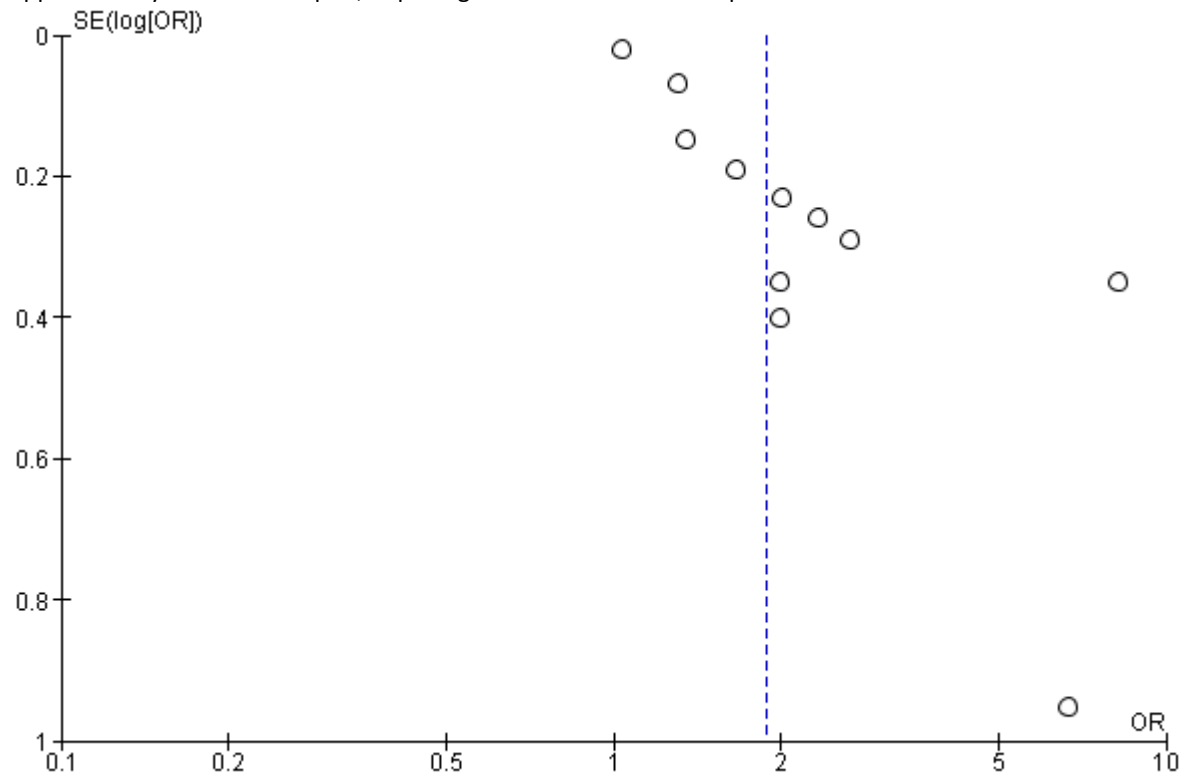
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	Confounding	High	No adjustment for confounding was done
	Analysis/reporting	High	No statistical analysis was done on the exposure-outcome association (only other analysis).
34. Nagamine, 2018 ⁵²	Participation	Moderate	No non-responder analyses were presented
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No adjustment for confounding was done
	Analysis/reporting	Low	Adequate analyses were used
35. Osorio, 2018 ⁵³	Participation	High	A substantial amount of eligible participants did not participate. No non responder analysis was conducted.
	Attrition	High	A substantial amount of participants were lost in the follow-up. No loss to follow-up analysis was conducted.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
36. Pihl-Thingvad, 2019 ⁵⁴	Participation	Low	Responders and non-responders did not differ substantially from one another (only in age)
	Attrition	Low	Variables that predicted loss to follow-up (e.g. baseline PTSD) were adjusted for
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
37. Polusny, 2011 ⁵⁵	Participation	Moderate	There were slight differences between responders and non-responders
	Attrition	Moderate	There were slight differences between those with and without follow-up data
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
38. Reijnen, 2015 ⁵⁶	Participation	High	There were substantial differences (e.g. in mental health) between responders and non-responders.
	Attrition	High	Participants without follow-up data were excluded. The above therefore also holds for those lost at follow-up
	Prognostic factor	Moderate	Prospective factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No confounding adjustment was conducted

	Analysis/reporting	Low	Appropriate analyses were used.
39. Shea, 2013 ⁵⁷	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Low	Outcome was diagnosed during a structured interview.
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
40. Soo, 2011 ⁵⁸	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
41. Stevelink, 2018 ⁵⁹	Participation	High	There was substantial non-response
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
42. Wittchen, 2012 ⁶⁰	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Low	Outcomes was diagnosed during a structured interview
	Confounding	High	No adjustment for confounding was performed
	Analysis/reporting	Low	Adequate analyses were conducted

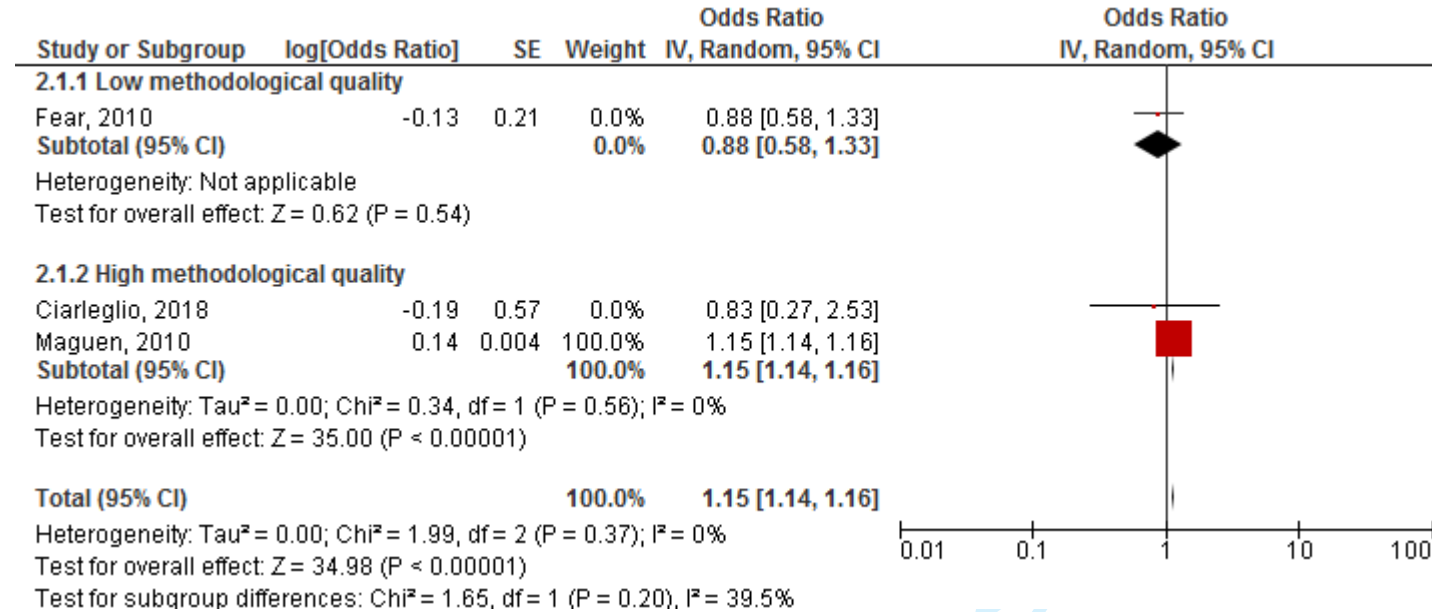
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Supplementary file 6. Funnel plot, depicting the effect of combat exposure on PTSD.



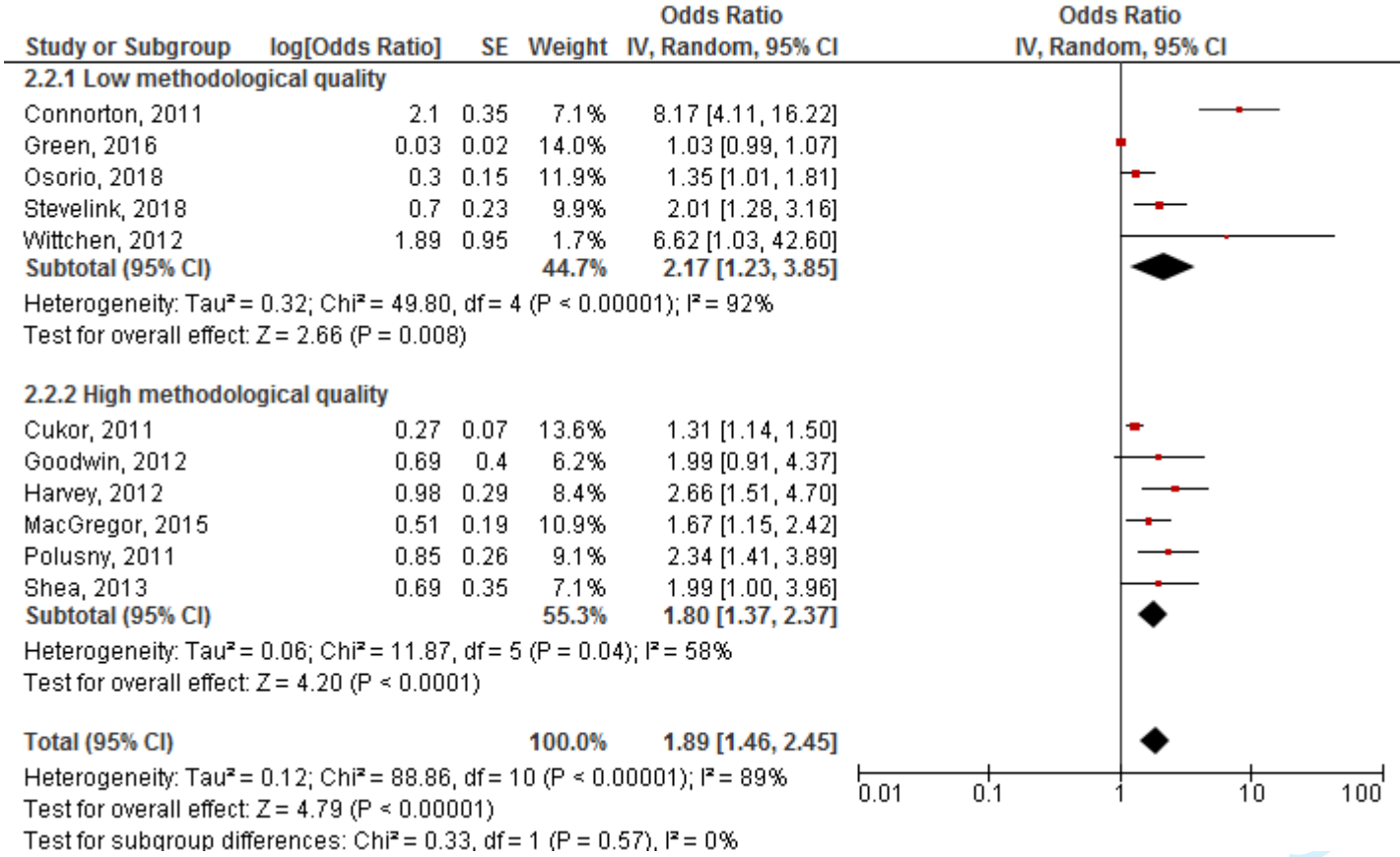
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Supplementary file 7. Forest plot depicting the effect of number of army deployments (one versus multiple) with PTSD, stratified for risk of bias.

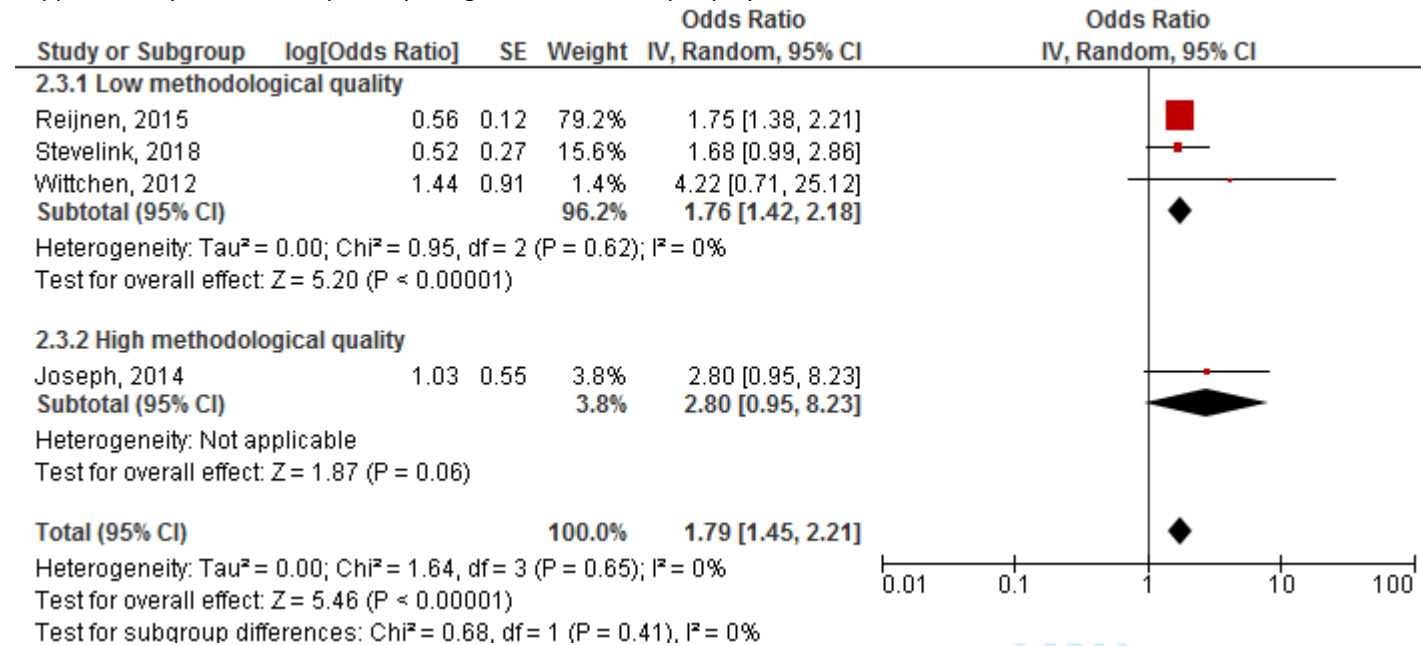


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Supplementary file 8. Forest plot depicting the effect of combat exposure with PTSD, stratified for risk of bias.



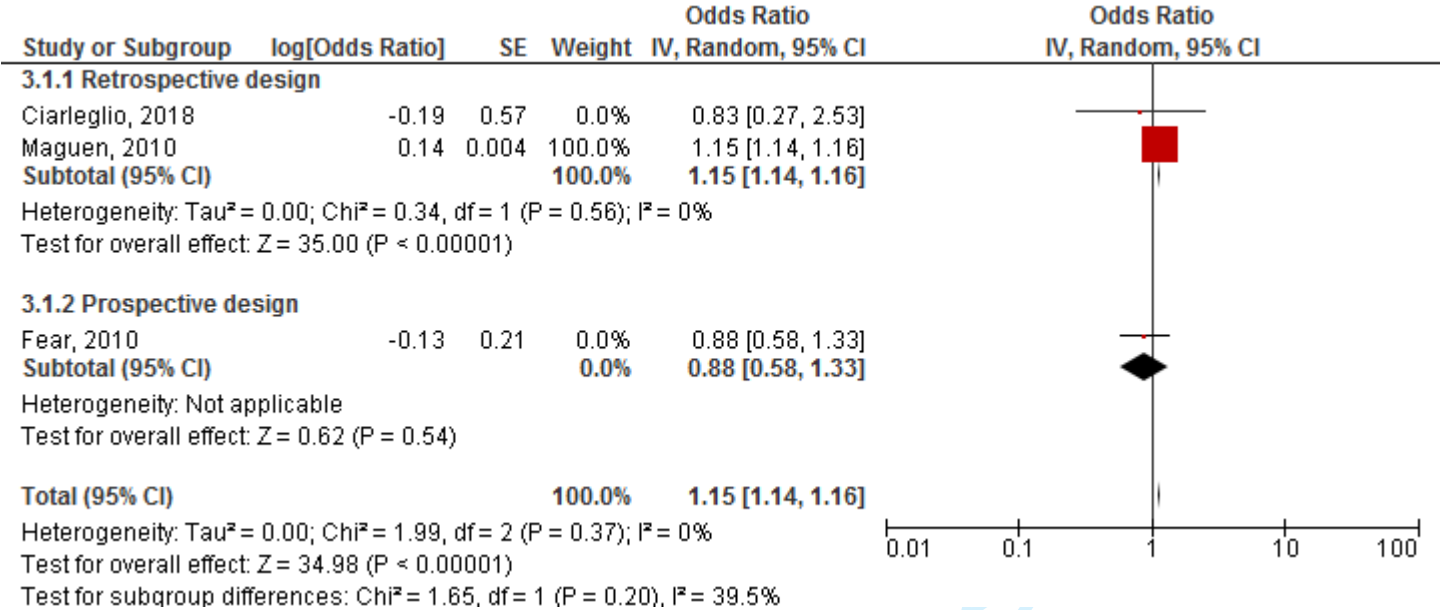
Supplementary file 9. Forest plot depicting the effect of army deployment with PTSD, stratified for risk of bias.



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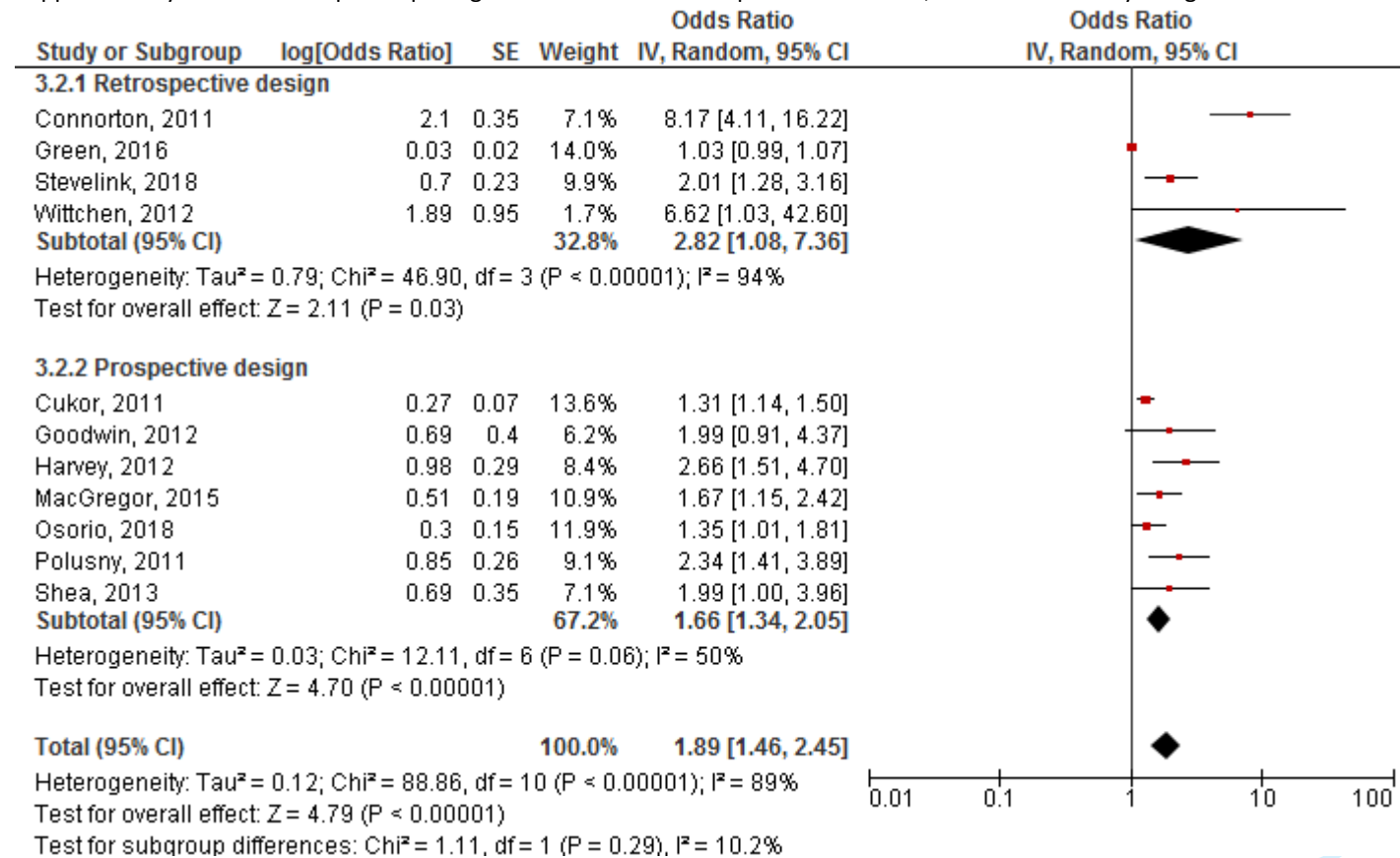
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Supplementary file 10. Forest plot depicting the effect of number of army deployments (one versus multiple) with PTSD, stratified for study design.



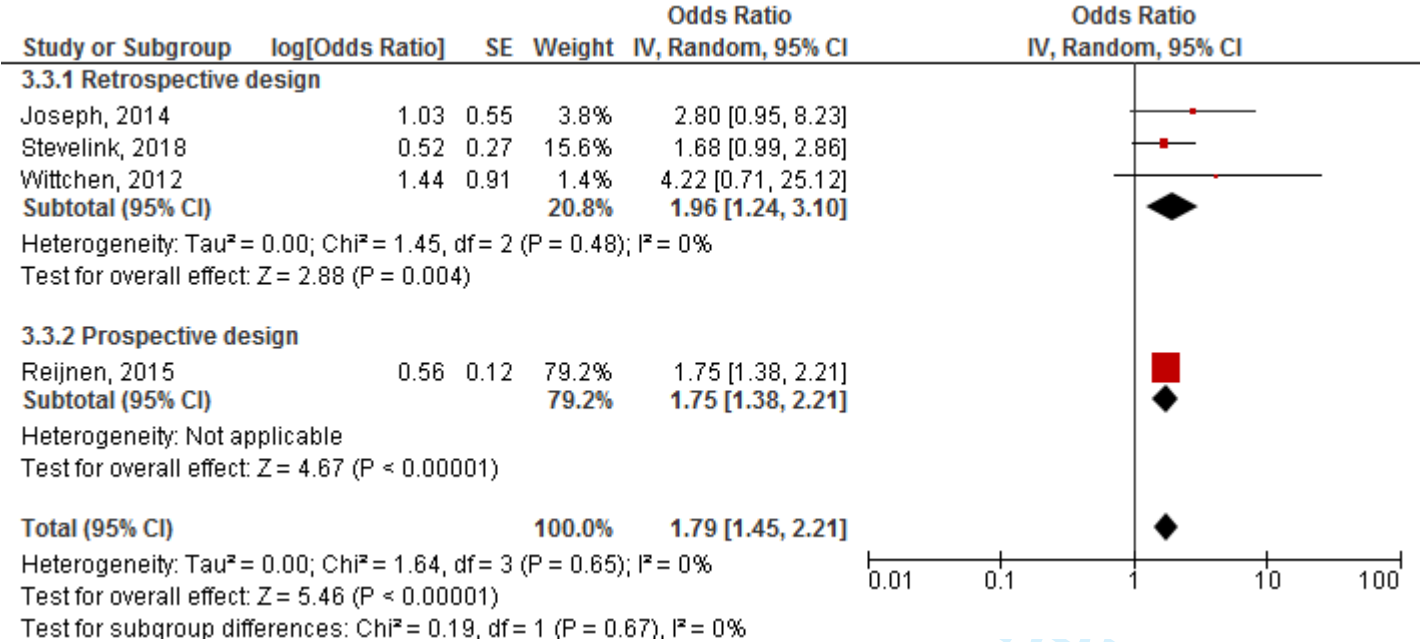
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Supplementary file 11. Forest plot depicting the effect of combat exposure with PTSD, stratified for study design.

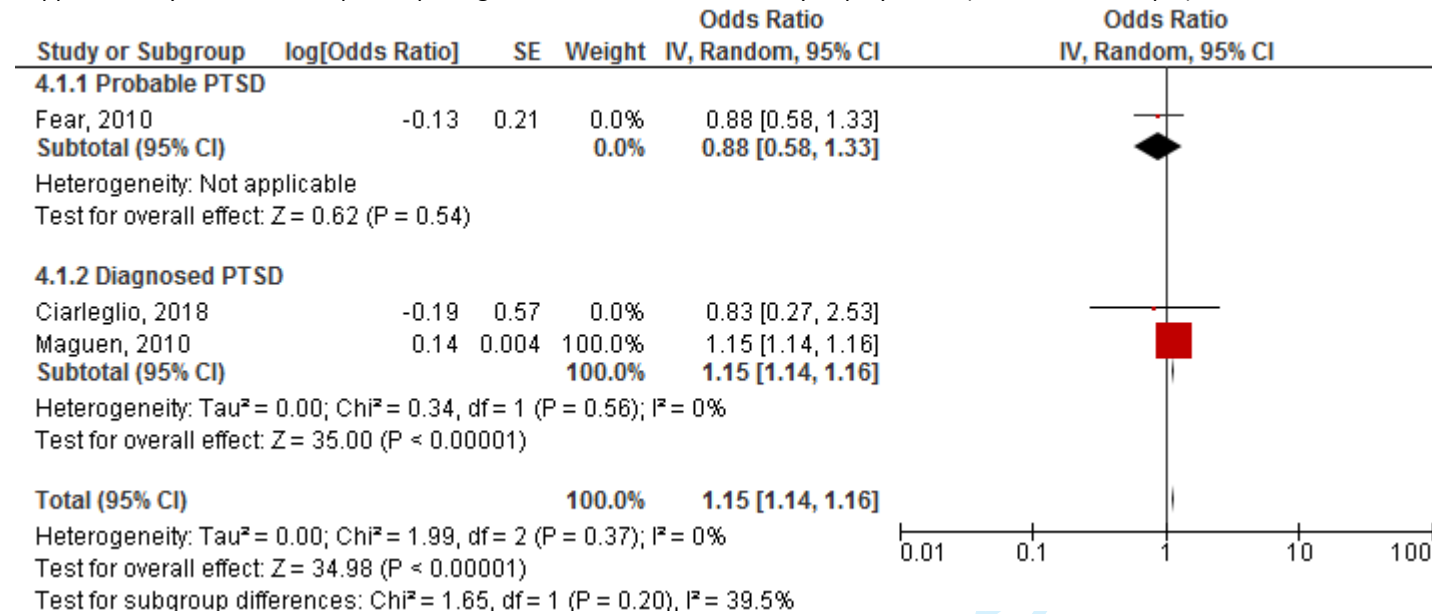


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Supplementary file 12. Forest plot depicting the effect of army deployment with PTSD, stratified for study design.



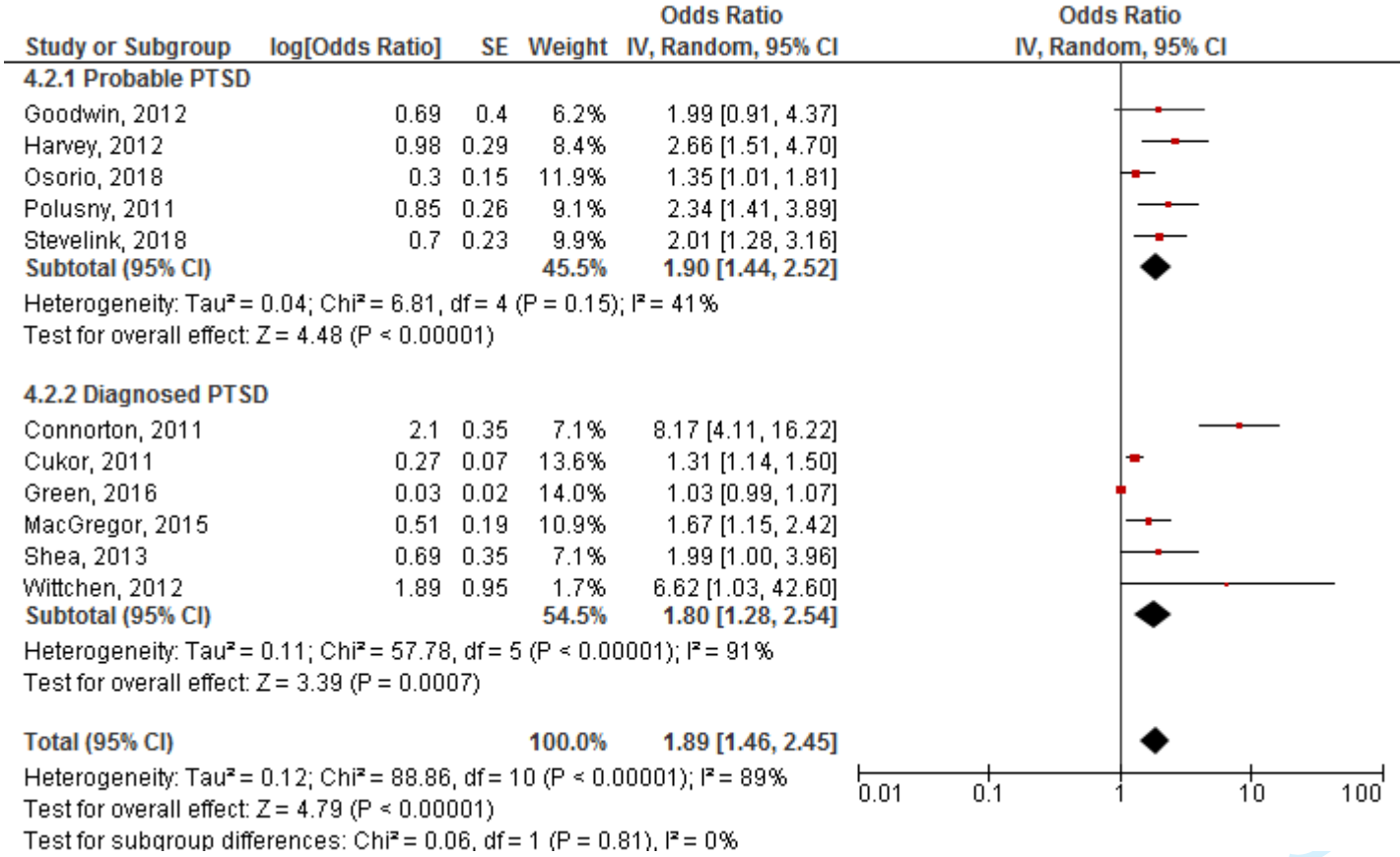
Supplementary file 13. Forest plot depicting the effect of number of army deployments (one versus multiple) with PTSD, stratified for type of PTSD ascertainment.



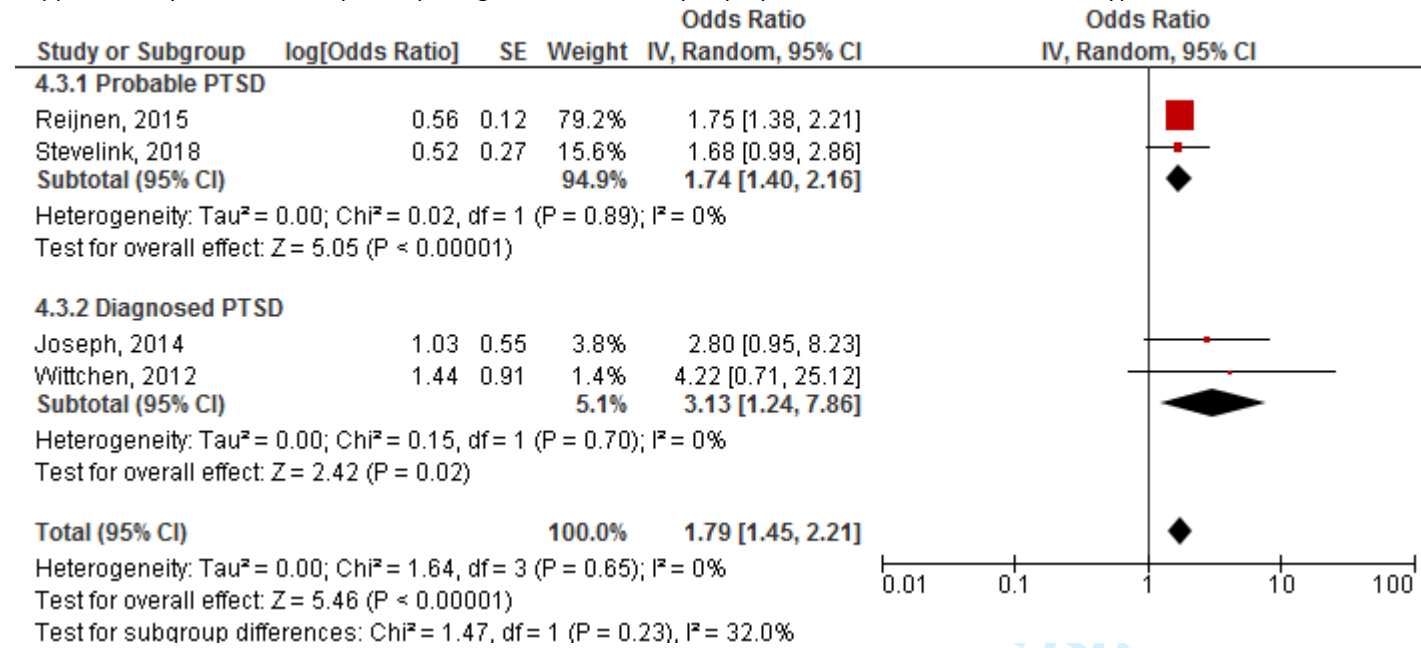
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Supplementary file 14. Forest plot depicting the effect of combat exposure with PTSD, stratified for type of PTSD ascertainment.



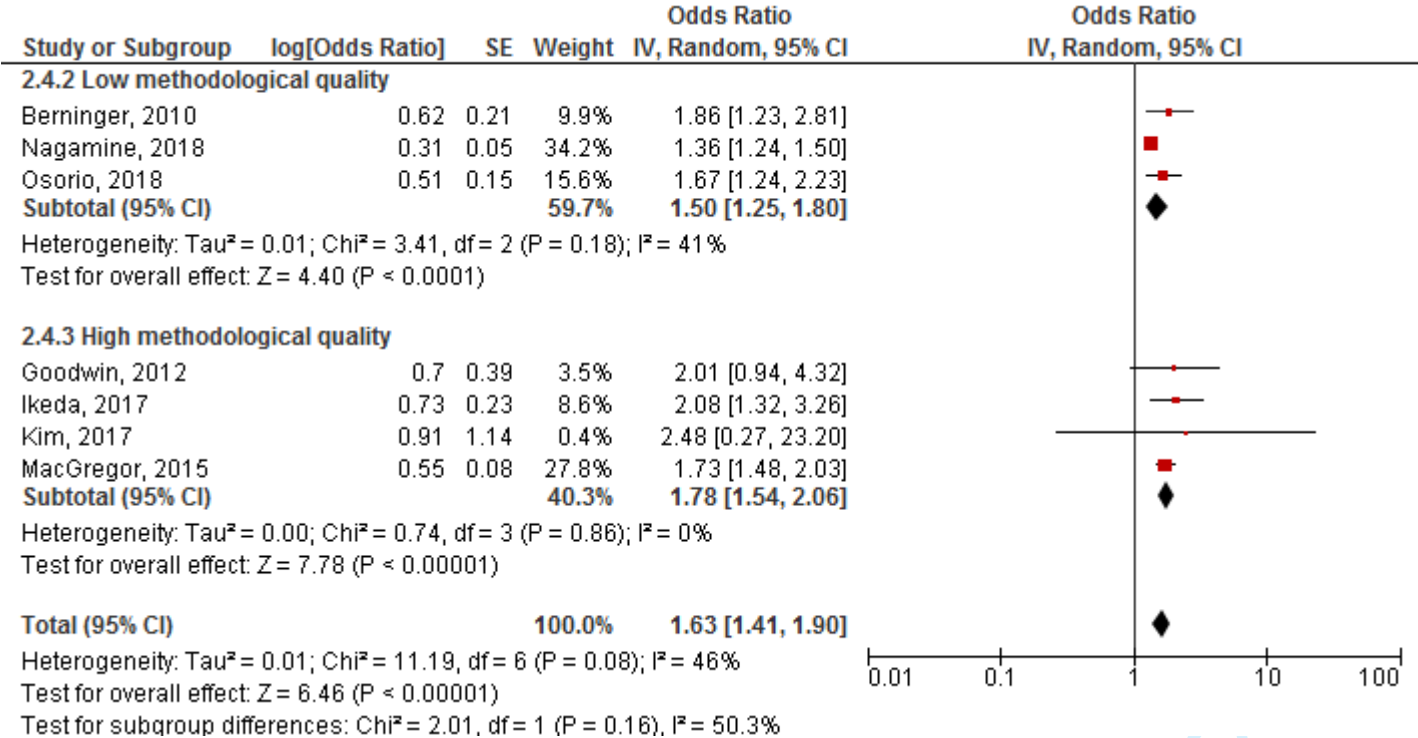
Supplementary file 15. Forest plot depicting the effect of army deployment with PTSD, stratified for type of PTSD ascertainment.



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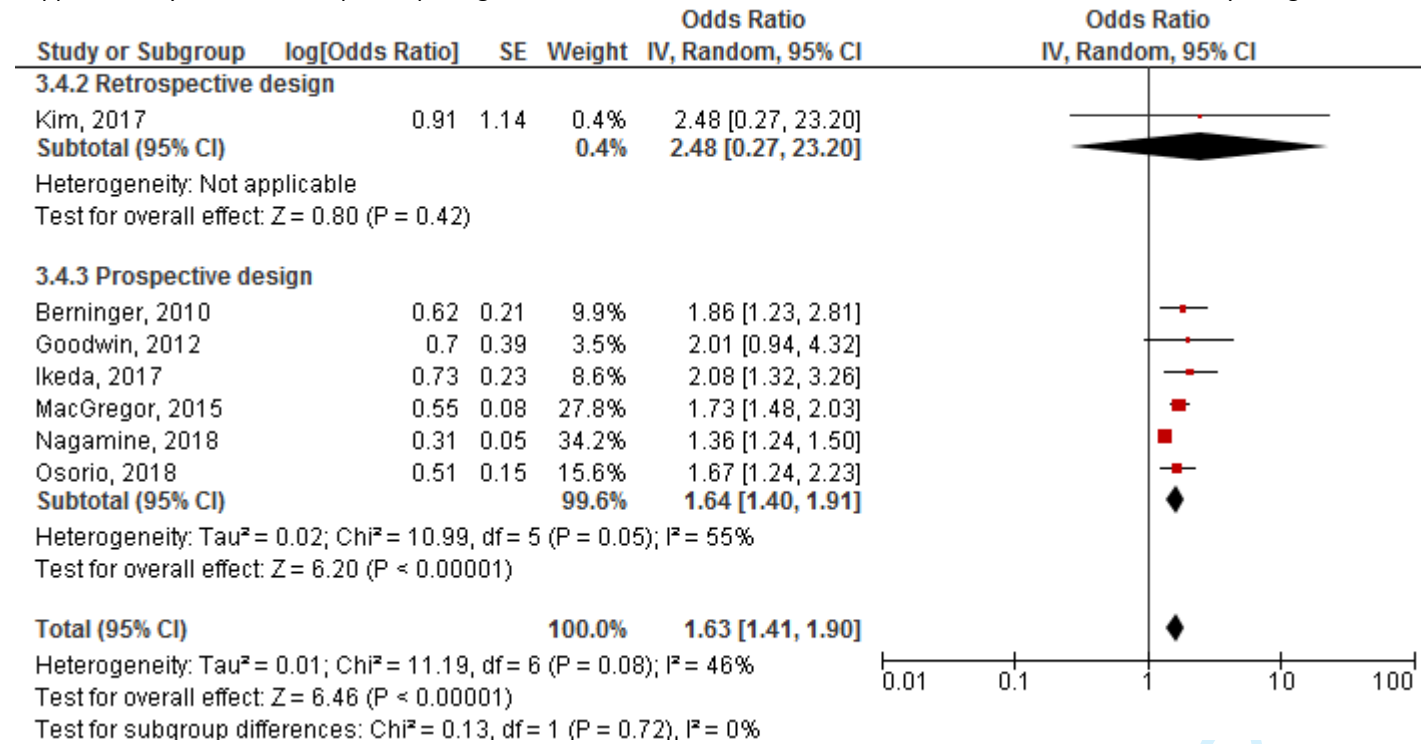
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Supplementary file 16. Forest plot depicting the effect of confrontation with death with PTSD, stratified for risk of bias.



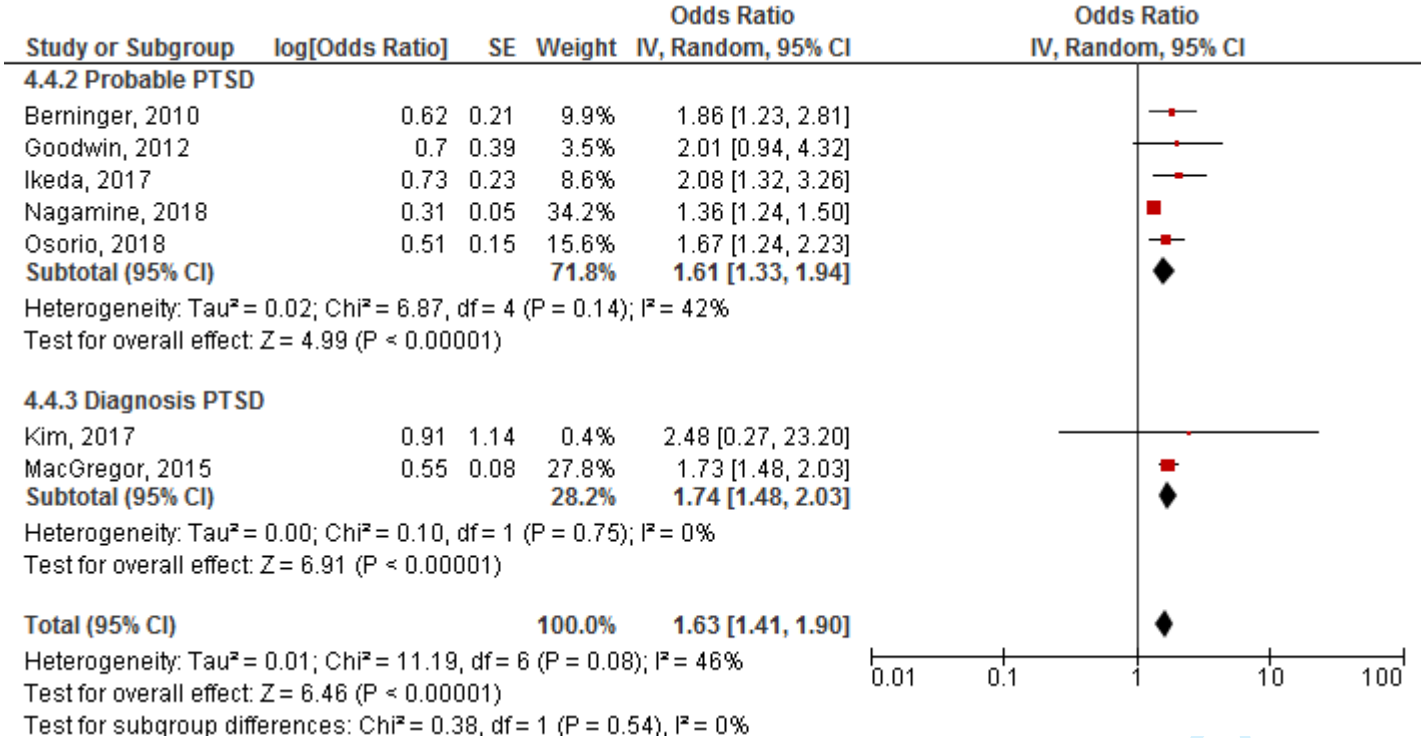
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Supplementary file 17. Forest plot depicting the effect of confrontation with death with PTSD, stratified for study design.



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Supplementary file 18. Forest plot depicting the effect of confrontation with death with PTSD, stratified for type of PTSD ascertainment.



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PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	3
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	4
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	4
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	4
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	4
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	4
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	5
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	5
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	5
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I ²) for each meta-analysis.	5



PRISMA 2009 Checklist

Page 1 of 2

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	5
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	5-6
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	7
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	7
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	7
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	7-9
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	7-9
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	7-9
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	7-9
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	10
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	10-11
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	12
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	13

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

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BMJ Open

What work-related exposures are associated with post-traumatic stress disorder? A systematic review with meta-analysis

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Article Type:	Original research
Date Submitted by the Author:	05-Aug-2021
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Primary Subject Heading:	Occupational and environmental medicine
Secondary Subject Heading:	Epidemiology, Mental health
Keywords:	MENTAL HEALTH, EPIDEMIOLOGY, OCCUPATIONAL & INDUSTRIAL MEDICINE

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3 **What work-related exposures are associated with post-traumatic stress disorder? A systematic**
4 **review with meta-analysis**
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7 **Authors:** Pieter Coenen¹, Henk F van der Molen².
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Abstract

Objectives: Although there is evidence that work-related exposures cause post-traumatic stress disorder (PTSD), there are few quantitative studies assessing the degree to which these factors contribute to PTSD. This systematic review with meta-analysis identified work-related exposures associated with PTSD, and quantified their contribution to this disorder.

Methods: We searched Medline, PsycINFO, Embase, PILOTS and Web of Science (2005 to 10-09-2019) for longitudinal studies on work-related exposures and PTSD. We described included articles, and conducted meta-analyses for exposures with sufficient homogeneous information. We performed subgroup analyses for risk of bias, study design and PTSD ascertainment. We assessed evidence quality using GRADE, and estimated population attributable fractions.

Results: After screening 8,590 records, we selected 33 studies (n=5,719,236). From what was moderate quality evidence at best, we identified various work-related exposures that were associated with PTSD, mainly involving individuals in the military and first responder (e.g., police or fire brigade) occupations. These exposures included the number of army deployments (odds ratio: 1.15 [1.14 1.16]), combat exposure (1.89 [1.46 2.45]), army deployment (1.79 [1.45 2.21]) and confrontation with death (1.63 [1.41 1.90]). Effects were robust across subgroups and exposures attributed modestly (7%-34%) to PTSD. We identified additional exposures in other occupations, including life threats, being present during an attack, and hearing about a colleague's trauma.

Conclusions: We identified various work-related exposures associated with PTSD and quantified their contribution. While exposure assessment, PTSD ascertainment, and inconsistency may have biased our findings, our data are of importance for development of preventive interventions and occupational health guidelines.

Key words: Post traumatic stress disorder; occupational health; occupational diseases; systematic review; meta-analysis

Strengths and limitation of this study

- The strengths of this review are the systematic methods, including the a-priori registered protocol, a thorough meta-analysis with sensitivity analyses, estimation of population attributable fractions and the assessment of evidential quality with GRADE.
- Reported studies bear sources of heterogeneity and possible bias, e.g. in the ascertainment of post-traumatic stress disorders (which was not always clinically diagnosed but sometimes based on self-reports)
- The external validity of our findings is limited as the majority of the studies in our review were based on armed forces, first responders and other male dominated occupations, and mainly from Western countries.
- Evidence reported in our review was moderate quality at best, among other elements, due to risk of bias regarding participation (i.e., selection bias), attrition and misclassification.

Background

Post-traumatic stress disorder (PTSD) can be triggered when individuals experience or witness traumatic events. PTSD has been a clinical diagnosis since 1980, when the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) was published¹. The most recent DSM-5² states that PTSD results from exposure to severely traumatic event(s), while exhibiting a pattern of symptoms characterised by intrusion, avoidance, negative moods and cognitions, arousal, and reactivity. A diagnosis of PTSD also involves duration and functional impairment criteria, and the patient's symptoms should be exclusive (i.e., not caused by drugs or other illnesses). Estimates of PTSD prevalence among the general population differ widely. For example, lifetime PTSD prevalence ranged from 6% to 9% in United States (US) and Canadian samples, while prevalence rates in Australian samples range from 1% to 2%³. The substantial differences between individual studies could result from different ways in which PTSD was ascertained, varying from any type of clinical diagnosis, to self-reports of DSM-5 criteria and PTSD symptoms assessed as *probable PTSD*.

PTSD can have a major impact on individuals and society as a whole, as it is associated with mental comorbidities⁴, substance abuse⁵ and suicide⁶. PTSD is particularly prevalent among certain occupational groups, such as police officers, firefighters, medical workers and military personnel, all of whom can experience events that might trigger PTSD^{7 8}. One particular systematic review showed that the prevalence of PTSD in military veterans and other high-risk occupational groups can be almost twice as high as among the general population⁸. Another more recent review identified a number of occupational groups, including healthcare workers, police officers, prison workers, and emergency personnel, with an increased risk of PTSD⁹. Also, various specific work-related exposures (i.e., exposures to situations or conditions at work that may have an effect on PTSD) and their association with PTSD have been reported⁷. This included traumatic events experienced by military personnel and first responders (e.g., police officers or fire fighters). The latter review also identified journalists, healthcare workers or individuals in other occupations who are exposed to traumatic events or the aftermath thereof⁷.

Despite this evidence, the association of work-related exposures with PTSD has not yet been quantified in a meta-analysis. Such knowledge is of importance to answer questions regarding work-related causation and prevention, as a prelude to developing interventions. With regard to prevention, we need to quantify the contribution of work-related exposures in the onset of PTSD¹⁰. Such data could be used to formulate clinically relevant exposure threshold limits, as has been done with other disorders^{11 12}. It could also be of use in occupational health guidelines, as many countries provide financial compensation for individuals diagnosed with an occupational disease.

In this study, our aim was to 1) identify the work-related exposures associated with the onset of PTSD, and 2) quantify the extent to which such exposures contribute to this disorder. Evidence on the contribution of work-related factors to PTSD could be used to facilitate decisions in reporting schemes. It could also help to identify and prioritise preventive interventions against those exposures with the strongest effect, in terms of triggering PTSD.

Methods

The protocol for this systematic review with meta-analysis was registered in PROSPERO¹³ a-priori. The review itself was conducted in accordance with the PRISMA statement guidelines¹⁴.

Searches

The Medline, PsycINFO, Embase, PILOTS and Web of Science databases were systematically searched for material published from 2005 (January) to 2019 (September 10). This was an arbitrarily chosen period on the basis of changes in people's exposure to work-related traumatic events and changes in the definition of PTSD over time². The search strategy consisted of a combination of controlled search terms (e.g., Medical Subject Headings/MeSH) and free-text words used to specify search terms related to: 1) PTSD 2) exposure, and 3) work. A methodological filter was used to select longitudinal studies (prospective, retrospective or case-control), studies published in English, and those involving human participants only. The search strategy used is described in detail in supplementary file 1. We validated this search with various key references, to avoid term bias. In addition to the database search, we conducted snowball searches for additional studies. These were based on citation tracking (forwards and backwards) from the articles and reviews retrieved in our electronic search. We also conducted scoping searches for key researchers on this topic, and used ResearchGate profiles to identify relevant records and projects (including unpublished projects). Outcome articles were compared to potential protocol papers, to assess selective reporting.

Inclusion and exclusion criteria

Two reviewers, working independently of one another, used Rayyan (an online tool: <https://rayyan.qcri.org/>) to screen for eligible references. The full texts of any such references (whose eligibility was based on the screening title and abstract) were retrieved for further screening. Any conflicts were resolved during a consensus meeting. We included studies on the association between any work-related exposure and the onset of PTSD (acute or delayed) in paid workers of working age (aged 18-65). Any studies that described work-related exposures in terms of work demands or other occupational factors were eligible for inclusion. However, studies in which exposures were related to job title or work title only were excluded. Studies were included if there was an actual diagnosis of PTSD (either using checklists with defined cut-off values or clinical criteria, e.g., using DSM criteria² and/or coded according to the International Classification of Disorders -ICD-9-CM 309.81-). Studies in which PTSD was assessed by means of self-reports only (not using any criteria) were excluded. We excluded any studies into the persistence or growth of PTSD. Those studies in which the exposure-outcome association was quantified, e.g., in terms of effect sizes such as a hazard ratio (HR), relative risk (RR) or odds ratio (OR), were included. We restricted ourselves to original articles, in English or Dutch, published in peer-reviewed scientific journals from 2005 onwards. Studies with a prospective, retrospective or case-control longitudinal design were included, while cross-sectional studies were excluded, to be able to monitor the time sequence between exposure and the PTSD onset, in which the assessments of exposure precede the actual onset of the disorder. The above-mentioned set of criteria were finalised after a pilot screening of 300 references.

Data extraction and risk of bias assessment

Two reviewers, working independently of one another, extracted data and assessed risk of bias from each of the eligible articles. Any conflicts were resolved during a consensus meeting. We extracted first author and year of publication, study name and design, sample (country, occupational group,

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3 age and sex), exposure assessment, PTSD ascertainment, and effect size. Where it was not possible
4 to retrieve sufficient information from the published articles, additional data were requested from
5 study researchers.
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7 Risk of bias was assessed using the 'Quality in Prognosis Studies' tool¹⁵, with criteria related
8 to study participation, attrition, prognostic factor (i.e., exposure) measurements, outcomes,
9 confounding, and statistical analysis. Here, we attributed a low risk of bias regarding attrition to
10 studies with a >80% participant retention.
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12 13 Data analysis

14 The included articles were described in terms of extracted data and risk of bias. Work-related
15 exposures were categorised according to the DSM-5 criteria for PTSD stressors²: 1) direct exposure to
16 the trauma, 2) witnessing a trauma, 3) hearing about a colleague/co-workers (adapted to work
17 context) was/were exposed to a trauma, or 4) indirect exposure to aversive details of a trauma (e.g.,
18 first responders and medics).
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21 Where sufficient clinically and methodologically homogeneous information were available, a
22 quantitative meta-analysis was conducted to determine a pooled effect size for the association of
23 each exposure with PTSD. Review Manager (RevMan 5) was used for the meta-analyses, and to
24 generate forest and funnel plots. The latter were used to assess publication bias, through visual
25 inspection. According to the Cochrane collaboration handbook, funnel plots were only generated for
26 exposures with effect sizes from ≥ 10 studies¹⁶. Most of the exposure-outcome associations featured
27 statistical heterogeneity ($I^2 > 75\%$), so random-effects estimates were adopted for statistical pooling.
28 We assumed that the interpretation of effect estimates (e.g., HR and OR) was consistent, and we
29 estimated pooled OR with 95% confidence interval (95%CI). We adopted the OR, as this was the most
30 frequently reported effect size in the articles found (being reported in 32 articles, whereas two
31 articles reported HRs and three articles reported RRs).
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34 When more than one article reported on the same study, information from just one of these
35 articles was used for analyses, using effect sizes from the article with the shortest follow-up duration
36 (with a latency time of at least four weeks) to ensure that the work-related exposure of interest is
37 indeed the most likely cause of PTSD. Wherever possible, we used information from fully adjusted
38 models and we did not consider subgroups (e.g., sex differences). Population attributable fractions
39 (PAFs) were estimated¹⁷ to assess the extent to which work-related exposures contributed to the
40 development of PTSD. Here, the proportion of workers exposed to the exposure of interest (P_e) were
41 multiplied by the attributable proportion in the exposed workers: $P_e(OR-1)/(1+P_e(OR-1))$.
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44 In line with our registered protocol¹³, subgroup analyses were based on the risk of bias (with
45 a cut-off score of 60% for the risk of bias scale summary score, to obtain two subgroups), on the
46 study design (prospective vs retrospective) and on PTSD ascertainment (clinically diagnosed PTSD vs
47 probable PTSD). In contrast to the protocol that we registered a-priori,¹³ we were unable to compare
48 other characteristics of PTSD (i.e., acute vs delayed) due to limited available data. Any information
49 that could not be qualitatively analysed was described narratively.
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54 Strength of evidence

55 The strength of the evidence was assessed using the GRADE (Grades of Recommendations,
56 Assessment, Development and Evaluation) framework¹⁸. Four quality levels were distinguished: high,
57 moderate, low, and very low. Our starting point for evidence grading was 'moderate', which has
58 previously been proposed for use in the assessment of prognostic factors¹⁹. Various study limitations
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3 could have detracted from the strength of the evidence (if the majority of the studies scored <60%
4 on the risk of bias scale), as could inconsistency ($I^2>50\%$), indirectness, imprecision (95%CI
5 boundaries are <1 and >2), and publication bias (based on the funnel plots). Study findings with
6 moderate or large effect sizes (i.e., lower limit of 95%CI OR>2.0) or an exposure-response gradient
7 could boost the quality of the evidence.
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10 Patient and public involvement

11 There was no patient or public involvement in designing and conducting this study.
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Results

Study selection

The study selection procedure is described in Figure 1. We identified 14,529 records during database searches. After discarding duplicates, we screened the remaining 8,590 records on title and abstract. Of these, we assessed 107 full text articles and excluded 65 for various reasons (see Supplementary file 2 for more details). As no additional articles were found during snowball and scoping searches, 42 articles from 33 studies were described in this review²⁰⁻⁶¹.

Study description and methodological quality/risk of bias

Supplementary file 3 contains the extracted data, and risk of bias assessment is shown in supplementary file 4-5. The 33 included studies provided data on n=5,719,236 participants, ranging from n=19 to n=2,549,949 participants per study. Eighteen studies were from the US, four were from the United Kingdom, two were from Denmark, and two others from Japan. There was one study from each of the following countries: Israel, The Netherlands, Germany, Portugal, Italy, Norway and Korea. The majority of the studies (N=21) involved participants from armed forces. Five studies featured first responders who had attended the scene of a disaster, three focused on healthcare workers, two on employers at the scene of a disaster, one on bank workers and one on public transport workers.

Four studies reported no details of sex, five studies only used male participants, and 17 used samples in which the majority of participants were male ($\leq 20\%$ females). In only seven studies, did female participants make up a reasonable proportion ($>20\%$) of the study sample. Twenty-eight studies reported exposures obtained from self-reports, 12 studies used deployment administration databases, and two studies were based on a combination of these two measurements. Baseline exposure assessment was carried out for the period 1983-2012. Twenty-five articles assessed PTSD (by clinical diagnosis) while the remaining 17 articles assessed probable PTSD/PTSD symptoms (by self-reports using pre-defined (e.g., DSM-5) criteria). The weighted average for PTSD prevalence during in the follow-up periods was 7.3%, while individual study prevalence ranged from 1.0% to 70.5%. The average prevalence for diagnosed cases of PTSD was slightly higher (7.3%) than for probable PTSD (6.4%).

Twenty-five studies were prospective studies and eight were retrospective studies. On average, methodological quality was 62% (SD:19%), ranging from 25% to 100%. Most articles showed a low risk of bias on analysis/reporting (N=37) and confounding (N=25). Less than half of the articles showed a low risk of bias on participation selection (N=11), attrition (N=9), prognostic factor (exposure) assessment (N=9) and outcome (PTSD) ascertainment (N=13).

Work-related exposures

Each of the exposure-outcome associations presented have been described and categorised according to the DSM-5 criteria for PTSD stressors²: 1) direct exposure, 2) witnessing a trauma, 3) hearing that a colleague or co-worker was exposed to a trauma, or 4) indirect exposure to aversive details of a trauma. An overview of qualitative and quantitative analyses of all exposure-outcome associations is shown in Table 1. Figures 2 and 3 depict quantitative analyses, while Table 2 contains an overview of any exposure-outcome associations that could not be statistically pooled.

Direct exposure

The exposure-outcome associations for direct exposures were quantitatively analysed for: number of army deployments (OR[95%CI]: 1.15[1.14 1.16], $I^2=0\%$, n=333,024, Figure 2), combat exposure

(OR[95%CI]: 1.89[1.46 2.45], $I^2=89%$, $n=28,304$, Figure 2) and army deployment (OR[95%CI]: 1.79 [1.45 2.21], $I^2=0%$, $n=11,023$, Figure 3). The PAFs for these exposures were 7%, 14% and 34%, respectively. Evidence for these exposure-outcome associations was moderate, very low, and low quality, respectively. In some cases, the evidence was downgraded due to high risk of bias and inconsistency. There was some evidence for publication bias, although it was only possible to assess that for the 'combat exposure' variable (Supplementary file 6). Subgroup analyses based on risk of bias (Supplementary file 7-9), study design (Supplementary file 10-12) and PTSD ascertainment (Supplementary file 13-15) showed no statistically significant differences between effects for those subgroups.

In our qualitative analyses of exposures that could not be statistically pooled, we found exposure-outcome associations for exposures related to undergoing a traumatic event, cumulative exposure and the severity of exposure (Table 2). With regard to undergoing a traumatic event, the effect sizes ranged from OR[95%CI]: 0.86[0.32 2.28] (physical contacts with thieves)³⁴ to OR[95%CI]: 5.65[3.27 9.74] (workers fleeing from a tsunami)⁴². Cumulative exposure was e.g. expressed in length of deployment³⁷ (OR[95%CI]: 0.97[0.92 1.03]) and high frequency of violence (compared to no violence)⁵⁵ (OR[95%CI]: 6.5[1.6 25.6]). The effect sizes for exposure severity ranged from OR[95%CI]: 1.01[0.67 1.35] (severity of battles)⁴⁵ to OR[95%CI]: 6.5[1.6 26.0] (severe compared to no violence)⁵⁵

Witnessing a trauma

With regard to the DSM-5 criterion 'witnessing a trauma', there was insufficient homogeneous data to pool studies statistically (Table 2). In five studies (with $n=4,876$ participants), effect sizes ranged from OR[95%CI]: 1.01[0.63 1.64] ('perceiving a life threat')⁵⁶ to OR[95%CI]: 9.3[6.1 14.2] ('being present during an attack')³⁸.

A colleague or co-worker was exposed to a trauma

Only one study ($n=980$) reported on effect sizes regarding 'colleague or co-worker exposed to a trauma'. This study, among public transport workers, found that 'hearing that a close colleague had suffered a person under train experience' was not significantly association with PTSD (OR[95%CI]: 0.55[0.12 2.47])⁴⁶

Indirect exposure to aversive details

Regarding indirect exposure to adverse events, we statistically pooled the effect sizes from seven studies ($n=75,902$ participants) with moderate-quality evidence for an association between confrontation with death and PTSD (Figure 3; OR[95%CI]: 1.63[1.41 1.90]). Subgroup analyses regarding risk of bias (Supplementary file 16), study design (Supplementary file 17) and PTSD ascertainment (Supplementary file 18) showed no statistically significant differences between any of those subgroups.

Additional evidence from four studies ($n=14,085$ participants), which could not be statistically pooled, showed effect sizes ranging from OR[95%CI]: 1.03[1.00 1.06] (being exposed to the aftermath of a battle)³⁷ to OR[95%CI]: 4.0[2.5 6.6] (being present during the morning of the 9/11 attacks)²⁷.

Other exposures

We found additional evidence that could not be categorised into any of the DSM-5 criteria. An increased risk of PTSD was associated with experiencing stress, with evidence ranging from

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3 OR[95%CI]: 1.01[0.98 1.04] (deployment concerns)²⁸ to OR[95%CI]: 3.52[2.94 4.21] (high deployment
4 stress)²¹. Also, the time that has passed since a given traumatic event seems to be associated with
5 PTSD. This factor can either reduce the PTSD risk (OR[95%CI]: 0.47[0.32 0.70] with a longer dwell
6 time between deployments)⁴⁸ or increase it (OR[95%CI]: 1.89[0.99 3.60] if the period since the return
7 from deployment exceeds 6.5 years)³². Other exposures included experiencing discrimination at work
8 (OR[95%CI]: 5.72[3.37 9.71])⁴² and having to perform duties that involved a risk of radiation exposure
9 (OR[95%CI]: 1.08[0.97 1.20])⁵³.
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Discussion

In this systematic review with meta-analysis and evidence grading, we found various associations, albeit based on moderate-quality evidence at best, showing that several work-related exposures are associated with PTSD development. This includes exposures such as the number of army deployments, combat exposure, army deployment and confrontation with death. The corresponding effect sizes ranged from 1.15[1.14 1.16] to 1.89[1.46 2.45] and PAFs varied from 7% (for the number of army deployments) to 34% (for army deployment). The latter values indicate the proportion of PTSD cases that could potentially be avoided in a working population, if the exposure in question were to be totally eliminated. The data suggests that there could be an only moderate relationship between PTSD and work situations. However, they could also indicate that PTSD cannot be attributed to a single work-related exposure and that it is multi-factorial in nature and/or is mediated by other factors. This could, perhaps, also account for the relatively low ORs found for some of the effects.

Only a limited data, which could not be statistically pooled, was available concerning exposures that corresponded to the DSM-5 criteria 'witnessing a trauma' and 'hearing that a colleague/co-worker was exposed to a trauma'. These exposures include 'perceiving a life threat', 'being present during an attack', and 'hearing that a close colleague had suffered a person under train experience'. The additional exposures that could not be categorised according to DSM-5 criteria include 'military deployment', 'deployment stress', and 'time since return from deployment'. In future, it may be worth considering exposures of this kind when diagnosing work-related PTSD.

The details uncovered by this review are key to a better understanding of work-related causes of PTSD, to the selection or development of preventive interventions, and to the identification of thresholds for occupational health guidelines. This review has updated earlier work⁷⁻⁹ and we are the first to quantify the association between work-related exposures and PTSD. This update identifies occupational groups and exposures that do not feature in previous reviews, such as public transport workers⁴⁶ and bank workers (being exposed to robberies)³⁴.

Although the prevention of occupational diseases, including PTSD, is preferable, not all risks can be fully eliminated as witnessing traumatic events, disasters and war situations are likely to remain present in our working situations. In the working environment it is also important to attenuate the impact of exposures on workers or to treat them when having developed work-related PTSD. In the current review we also identified work-related factors that can reduce the risk of PTSD, which can be helpful to attenuate the impact of stressful exposures. For instance, among highly exposed occupational groups, a high level of preparedness (OR[95%CI]: 0.6[0.4 0.9])⁶², unit support (OR[95%CI]: 0.5[0.3 0.8])⁶², post-deployment support (OR[95%CI]: 0.3[0.2 0.4])⁶² and social support (OR[95%CI]: 0.96[0.93 0.98])³⁷ were all found to be associated with a reduced risk of PTSD. These elements can be used in the development of interventions, especially for those in occupations that involve high PTSD risks.

Methodological strengths and limitations

The strengths of this review are the systematic methods used plus a protocol that was registered a-priori, the systematic review with meta-analysis, and the assessment of evidential quality using GRADE¹⁸. The findings appear to be quite robust, since subgroup analyses based on risk of bias, study design and PTSD ascertainment produced results that did not differ between any of those subgroups. Moreover, the PAFs estimated in our study provide insight into the extent to which the identified exposures were occupationally related to PTSD.

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3 We deviated from our a-prior registered protocol¹³ in that we were unable to compare different
4 PTSD diagnoses (acute vs delayed). In our meta-analysis, we used effect sizes from the article with
5 the shortest follow-up duration (with a latency time of at least four weeks). There were, however,
6 also data available from few studies measuring both the short-term and long-term effects of
7 exposure and their association with PTSD. For example, 'being present during a terrorist attack' was
8 strongly associated with PTSD in the acute phase (after 10 months; OR[95%CI]: 9.3[6.1 14.2]), but this
9 association was even stronger in the long term (after 34 months; OR[95%CI]: 10.0[5.4 18.6])³⁸.
10 Regarding 'being exposed to combat', the opposite was true. Stronger effects were seen in short
11 term (OR[95%CI]: 2.91[1.34 6.31]) than long term (OR[95%CI]: 2.42[1.04 5.62])³⁹. This is in line with
12 another review indicating that, following exposure, the risk of PTSD attenuates over time⁷.

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16 Another potential source of heterogeneity stems from the method used to ascertain PTSD. In 25
17 articles, PTSD was assessed by clinical diagnosis while 17 articles assessed probable PTSD/PTSD
18 symptoms, based on self-reports using pre-defined (e.g., DSM-5) criteria. We found that the average
19 prevalence was slightly higher for diagnosed PTSD (7.3%) than for probable PTSD (6.4%). This is in
20 line with a study of disaster workers, following the 9/11 attacks, in which 2-9% had probable self-
21 reported PTSD, respectively³¹. However, 6-15% of these workers were diagnosed with PTSD.
22 Nevertheless, our pooled effect sizes were robust across different methods for ascertaining PTSD.
23 While ascertaining PTSD by clinical diagnosis may be more valid, this source of heterogeneity is
24 unlikely to have substantially affected the findings presented. We have only assessed incidence of
25 PTSD. Accordingly, this review does not address the persistence or growth of PTSD. Future studies
26 should, therefore, focus on different types of PTSD diagnoses. They should also assess the work-
27 relatedness of PTSD persistence and growth, as an aid to the development of occupational health
28 guidelines.

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32 One limitation of our study is that the majority of the studies in this review were based on
33 participants from armed forces (N=21) and first responders (N=5). There was limited information on
34 other occupations, such as public transport workers, bank employees and healthcare workers.
35 Furthermore, most studies of the armed forces and of first responders tend to be male dominated
36 and from Western countries. Future research should address these issues, by assessing previously
37 unexplored occupational sectors and groups, as well as data from other countries. In this review we
38 only included longitudinal studies in which the exposure would precede the outcome, as a result of
39 which a better inference of causality can be provided than with cross-sectional studies only.
40 Moreover, we focussed in our review on articles published from 2005 onwards. This cut-off was
41 based on changes in people's exposure to work-related traumatic events and changes to the
42 definition of PTSD over time².

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46 While our use of the GRADE framework provides an adequate way to assess quality of the
47 evidence, it does not necessarily provide insights into causation of the association of work-related
48 exposures and PTSD, for which other approaches such as the Bradford Hill criteria⁶³ could be used. It
49 has been argued that the majority of the Bradford Hill criteria are to some extent incorporated in
50 GRADE, such as the strength and consistency of the association⁶⁴. Other criteria, such as that of the
51 biological plausibility are not well covered nor are they in the current review evidence regarding
52 work-related PTSD. Future studies should therefore aim at providing more insights into this, to
53 further build the evidence base around work-related PTSD and the biology of risk for PTSD⁶⁵.
54 Although methodological quality of the included studies was of an acceptable level (62%, on
55 average), the quality of the evidence was rated moderate at best. More than half of the articles
56 showed a risk of bias with regard to participation (i.e., selection bias), attrition (with <80% of the
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3 participants being retained during the follow-up period), and misclassification due to a limited
4 assessment of the prognostic factors (i.e., exposure) and the outcome of interest. As mentioned
5 above, the ascertainment of PTSD is unlikely to have caused a substantial bias in our findings.
6 However, exposures were often measured by means of self-reports, which may well have biased our
7 findings. In addition, the quality of the evidence was downgraded due to inconsistency for some of
8 the exposures. Our assessment of publication bias was limited to just one of the pooled exposures. It
9 appeared, however, that none of the studies had published or registered their protocol, which could
10 have caused publication bias.
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Conclusion

In this systematic review with meta-analysis of 33 studies (with n=5,719,236 participants), based on moderate quality evidence at best, we identified a number of work-related exposures (mainly involving individuals in the armed forces and in first responder occupations) that increase the risk of PTSD (by 15% to 89%). These exposures include 'number of army deployments', 'combat exposure', 'army deployment' and 'confrontation with death', for which we found a moderate contribution to the development of PTSD. We identified additional exposures in other occupations, such as bank workers, public transport workers, and medics. These included 'life threats', 'being present during an attack' and 'hearing about a colleague's trauma'. Although exposure assessment, PTSD ascertainment and inconsistency may have biased our findings, the results of this review are quite robust and are of importance for the development of preventive interventions and occupational health guidelines.

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Author contribution

Both authors (PC and HvdM) designed the study and reviewed the manuscript for important intellectual content. Both authors identified relevant articles and conducted data extraction and analyses together. PC drafted the first version of the manuscript. HvdM is the study guarantor.

Data sharing

All data relevant to the study are included in the article and supplementary documents.

Study ethics

Not applicable as this study is a systematic review

Competing interests

The authors declare no competing interests

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Data sharing

Additional data is provided in the supplementary files.

Ethical approval

As this is a systematic review, no ethical approval is required

Patient consent

As this is a systematic review, no patient consent is required

Table 1. Overview of the evidence from both qualitative and quantitative analyses, with exposures categorised according to DSM-5 criteria. For exposures for which quantitative analyses could be performed (Figure 2 and 3), quality of the evidence for the relationship between work-related exposures and PTSD according to the GRADE framework is shown. Other exposures are described qualitatively (Table 2).

DSM-5 criterion	Exposure	N	n	Limit ¹	Incons ²	Indirect ³	Imprec ⁴	Pub bias ⁵	OR [95%CI] ⁶	Grad ⁷	GRADE	PAF	Reference
Direct exposure	Number of army deployments ⁸	3	333,024	No	0%	No	No	N/A	1.15 [1.14 1.16]	No	Moderate	7%	Figure 2
	Combat exposure	11	28,304	Yes	89%	No	No	Yes	1.89 [1.46 2.45]	No	Very low	14%	Figure 2
	Army deployment ⁹	4	11,023	Yes	0%	No	No	N/A	1.79 [1.45 2.21]	No	Low	34%	Figure 3
	Undergoing a traumatic event	13	1,703,107	-	-	-	-	-	Min: 0.86 [0.32 2.28] Max: 5.65 [3.27 9.74]	-	-		Table 2
	Cumulative exposure	8	1,749,762	-	-	-	-	-	Min: 0.97 [0.92 1.03] Max: 6.5 [1.6 25.6]	-	-		Table 2
	Exposure severity	3	2,558	-	-	-	-	-	Min: 1.01 [0.67 1.35] Max: 6.5 [1.6 26.0]	-	-		Table 2
Witnessing trauma	-	5	4,876	-	-	-	-	-	Min: 1.01 [0.63 1.64] Max: 9.3 [6.1 14.2]	-	-		Table 2
Colleague exposed ¹⁰	-	1	980	-	-	-	-	-	0.55 [0.12 2.47]	-	-		Table 2
Indirect exposure	Confrontation with death	7	75,902	No	46%	No	No	N/A	1.63 [1.41 1.90]	No	Moderate	15%	Figure 3
		4	14,085	-	-	-	-	-	Min: 1.03 [1.00 1.06] Max: 4.0 [2.5 6.6]	-	-		Table 2
Other exposures	Stress	4	1,390,641	-	-	-	-	-	Min: 1.01 [0.98 1.04] Max: 3.52 [2.94 4.21]	-	-		Table 2
	Time since event	3	1,358,468	-	-	-	-	-	Min: 0.47 [0.32 0.70] Max: 1.89 [0.99 3.60]	-	-		Table 2
	Other	3	69,176	-	-	-	-	-	Min: 1.08 [0.97 1.20] Max: 5.72 [3.37 9.71]	-	-		Table 2

n = number of participants; N = number of studies; OR = Odds ratio; 95%CI = 95% confidence interval; PAF = population attributable fractions

¹ Limitation: downgraded if the majority of studies score lower than 60% on the risk of bias scale. ² Inconsistency: downgrade if $I^2 \geq 50\%$.

³ Indirectness: downgrade if indirectness is present. ⁴ Imprecision: downgrade if the 95% confidence interval is <1 and >2 .

⁵ Publication bias: downgraded if publication bias is present (based on the funnel plots). ⁶ Effect size: upgrade if the lower limit of the 95% confidence interval is >2.0 .

⁷ Gradient: upgraded if there is a dose-response gradient available.

⁸ Depicting the effect of being deployed more than once, as compared to being deployed once.

⁹ Depicting the effect of being deployed, as compared to not being deployed.

¹⁰ For this study on occupational exposures, the DSM-5 criterion 'relative/friend' was adapted to 'colleague or co-worker'.

Table 2. Overview of all exposure-outcome effect sizes from qualitative analyses, with exposures categorised according to DSM-5 criteria. Odds ratios (OR) with 95% confidence intervals (95%CI) are shown.

DSM-5 criterion	Exposure category	Exposure	Effect size (OR [95%CI])
Direct exposure	Undergoing an event	Work-related threats ²⁰	1.10 [1.04 1.15]
		Work-related violence ²⁰	1.02 [0.98 1.06]
		Previous disaster experience ²³	1.4 [1.2 1.6]
		One injury sustained during the 9/11 attacks ²⁹	1.1 [0.6 2.0]
		Two or more injuries sustained during the 9/11 attacks ²⁹	1.4 [0.6 3.4]
		Participation in abusive violence ³³	3.32 [1.81 6.08]
		Robberies during working life ³⁴	1.18 [0.97 1.44]
		Physical contacts with robbers ³⁴	0.86 [0.32 2.28]
		Scuffle [taking part or being present] ³⁴	1.92 [0.63 5.79]
		Being injured during the robbery ³⁴	1.28 [0.31 5.21]
		Discharged weapon on deployment ³⁶	1.48 [0.61 3.60]
		Experience of life-threatening danger ⁴²	4.32 [2.89 6.48]
		Major property loss ⁴²	3.45 [2.28 5.23]
		Escape from tsunami ⁴²	5.65 [3.27 9.74]
		Life threatening war ⁴⁵	1.91 [1.07 3.24]
		Conflict with passengers ⁴⁶	3.21 [1.14 9.03]
		Felt in great danger of being killed ⁴⁸	3.44 [2.50 4.72]
		Cumulative exposure	Exposure to blast ⁵⁰
	Encountering explosive devices ⁵⁴		1.26 [0.95 1.66]
	Prolonged work at the WTC site ²³		2.0 [1.7 2.3]
	Length of deployment ³⁷		0.97 [0.92 1.03]
	≥5 critical cases per call for traumatic surgeons ⁴³		7 [1.1 8]
	≥7 call duties a month for traumatic surgeons ⁴³		3.8 [0.9 7.2]
	≥15 operative cases per month ⁴³		2.8 [0.4 3.2]
	Cumulative years deployed in navy ⁴⁷		2.04 [1.93 2.15]
	Cumulative years deployed in army ⁴⁷		1.74 [1.71 1.76]
	No. of Combat Exposures ⁴⁸		1.62 [1.46 1.79]
	Two combat exposure deployment ⁴⁸		1.37 [1.17 1.61]
	Three combat exposure deployment ⁴⁸		1.30 [0.94 1.82]
	Two deployments ⁴⁸		1.00 [1.00 1.01]
	Three deployments ⁴⁸		1.00 [0.99 1.01]
	One exposure (compared to no exposure) ⁵⁰		4.67 [3.1 7.1]
	Two or more deployments (compared to no exposure) ⁵⁰		6.15 [4.4 8.7]
	Deployment length 1–3 months ⁵³		1.53 [1.37 1.70]
	Deployment length ≥3 months ⁵³		2.64 [2.33 2.99]
	Exposure severity	Low frequency of violence (compared to no violence) ⁵⁵	4.0 [1.0 16.3]
Medium frequency of violence (compared to no violence) ⁵⁵		5.9 [1.4 24.2]	
High frequency of violence (compared to no violence) ⁵⁵		6.5 [1.6 25.6]	
Combat exposure scale ³³		1.98 [1.50 2.62]	
Severity of battles ⁴⁵		1.01 [0.67 1.35]	
Max. mild violence (compared to no violence) ⁵⁵		3.8 [0.3 46.2]	
Max. threats of violence (compared to no violence) ⁵⁵		5.4 [1.2 24.2]	
Max. moderate violence (compared to no violence) ⁵⁵		2.6 [0.6 10.8]	
Max. severe violence (compared to no violence) ⁵⁵		6.5 [1.6 26.0]	
Witnessing the trauma		Perceived life threat ⁵⁶	1.01 [0.63 1.64]
		Observation of abusive violence ³³	8.36 [4.56 15.35]
		Presence during attack ³⁸	9.3 [6.1 14.2]
	Witnessing of plant explosions ⁴²	2.09 [1.43 3.06]	
	Person under train experience ⁴⁶	1.54 [0.52 4.55]	
	One person under train experiences ⁴⁶	1.77 [0.31 4.47]	
	Two or more person under train experiences ⁴⁶	2.36 [0.57 9.70]	
	Sudden train stop ⁴⁶	3.66 [0.82 16.4]	
Near train accident ⁴⁶	8.81 [1.96 39.3]		

		Damage to train ⁴⁶	1.71 [0.48 6.14]
Colleague exposed		Person under train experience of colleague ⁴⁶	0.55 [0.12 2.47]
Indirect exposure to aversive details		Aftermath of battle ³⁷	1.03 [1.00 1.06]
		Morning of 9/11 (compared to >3 days) ²⁷	4.0 [2.5 6.6]
		Afternoon of 9/11 (compared to >3 days) ²⁷	2.1 [1.3 3.3]
		Day 2 (compared to >3 days) ²⁷	1.4 [0.9 2.4]
		Morning of 9/11 (compared to >3 days) ²³	2.0 [1.3 2.9]
		Afternoon of 9/11 (compared to >3 days) ²³	1.1 [0.8 1.5]
		Exposure to aftermath of battle ⁵⁶	1.81 [1.08 3.06]
Other exposures	Stress	High deployment stress ²¹	3.52 [2.94 4.21]
		Deployment concerns summary score ²⁸	1.01 [0.98 1.04]
		Worried by other issues related to robbery ³⁴	2.64 [0.95 7.36]
		Unit cumulative high deployment stress rate (marine) ⁴⁷	1.04 [1.03 1.05]
		Unit cumulative high deployment stress rate (army) ⁴⁷	1.05 [1.04 1.06]
	Time since event	Months since most recent deployment ²⁸	1.00 [0.98 1.02]
		Time since return from deployment (up to 2 years) ³²	1.18 [0.75 1.86]
		Time since return from deployment (up to 3 years) ³²	1.80 [1.05 3.10]
		Time since return from deployment (up to 4 years) ³²	1.88 [0.98 3.62]
		Time since return from deployment (up to 5 years) ³²	1.53 [0.92 2.55]
		Time since return from deployment (up to 6.5 years) ³²	1.89 [0.99 3.60]
	Other	Dwell to deployment ratio (1:1 versus <1:1) ⁴⁸	0.83 [0.60 1.13]
		Dwell to deployment ratio (2:1 versus <1:1) ⁴⁸	0.47 [0.32 0.70]
		Supervising responsibilities ²³	2.2 [1.7 2.9]
		Discrimination/slurs ⁴²	5.72 [3.37 9.71]
		Duties with radiation exposure risk ⁵³	1.08 [0.97 1.20]

Figure caption

Figure 1. Flow chart depicting the search for literature.

Figure 2. Study findings (i.e., effect sizes) for articles reporting on the association of number of army deployments (depicting the effect of being deployed more than once, as compared to being deployed once; upper panel) and combat exposure (lower panel) with PTSD. Individual study as well as pooled effects are presented. SE = standard error; CI = confidence interval; IV = Inverse variance.

Figure 3. Study findings (i.e., effect sizes) for articles reporting on the association of deployments status (depicting the effect of being deployed, as compared to not being deployed; upper panel) and confrontation with death (lower panel) with PTSD. Individual study as well as pooled effects are presented. SE = standard error; CI = confidence interval; IV = Inverse variance.

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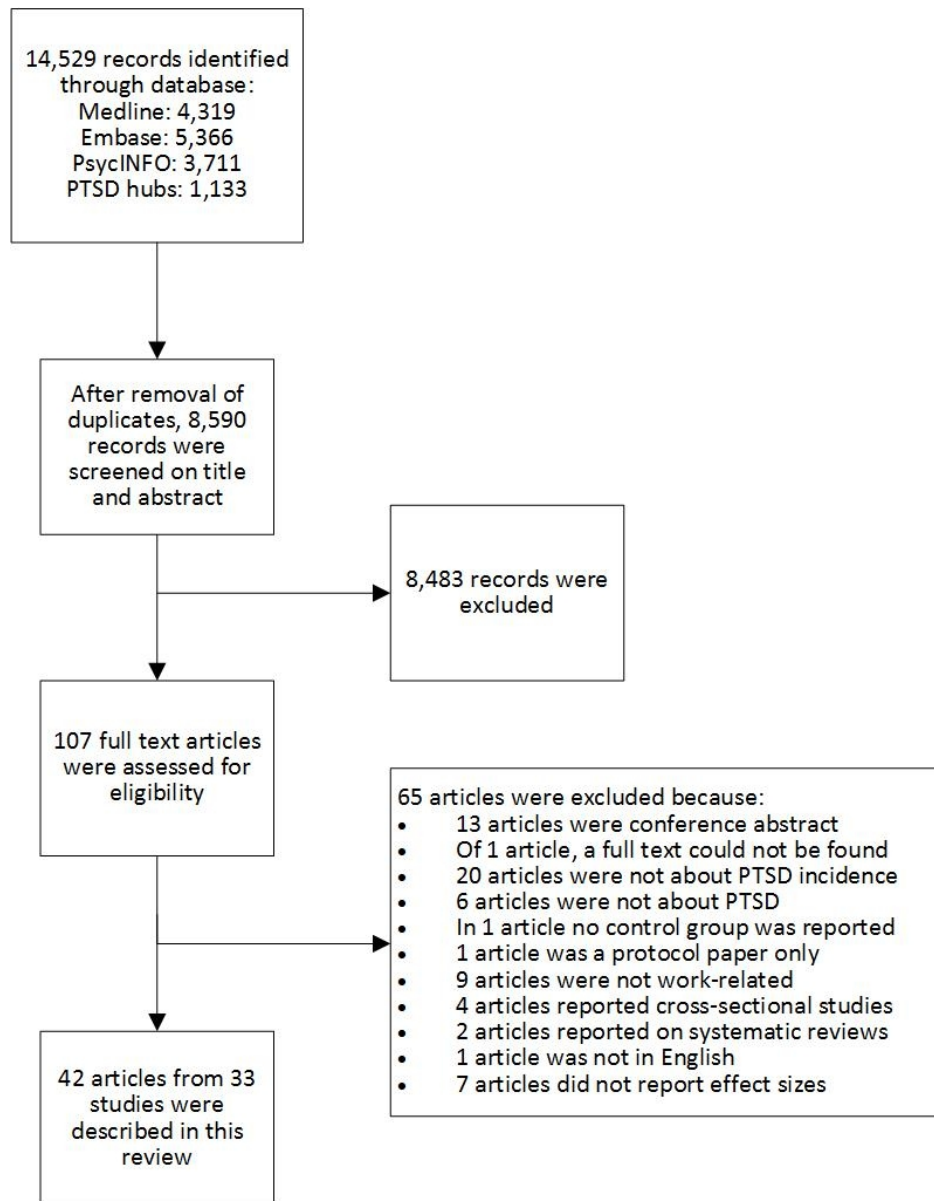
References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 3rd ed. Washington DC, USA1980.
2. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Washington DC, USA2013.
3. Sareen J. Posttraumatic stress disorder in adults: impact, comorbidity, risk factors, and treatment. *Can J Psychiatry* 2014;59(9):460–67.
4. Knowles KA, Sripada RK, Defever M, Rauch SAM. Comorbid mood and anxiety disorders and severity of posttraumatic stress disorder symptoms in treatment-seeking veterans. *Psychol Trauma* 2019;11(4):451-58. doi: 10.1037/tra0000383
5. Debell F, Fear NT, Head M, Batt-Rawden S, Greenberg N, Wessely S, Goodwin L. A systematic review of the comorbidity between PTSD and alcohol misuse. *Soc Psychiatry Psychiatr Epidemiol* 2014;49(9):1401-25. doi: 10.1007/s00127-014-0855-7
6. Pompili M, Sher L, Serafini G, Forte A, Innamorati M, Dominici G, Lester D, Amore M, Girardi P. Posttraumatic stress disorder and suicide risk among veterans: a literature review. *J Nerv Ment Dis* 2013;201(8):802-12. doi: 10.1097/NMD.0b013e3182a21458
7. Skogstad M, Skorstad M, Lie A, Conradi HS, Heir T, Weisæth L. Work-related post-traumatic stress disorder. In-depth review. *Occup Med* 2013;63(3):175-82. doi: 10.1093/occmed/kqt003
8. Utzon-Frank N, Breinegaard N, Bertelsen M, Borritz M, Eller NH, Nordentoft M, Olesen K, Rod NH, Rugulies R, Bonde JP. Occurrence of delayed-onset post-traumatic stress disorder: a systematic review and meta-analysis of prospective studies. *Scand J Work Environ Health* 2014;40(3):215-29.
9. Lee W, Lee YR, Yoon JH, Lee HJ, Kang MY. Occupational post-traumatic stress disorder: an updated systematic review. *BMC Public Health* 2020;20:768. doi: 10.1186/s12889-020-08903-2
10. van der Beek AJ, Dennerlein JT, Huysmans MA, Mathiassen SE, Burdorf A, van Mechelen W, van Dieën JH, Frings-Dresen MH, Holtermann A, Janwantanakul P, van der Molen HF, Rempel D, Straker L, Walker-Bone K, Coenen P. A research framework for the development and implementation of interventions preventing work-related musculoskeletal disorders. *Scand J Work Environ* 2017;43(6):526-39. doi: 10.5271/sjweh.3671
11. van der Molen HF, Foresti C, Daams JG, Frings-Dresen MHW, Kuijer PPFM. Work-related risk factors for specific shoulder disorders: a systematic review and meta-analysis. *Occup Environ Med* 2017;74(10):745–55.
12. Kuijer PPFM, Verbeek JH, Seidler A, Ellegast R, Hulshof CTJ, Frings-Dresen MHW, van der Molen HF. Work-relatedness of lumbosacral radiculopathy syndrome: Review and dose-response meta-analysis *Neurology* 2018;91(12):558–64.
13. Coenen P, Brand T, Sorgdrager B, Daams J, de Groene G, van der Molen HF. What work-related risk factors are associated with post-traumatic stress disorder? *PROSPERO* 2020;CRD42020155434
14. Moher D, Liberati A, Tetzlaff J, Altman DG, Group. P. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ* 2009;21(339):2535. doi: 10.1136/bmj.b2535
15. Hayden JA, van der Windt DA, Cartwright JL, Cote P, Bombardier C. Assessing bias in studies of prognostic factors. *Ann Intern Med* 2013;158(4):280-86.
16. Cochrane Collaboration. Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]. Available from www.cochrane-handbook.org.2011.
17. Poole C. A history of the population attributable fraction and related measures. *Ann Epidemiol* 2015;25(147–154)
18. Huguët A, Hayden JA, Stinson J, McGrath PJ, Chambers CT, Tougas ME, Wozney L. Judging the quality of evidence in reviews of prognostic factor research: adapting the GRADE framework. *Syst Rev* 2013;2:71. doi: 10.1186/2046-4053-2-71
19. Foroutan. F., Guyatt G, Zuk V, Vandvik PO, Carolina Alba AC, Mustafa R, Vernooij R, Arevalo-Rodriguez I, Munn Z, Roshanov P, Riley R, Schandelmaier S, Kuijpers T, Siemieniuk R, Canelo-Aybar C, Schunemann H, Iorio A. GRADE guidelines 28: use of grade for the assessment of evidence about prognostic factors: rating certainty in identification of groups of patients with different absolute risks. *J Clin Epidemiol* 2020;121:62–70.
20. Andersen LP, Hogh A, Elklit A, Andersen JH, Biering K. Work-related threats and violence and post-traumatic symptoms in four high-risk occupations: short- and long-term symptoms. *Int Arch Occup Environ Health* 2019;92(2):195-208. doi: 10.1007/s00420-018-1369-5

21. Anderson L, Campbell-Sills L, Ursano RJ, Kessler RC, Sun X, Heeringa SG, Nock MK, Bliese PD, Gonzalez OI, Wynn GH, Jain S, Stein MB. Prospective associations of perceived unit cohesion with postdeployment mental health outcomes. *Depress Anxiety* 2019;36(6):511-21. doi: 10.1002/da.22884
22. Armed Forces Health Surveillance Center. Associations between repeated deployments to Iraq (OIF/OND) and Afghanistan (OEF) and post-deployment illnesses and injuries, active component, U.S. Armed Forces, 2003-2010. Part II. Mental disorders, by gender, age group, military occupation, and "dwell times" prior to repeat (second through fifth) deployments. *MSMR* 2011;18(9):2-11.
23. Berninger A, Webber MP, Niles JK, Gustave J, Lee R, Cohen HW, Kelly K, Corrigan M, Prezant DJ. Longitudinal study of probable post-traumatic stress disorder in firefighters exposed to the World Trade Center disaster. *Am J Ind Med* 2010;53(12):1177-85. doi: 10.1002/ajim.20894
24. Brownlow JA, Zitnik GA, McLean CP, Gehrman PR. The influence of deployment stress and life stress on Post-Traumatic Stress Disorder (PTSD) diagnosis among military personnel. *J Psychiatr Res* 2018;103:26-32. doi: 10.1016/j.jpsychires.2018.05.005
25. Brundage JF, Taubman SB, Hunt DJ, Clark LL. Whither the "signature wounds of the war" after the war: estimates of incidence rates and proportions of TBI and PTSD diagnoses attributable to background risk, enhanced ascertainment, and active war zone service, active component, U.S. Armed Forces, 2003-2014. *MSMR* 2015;22(2):2-11.
26. Cameron KL, Sturdivant RX, Baker SP. Trends in the incidence of physician-diagnosed posttraumatic stress disorder among active-duty U.S. military personnel between 1999 and 2008. *Mil Med Res* 2019;6(1):8. doi: 10.1186/s40779-019-0198-5
27. Chiu S, Niles JK, Webber MP, Zeig-Owens R, Gustave J, Lee R, Rizzotto L, Kelly KJ, Cohen HW, Prezant DJ. Evaluating risk factors and possible mediation effects in posttraumatic depression and posttraumatic stress disorder comorbidity. *Public Health Rep* 2011;126(2):201-09.
28. Ciarleglio MM, Aslan M, Proctor SP, Concato J, Ko J, Kaiser AP, Vasterling JJ. Associations of stress exposures and social support with long-term mental health outcomes among U.S. Iraq war veterans. *Behav Ther* 2018;49(5):653-67. doi: 10.1016/j.beth.2018.01.002
29. Cone JE, Li J, Kornblith E, Gocheva V, Stellman SD, Shaikh A, Schwarzer R, Bowler RM. Chronic probable PTSD in police responders in the world trade center health registry ten to eleven years after 9/11. *Am J Ind Med* 2015;58(5):483-93. doi: 10.1002/ajim.22446
30. Connorton E, Perry MJ, Hemenway D, Miller M. Occupational trauma and mental illness--combat, peacekeeping, or relief work and the national co-morbidity survey replication. *J Occup Environ Med* 2011;53(12):1360-63. doi: 10.1097/JOM.0b013e318234e2ec
31. Cukor J, Wyka K, Mello B, Olden M, Jayasinghe N, Roberts J, Giosan C, Crane M, Difede J. The longitudinal course of PTSD among disaster workers deployed to the World Trade Center following the attacks of September 11th. *J Trauma Stress* 2011;24(5):506-14. doi: 10.1002/jts.20672
32. Fear NT, Jones M, Murphy D, Hull L, Iversen AC, Coker B, Machell L, Sundin J, Woodhead C, Jones N, Greenberg N, Landau S, Dandeker C, Rona RJ, Hotopf M, Wessely S. What are the consequences of deployment to Iraq and Afghanistan on the mental health of the UK armed forces? A cohort study. *Lancet* 2010;375(9728):1783-97. doi: 10.1016/S0140-6736(10)60672-1
33. Ferrajão PC, Oliveira RA. The effects of combat exposure, abusive violence, and sense of coherence on PTSD and depression in portuguese colonial war veterans. *Psychol Trauma* 2016;8(1):1-8. doi: <http://dx.doi.org/10.1037/tra0000043>
34. Fichera GP, Fattori A, Neri L, Musti M, Coggiola M, Costa G. Post-traumatic stress disorder among bank employee victims of robbery. *Occup Med* 2015;65(4):283-89. doi: 10.1093/occmed/kqu180
35. Fink DS, Cohen GH, Sampson LA, Gifford RK, Fullerton CS, Ursano RJ, Galea S. Incidence of and risk for post-traumatic stress disorder and depression in a representative sample of US Reserve and National Guard. *Ann Epidemiol* 2016;26(3):189-97. doi: 10.1016/j.annepidem.2016.01.003
36. Goodwin L, Jones M, Rona RJ, Sundin J, Wessely S, Fear NT. Prevalence of delayed-onset posttraumatic stress disorder in military personnel: Is there evidence for this disorder? Results of a prospective UK cohort study. *J Nerv Ment Dis* 2012;200(5):429-37. doi: 10.1097/NMD.0b013e31825322fe
37. Green JD, Bovin MJ, Erb SE, Lachowicz M, Gorman KR, Rosen RC, Keane TM, Marx BP. The effect of enemy combat tactics on PTSD prevalence rates: A comparison of operation Iraqi

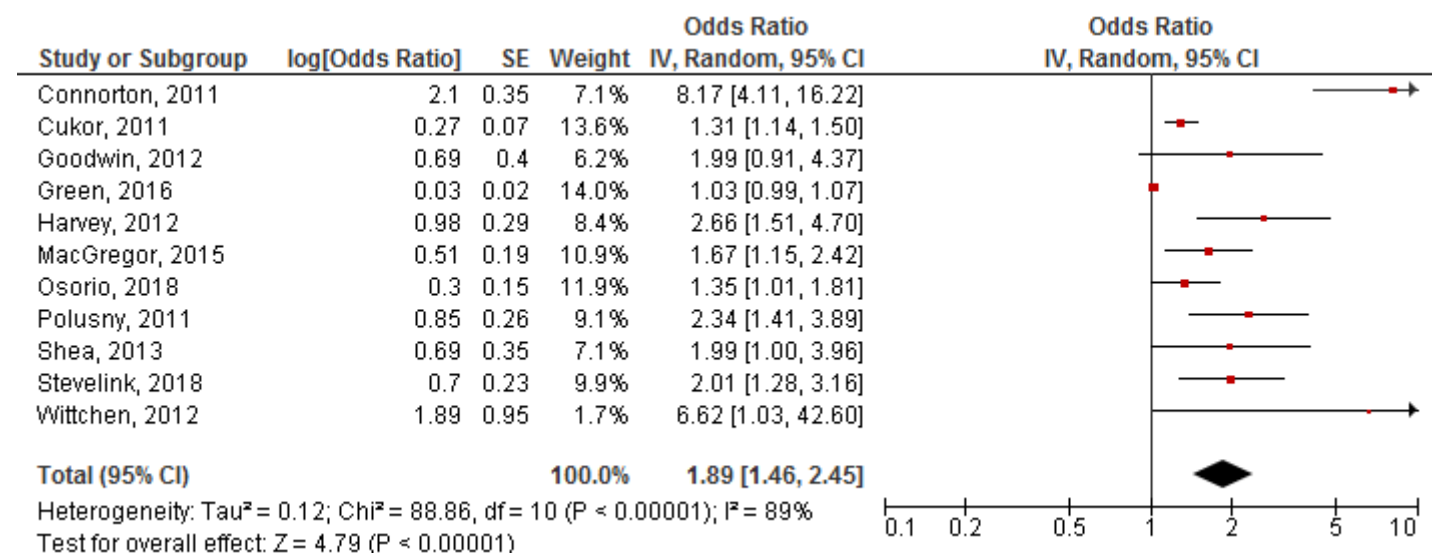
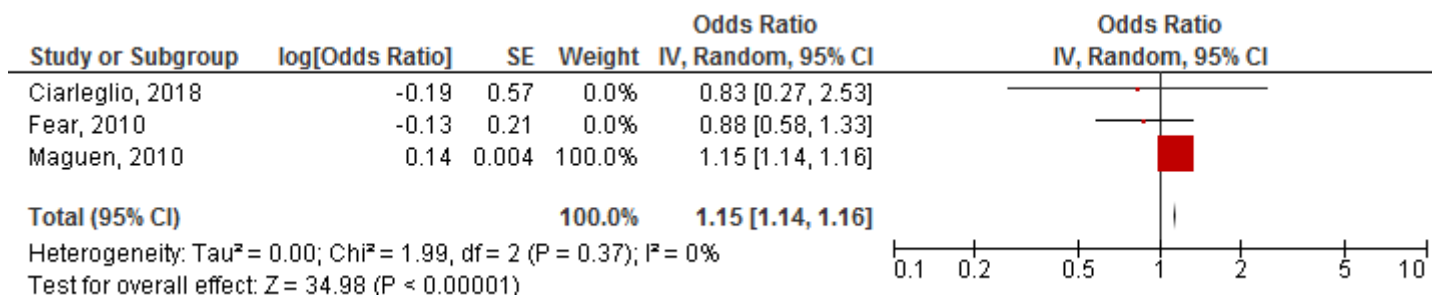
- freedom deployment phases in a sample of male and female veterans. *Psychol Trauma* 2016;8(5):634-40. doi: 10.1037/tra0000086
38. Hansen MB, Birkeland MS, Nissen A, Blix I, Solberg O, Heir T. Prevalence and course of symptom-defined PTSD in individuals directly or indirectly exposed to terror: A longitudinal study. *Psychiatry* 2017;80(2):171-83. doi: 10.1080/00332747.2016.1230983
39. Harvey SB, Hatch SL, Jones M, Hull L, Jones N, Greenberg N, Dandeker C, Fear NT, Wessely S. The long-term consequences of military deployment: A 5-year cohort study of United Kingdom reservists deployed to Iraq in 2003. *Am J Epidemiol* 2012;176(12):1177-84. doi: 10.1093/aje/kws248
40. Horesh D, Solomon Z, Zerach G, Ein-Dor T. Delayed-onset PTSD among war veterans: the role of life events throughout the life cycle. *Soc Psychiatry Psychiatr Epidemiol* 2011;46:863-70. doi: 10.1007/s00127-010-0255-6
41. Hourani L, Bender RH, Weimer B, Peeler R, Bradshaw M, Lane M, Larson G. Longitudinal study of resilience and mental health in marines leaving military service. *J Affect Disord* 2012;139:154-65.
42. Ikeda A, Tanigawa T, Charvat H, Wada H, Shigemura J, Kawachi I. Longitudinal effects of disaster-related experiences on mental health among Fukushima nuclear plant workers: The Fukushima NEWS Project Study. *Psychol Med* 2017;47:1936-46. doi: 10.1017/S0033291717000320
43. Joseph B, Pandit V, Hadeed G, Kulvatunyou N, Zangbar B, Tang A, O'Keeffe T, Wynne J, Green DJ, Friese RS, Rhee R. Unveiling posttraumatic stress disorder in trauma surgeons: A national survey. *J Trauma Acute Care Surg* 2014;77(1):148-54. doi: 10.1097/TA.0000000000000271
44. Karstoft KI, Armour C, Elklit A, Solomon Z. Long-term trajectories of posttraumatic stress disorder in veterans: The role of social resources. *J Clin Psychiatry* 2013;74(12):e1163-e68. doi: 10.4088/JCP.13m08428
45. Karstoft KI, Armour C, Elklit A, Solomon Z. The role of locus of control and coping style in predicting longitudinal PTSD-trajectories after combat exposure. *J Anxiety Disord* 2015;32:89-94.
46. Kim S, Kim HR, Park JI, Lee HW, Lee J, Byun J, Yim HW. The association between psychiatric disorders and work-related problems among subway drivers in Korea. *Ann Occup Environ Med* 2014;26:39.
47. Levin-Rector A, Hourani LL, van Dorn RA, Bray RB, Stander VA, Cartwright JK, Morgan JK, Trudeau J, Lattimore PK. Predictors of posttraumatic stress disorder, anxiety disorders, depressive disorders, and any mental health condition among U.S. soldiers and marines, 2001-2011. *J Trauma Stress* 2018;31:568-78.
48. MacGregor AJ, Dougherty AL, Mayo JA, Han PP, Galerneau MR. Post-traumatic stress disorder among navy health care personnel following combat deployment. *Mil Med* 2015;180(8):882
49. MacGregor AJ, Han PP, Dougherty AL, Galerneau MR. Effect of dwell time on the mental health of US military personnel with multiple combat tours. *Am J Public Health* 2012;102:S55-S59. doi: 10.2105/AJPH.2011.300341
50. Maguen S, Madden E, Lau KM, Seal K. The impact of head injury mechanism on mental health symptoms in veterans: Do number and type of exposures matter? *J Trauma Stress* 2012;25:3-9.
51. Maguen S, Ren L, Bosch JO, Marmar CR, Seal KH. Gender differences in mental health diagnoses among Iraq and Afghanistan veterans enrolled in veterans affairs health care. *Am J Public Health* 2010;100:2450-56. doi: 10.2105/AJPH.2009.166165
52. Martindale SL, Rowland JA, Shura RD, Taber KH. Longitudinal changes in neuroimaging and neuropsychiatric status of post-deployment veterans: a CENC pilot study. *Brain Injury* 2018;32(10):1208-16. doi: 10.1080/02699052.2018.1492741
53. Nagamine M, Yamamoto T, Shigemura J, Tanichi M, Yoshino A, Suzuki G, Takahashi Y, Miyazaki M, Uwabe Y, Harada N, Shimizu K. The psychological impact of the great East Japan earthquake on Japan ground self-defense force personnel: A three-wave, one-year longitudinal study. *Psychiatry* 2018;1:1-9. doi: <https://doi.org/10.1080/00332747.2017.1333340>
54. Osório C, Jones N, Jones E, Robbins I, Wessely S, Greenberg N. Combat experiences and their relationship to post-traumatic stress disorder symptom clusters in UK military personnel deployed to Afghanistan. *Behavioral Medicine* 2017 doi: 10.1080/08964289.2017.1288606

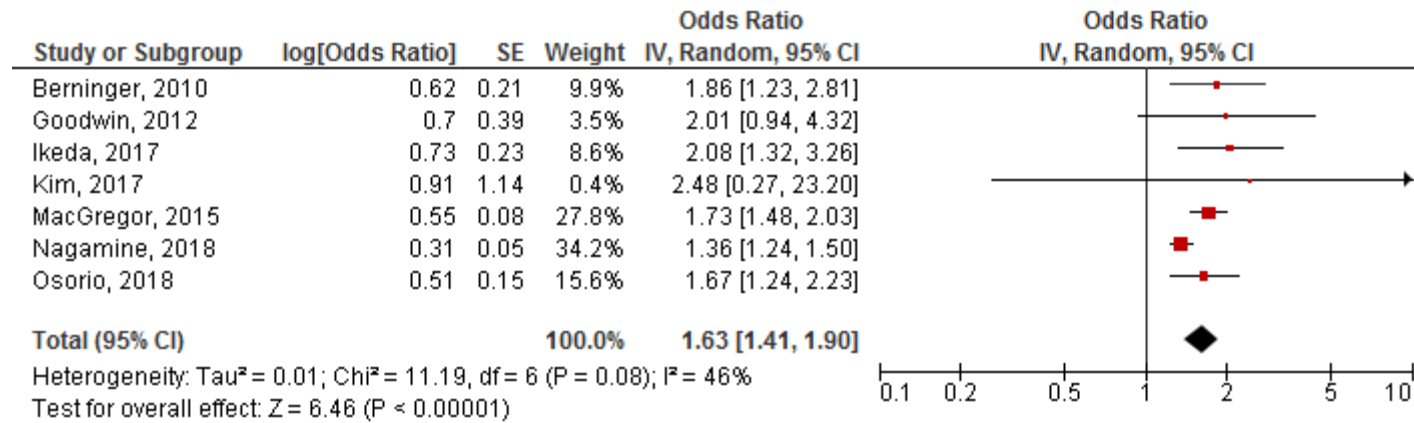
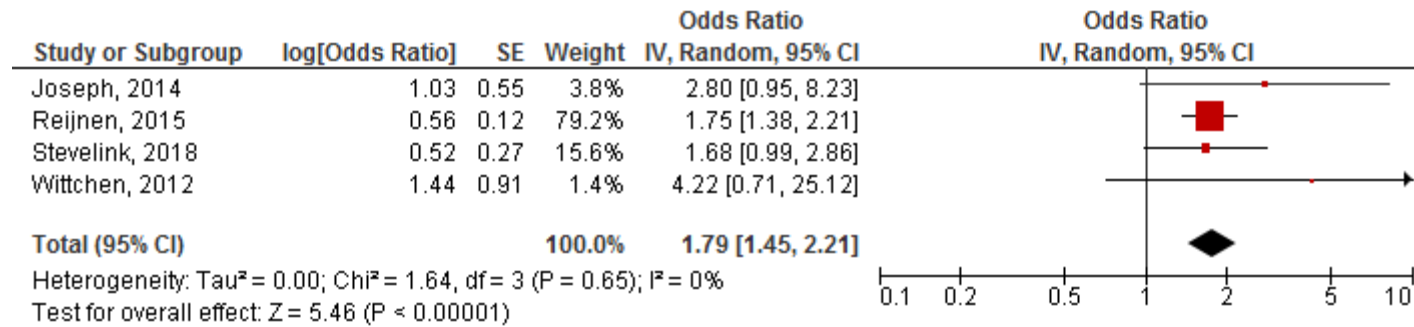
- 1
2
3 55. Pihl-Thingvad J, Andersen AA, Brandt LP, Elklit A. Are frequency and severity of workplace
4 violence etiologic factors of posttraumatic stress disorder? A 1-year prospective study of 1,763
5 social educators. *J Occup Health Psychol* 2019;24(5):543-55. doi: 10.1037/ocp0000148
- 6 56. Polusny MA, Erbes CR, Murdoch M, Arbisi PA, Thuras P, Rath MB. Prospective risk factors for
7 new-onset post-traumatic stress disorder in National Guard soldiers deployed to Iraq. *Psych*
8 *Med* 2011;41:687-98. doi: 10.1017/S0033291710002047
- 9 57. Reijnen A, Rademaker AR, Vermetten E, Geuze E. Prevalence of mental health symptoms in
10 Dutch military personnel returning from deployment to Afghanistan: A 2-year longitudinal
11 analysis. *Eur Psychiat* 2015;30:341-46.
- 12 58. Shea MT, Reddy MK, Tyrka AR, Sevin E. Risk factors for post-deployment post traumatic stress
13 disorder in national guard/reserve service members. *Psychiatry Res* 2013;210:1042-48.
- 14 59. Soo J, Webber MP, Gustave J, Lee R, Hall CB, Cohen HW, Kelly KJ, Prezant DK. Trends in
15 probable PTSD in firefighters exposed to the World Trade Center disaster, 2001-2010.
16 *Disaster Med Public Health Preparedness* 2011;5:S197-S203.
- 17 60. Stevelink SA, Jones M, Hull L, Pernet D, MacCrimmon S, Goodwin L, MacManus D, Murphy D,
18 Jones N, Greenberg N, Rona RJ, Fear NT, Wessely S. Mental health outcomes at the end of
19 the British involvement in the Iraq and Afghanistan conflicts: a cohort study. *Br J Psychiatry*
20 2018;213:690-97. doi: 10.1192/bjp.2018.175
- 21 61. Wittchen HU, Schönfeld S, Kirschbaum C, Thurau C, Trautmann S, Steudte S, Klotsche J, Höfler
22 M, Hauffa R, Zimmermann P. Traumatic experiences and posttraumatic stress disorder in
23 soldiers following deployment abroad: how big is the hidden problem? *Dtsch Arztebl Int*
24 2012;109(35-36):559-68. doi: 10.3238/arztebl.2012.0559
- 25 62. Goldmann E, Calabrese JR, Prescott MR, Tamburrino M, Liberzon I, Slembariski R, Shirley E, Fine
26 T, Goto T, Wilson K, Ganocy S, Chan P, Serrano MB, Sizemore J, Galea S. Potentially
27 modifiable pre-, peri-, and postdeployment characteristics associated with deployment-related
28 posttraumatic stress disorder among ohio army national guard soldiers. *Ann Epidemiol*
29 2012;22(2):71-8. doi: 10.1016/j.annepidem.2011.11.003
- 30 63. Bradford Hill A. The Environment and Disease: Association or Causation? *Proc R Soc Med*
31 1965;58(5):295-300. doi: 10.1177/003591576505800503
- 32 64. Schünemann H, Hill S, Guyatt G, Akl EA, Ahmed F. The GRADE approach and Bradford Hill's
33 criteria for causation. *J Epidemiol Community Health* 2011;65(5):392-95. doi:
34 10.1136/jech.2010.119933
- 35 65. Nievergelt CM, Maihofer AX, Klengel T, Atkinson EG, Chen CY, Choi KW, Coleman JRI, Dalvie S,
36 Duncan LE, Gelernter J, Levey DF, Logue MW, Polimanti R, Provost AC, Ratanatharathorn A,
37 Stein MB, Torres K, Aiello AE, Almli LM, Amstadter AB, Andersen SB, Andreassen OA, Arbisi
38 PA, Ashley-Koch AE, Austin SB, Avdibegovic E, Babić D, Bækvad-Hansen M, Baker DG,
39 Beckham JC, Bierut LJ, Bisson JI, Boks MP, Bolger EA, Børghlum AD, Bradley B, Brashear M,
40 Breen G, Bryant RA, Bustamante AC, Bybjerg-Grauholm J, Calabrese JR, Caldas-de-Almeida
41 JM, Dale AM, Daly MJ, Daskalakis NP, Deckert J, Delahanty DL, Dennis MF, Disner SG,
42 Domschke K, Dzubur-Kulenovic A, Erbes CR, Evans A, Farrer LA, Feeny NC FJ, Forbes D,
43 Franz CE, Galea S, Garrett ME, Gelaye B, Geuze E, Gillespie C, Uka AG, Gordon SD,
44 Guffanti G, Hammamieh R, Harnal S, Hauser MA, Heath AC, Hemmings SMJ, Hougaard DM
45 JM, Jett M, Johnson EO, Jones I, Jovanovic T, Qin XJ, Junglen AG, Karstoft KI, Kaufman ML,
46 Kessler RC, Khan A, Kimbrel NA, King AP, Koen N, Kranzler HR, Kremen WS, Lawford BR,
47 Lebois LAM, Lewis CE, Linnstaedt SD, Lori A, Lugonja B, Luykx JJ, Lyons MJ, Maples-Keller
48 J, Marmar C, Martin AR, Martin NG, Maurer D, Mavissakalian MR MA, McGlinchey RE,
49 McLaughlin KA, McLean SA, McLeay S, Mehta D, Milberg WP, Miller MW, Morey RA, Morris
50 CP, Mors O, Mortensen PB, Neale BM, Nelson EC, Nordentoft M, Norman SB, O'Donnell M,
51 Orcutt HK, Panizzon MS, Peters ES, Peterson AL, Peverill M, Pietrzak RH, Polusny MA, Rice
52 JP, Ripke S, Risbrough VB, Roberts AL, Rothbaum AO, Rothbaum BO, Roy-Byrne P,
53 Ruggiero K, Rung A, Rutten BPF, Saccone NL, Sanchez SE, Schijven D, Seedat S,
54 Seligowski AV, Seng JS, Sheerin CM, Silove D, Smith AK, Smoller JW, Sponheim SR, Stein
55 DJ, Stevens JS, Sumner JA, Teicher MH, Thompson WK, Trapido E, Uddin M, Ursano RJ,
56 van den Heuvel LL, Van Hooff M, Vermetten E, Vinkers CH, Voisey J, Wang Y, Wang Z,
57 Werge T, Williams MA, Williamson DE, Winternitz S, Wolf C, Wolf EJ, Wolff JD, Yehuda R,
58 Young RM, Young KA, Zhao H, Zoellner LA, Liberzon I, Ressler KJ, Haas M, Koenen KC.
59 International meta-analysis of PTSD genome-wide association studies identifies sex- and
60 ancestry-specific genetic risk loci. 2019;10(1):4558. doi: 10.1038/s41467-019-12576-w



Flow chart depicting the search for literature.

101x130mm (200 x 200 DPI)





Supplementary file 1.

Ovid MEDLINE(R) ALL <1946 to September 09, 2019>. Search date: 10 September 2019		
#	Search	Results
1	stress disorders, post-traumatic/ or stress disorders, traumatic, acute/	30925
2	(acute stress or (asd and stress) or ptsd or ptss or posttraumatic stress or post traumatic stress or acute stress disorder or posttraumatic symptom? or post traumatic symptom? or traumatic stress).ab,kf,ti,sh.	42697
3	(htsq or trauma screen* or (trauma screen* and stress)).ab,kf,ti. [trauma screening zoals de Harvard Trauma Screening Questionnaire - htsq]	160
4	or/1-3 [ptsd]	51153
5	exp Occupations/ or Workload/ or exp Work/ or Workplace/ or exp Occupational Diseases/ or Rehabilitation, Vocational/ or Occupational Health/ or Sick Leave/ or Absenteeism/ or Retirement/ or workers' compensation/ or exp Employment/ or exp Occupational Exposure/ or Volunteers/	361332
6	(worka* or worke* or workg* or worki* or workl* or workp* or work capacity or work disabilit* or work abilit* or at work or work exposure or work related or workers or job* or employee or staff or personnel or occupation or occupations or occupational or outdoor work* or day shift* or night shift* or shift work* or vocational rehabilitation or sick leave or absenteeism or sickness absen* or absente* or presente* or "return to work" or vocational reintegration or retirement or pension or employment or unemployed or unemployment or work status or industries or industrial sector or volunteer* or voluntary worker* or repetitive work).ab,kf,ti.	2038626
7	exp "personnel, hospital"/ or exp emergency responders/	100417
8	(residents or emergency responder? or first responder? or firefighter? or fire fighter? or Police officer? or emergency medicals or Armed forces or paramedics or veterans or Journalist?).ab,kf,ti.	147998
9	or/5-8 [work]	2360997
10	Epidemiologic studies/	8073
11	exp case control studies/	1016792
12	exp cohort studies/	1894888
13	Case control.tw.	118051
14	(cohort adj (study or studies)).tw.	183886
15	Cohort analy\$.tw.	7241
16	(Follow up adj (study or studies)).tw.	47481
17	(observational adj (study or studies)).tw.	95892
18	Longitudinal.tw.	227916
19	or/10-17 [observationele- en longitudinale studies]	2269321
20	(risk or predict*).mp.	3563653
21	19 or 20	4936872
22	and/4,9,21	6387
23	limit 22 to yr="2010-current"	4319

Ovid Embase Classic+Embase <1947 to 2019 September 09>. Search date: 10 September 2019		
#	Search	Results
1	*posttraumatic stress disorder/ or *acute stress disorder/	30071
2	(acute stress or (asd and stress) or ptsd or ptss or posttraumatic stress or post traumatic stress or acute stress disorder or posttraumatic symptom? or post traumatic symptom? or	56167

	traumatic stress).ab,kw,ti.	
3	(htsq or trauma screen* or (trauma screen* and stress)).ab,kw,ti.	199
4	or/1-3 [ptsd]	60673
5	exp *Occupation/ or exp *occupational health/ or exp *work/ or *Volunteer/ or exp *named groups by occupation/	907358
6	(worka* or worke* or workg* or worki* or workl* or workp* or work capacity or work disabilit* or work abilit* or at work or work exposure or work related or workers or job* or employee or staff or personnel or occupation or occupations or occupational or outdoor work* or day shift* or night shift* or shift work* or vocational rehabilitation or sick leave or absenteeism or sickness absen* or absente* or presente* or "return to work" or vocational reintegration or retirement or pension or employment or unemployed or unemployment or work status or industries or industrial sector or volunteer* or voluntary worker* or repetitive work).ab,kw,ti.	3266921
7	exp *hospital personnel/ or rescue personnel/	46527
8	(residents or emergency responder? or first responder? or firefighter? or fire fighter? or Police officer? or emergency medicals or Armed forces or paramedics or veterans or Journalist?).ab,kw,ti.	195059
9	or/5-8 [work]	3981638
10	*Clinical study/	56379
11	*Case control study/	6905
12	*Family study/	2834
13	*Longitudinal study/	7151
14	*Retrospective study/	19751
15	*Prospective study/	21494
16	Randomized controlled trials/	168154
17	15 not 16	21378
18	*Cohort analysis/	26124
19	(Cohort adj (study or studies)).mp.	275760
20	(Case control adj (study or studies)).tw.	126673
21	(follow up adj (study or studies)).tw.	66352
22	(observational adj (study or studies)).tw.	151582
23	(epidemiologic\$ adj (study or studies)).tw.	106051
24	or/10-15,17-23	799536
25	(risk or predict*).mp.	5152294
26	24 or 25	5545704
27	and/4,9,26	7053
28	limit 27 to yr="2010-current"	5366

Ovid PsycINFO <1806 to September Week 1 2019>. Search date: 10 September 2019		
#	Search	Results
1	posttraumatic stress disorder/ or acute stress disorder/	31361
2	(acute stress or (asd and stress) or ptsd or ptss or posttraumatic stress or post traumatic stress or acute stress disorder or posttraumatic symptom? or post traumatic symptom? or traumatic stress).ab,id,ti.	49013
3	(htsq or trauma screen* or (trauma screen* and stress)).ab,id,ti,tm.	292
4	or/1-3 [ptsd]	50242

5	exp occupations/ or exp occupational health/ or occupational status/	59891
6	(worka* or worke* or workg* or worki* or workl* or workp* or work capacity or work disabilit* or work abilit* or at work or work exposure or work related or workers or job* or employee or staff or personnel or occupation or occupations or occupational or outdoor work* or day shift* or night shift* or shift work* or vocational rehabilitation or sick leave or absenteeism or sickness absen* or absente* or presente* or "return to work" or vocational reintegration or retirement or pension or employment or unemployed or unemployment or work status or industries or industrial sector or volunteer* or voluntary worker* or repetitive work).ab,id,ti.	866191
7	exp medical personnel/ or exp emergency personnel/	89105
8	(residents or emergency responder? or first responder? or firefighter? or fire fighter? or Police officer? or emergency medicals or Armed forces or paramedics or veterans or Journalist?).ab,id,ti.	68300
9	or/5-8 [work]	972972
10	(Clinical stud* or Case control stud* or Longitudinal stud* or Retrospective stud* or (Prospective stud* not (Randomized controlled trials or rct)) or Cohort analysis or (Cohort adj (study or studies)) or (Case control adj (study or studies)) or (follow up adj (study or studies)) or (observational adj (study or studies)) or (epidemiologic\$ adj (study or studies))).ab,id,ti.	136663
11	(risk or predict*).mp.	730689
12	10 or 11	808563
13	and/4,9,12	5417
14	limit 13 to yr="2010-current"	3711

ProQuest PTSDhubs. Search date: 10 September 2019		
#	Search	Results
1	(su((worka* OR worke* OR workg* OR worki* OR workl* OR workp* OR work capacity OR work disabilit* OR work abilit* OR at work OR work exposure OR work related OR workers OR job* OR employee OR staff OR personnel OR occupation OR occupations OR occupational OR outdoor work* OR day shift* OR night shift* OR shift work* OR vocational rehabilitation OR sick leave OR absenteeism OR sickness absen* OR absente* OR presente* OR "return to work" OR vocational reintegration OR retirement OR pension OR employment OR unemployed OR unemployment OR work status OR industries OR industrial sector OR volunteer* OR voluntary worker* OR repetitive work)) OR su((residents OR emergency responder? OR first responder? OR firefighter? OR fire fighter? OR Police officer? OR emergency medicals OR Armed forces OR paramedics OR veterans OR Journalist?))) AND (su(risk OR predict*) OR su((Clinical stud* OR Case control stud* OR Longitudinal stud* OR Retrospective stud* OR (Prospective stud* NOT (Randomized controlled trials OR rct)) OR Cohort analysis OR Cohort stud* OR Case control stud* OR follow up stud* OR observational stud* OR epidemiologic stud*)))	1849
2	Limit 1 to publication date = 2010-01-01 / 2019-09-10	1133

Supplementary file 2. Excluded articles

Article	Reason for exclusion	No papers
1. Amiri T. Occupational posttraumatic stress disorder: Latent structure and risk pathways. 2019, Dissertation Abstracts International, 80(4).	Conference abstract	1
2. Chin WS, Shiao JSC, Liao SC, Kuo CY, Chen CC, Guo YL. Psychiatric diseases at six years after occupational injuries. 2016. Occupational and Environmental Medicine, 73: A175.	Conference abstract	2
3. Connorton E, Miller M, Perry MJ, Hemenway D. Mental health and combat, peacekeeping, or relief work: Results from the National Comorbidity Survey Replication. 2011. Comprehensive Psychiatry, 52: E4.	Conference abstract	3
4. Geronazzo AL, Shen S, Duarte CS, Wu P, Lord E, Amsel L, Musa GJ, Wicks J, Yip J, Fan B, Guffanti G, Hoven CW. Cumulative exposure to work-related incidents and current posttraumatic stress disorder in new york city's first responders. 2013. European Psychiatry Conference.	Conference abstract	4
5. Goldmann E, Tamburrino M, Liberzon I, Slembariski R, Prescott MR, Calabrese J Galea S. Pre-, peri-, and post-deployment characteristics and risk of posttraumatic stress disorder among ohio national guard soldiers. 2010. American Journal of Epidemiology, 11: S90.	Conference abstract	5
6. Goodwin L, Jones M, Sundin J, Wessely S, Rona RJ, Fear NT. Prevalence and predictors of delayed onset PTSD in military personnel: Is there evidence for this disorder? Results of a prospective UK cohort study. 2011. Occupational and Environmental Medicine, 1351-0711, 1, A100.	Conference abstract	6
7. Herrell R, Wilk J, Bliese P, Hoge C. Combat intensity, psychopathology, and suicidal ideation in a population of soldiers after deployment to Iraq. 2011. Comprehensive Psychiatry, 52: E8.	Conference abstract	7
8. Herrell RK, Bliese PA, Hoge CW. Effect of combat intensity, depression, alcohol misuse, and family history of depression and alcohol misuse on PTSD in a sample of post-deployment US Soldiers. 2013. Comprehensive Psychiatry, 54: E4-E5.	Conference abstract	8
9. Herrell RK, Bliese PB, Hoge CW. Number of deployments and total months of deployment as predictors of post-traumatic stress disorder in active duty soldiers. 2011. American Journal of Epidemiology, 11: S289.	Conference abstract	9
10. Horesh D, Solomon Z, Ein-Dor T. Delayed-onset PTSD following combat: The role of social resources. 2013. Comprehensive Psychiatry, 54: e24.	Conference abstract	10
11. Kim AR, Sung JH, Cho SW, Jeong KS, Ahn YS. The relationship between the post-traumatic stress syndrome and the occupational stress among the firefighters in Korea. 2018. Occupational and Environmental Medicine, 75: A380.	Conference abstract	11
12. Pierce MD, Wood MD, Reddy M, Sevin E, Shea MT. A prospective examination of posttraumatic stress and alcohol use disorders among returning veterans. 2012. Alcoholism: Clinical and Experimental Research, 1: 303A.	Conference abstract	12
13. Subramaney U. Personality, trauma exposure, PTSD and depression in a cohort of SA metro policemen: A longitudinal study. 2010. South African Journal of Psychiatry, 16: 97-98.	Conference abstract	13
14. Huang, D, Wang X, Kung WW. The impact of job loss on posttraumatic stress disorder among Asian Americans: 11-12 years after the World Trade Center attack. 2019. Traumatology, 1085-9373.	Full text could not be found	1
15. Andersen SB, Karstoft KI, Bertelsen M, Madsen T. Latent trajectories of trauma symptoms and resilience: the 3-year longitudinal prospective USPER study of Danish veterans deployed in Afghanistan. 2014. Journal of Clinical Psychiatry, 75(9): 1001-1008.	No PTSD incidence	1
16. Armstrong D, Shakespeare-Finch J, Shochet I. Predicting post-traumatic growth and post-traumatic stress in firefighters. 2014. Australian Journal of Psychology, 66(1): 38-46.	No PTSD incidence	2
17. Boasso AM, Steenkamp MM, Nash, WP, Larson JL, Litz BT. The relationship between course of PTSD symptoms in deployed U.S. Marines and degree of combat exposure. 2015. Journal of Traumatic Stress, 28(1): 73-78.	No PTSD incidence	3
18. Bowler RM, Harris M, Li J, Gocheva V, Stellman SD, Wilson K, Alper H, Schwarzer R,	No PTSD	4

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	Cone JE. Longitudinal mental health impact among police responders to the 9/11 terrorist attack. 2012. <i>American Journal of Industrial Medicine</i> , 55(4): 297-312.	incidence	
19.	Chin WD, Shiao JS, Liao SC, Kuo CY, Chen CC, Guo YL. Depressive, anxiety and post-traumatic stress disorders at six years after occupational injuries. 2017. <i>European Archives of Psychiatry & Clinical Neuroscience</i> , 267(6): 507-516.	No PTSD incidence	5
20.	Eriksson CB, Lopes Cardozo B, Foy DW, Sabin M, Ager A, Snider L, Scholte WF, Kaiser R, Olf M, Rijnen B, Crawford CG, Zhu J, Simon W. Predeployment mental health and trauma exposure of expatriate humanitarian aid workers: Risk and resilience factors. 2013. <i>Traumatology</i> , 19(1): 41-48.	No PTSD incidence	6
21.	Garcia FE, Vazquez C, Inostroza C. Predictors of post-traumatic stress symptoms following occupational accidents: A longitudinal study. 2019. <i>Anxiety, Stress, & Coping</i> , 32(2): 168-178.	No PTSD incidence	7
22.	Hartley TA, Violanti JM, Sarkisian K, Andrew ME, Burchfiel CM. PTSD symptoms among police officers: associations with frequency, recency, and types of traumatic events. 2013. <i>International Journal of Emergency Mental Health</i> , 15(4): 241-253.	No PTSD incidence	8
23.	Huang H, Kashubeck-West S. Exposure, agency, perceived threat, and guilt as predictors of posttraumatic stress disorder in veterans. 2015. <i>Journal of Counseling & Development</i> , 93(1): 3-13.	No PTSD incidence	9
24.	Jaegers LA, Matthieu MM, Vaughn MG, Werth P, Katz IM, Ahmad SO. Posttraumatic Stress Disorder and Job Burnout Among Jail Officers. 2019. <i>Journal of Occupational & Environmental Medicine</i> , 61(6): 505-510.	No PTSD incidence	10
25.	Mac Donald CL, Johnson AM, Wierzechowski L, Kassner E, Stewart T, Nelson EC, Werner NJ, Zonies D, Oh J, Fang R, Brody DL. Prospectively assessed clinical outcomes in concussive blast vs nonblast traumatic brain injury among evacuated US military personnel. 2014. <i>JAMA Neurology</i> , 71(8): 994-1002.	No PTSD incidence	11
26.	Magruder KM, Goldberg J, Forsberg CW, Friedman MJ, Litz BT, Vaccarino V, Heagerty PJ, Gleason TC, Huang GD, Smith NL. Long-Term Trajectories of PTSD in Vietnam-Era Veterans: The Course and Consequences of PTSD in Twins. 2016. <i>Journal of Traumatic Stress</i> , 29(1): 5-16.	No PTSD incidence	12
27.	Marchand A, Nadeau C, Beaulieu-Prevost D, Boyer R, Martin M. Predictors of posttraumatic stress disorder among police officers: A prospective study. 2015. <i>Psychological Trauma: Theory, Research, Practice and Policy</i> , 7(3): 212-221.	No PTSD incidence	13
28.	Nash WP, Boasso AM, Steenkamp MM, Larson JL, Lubin RE, Litz BT. Posttraumatic stress in deployed marines: Prospective trajectories of early adaptation. 2015. <i>Journal of Abnormal Psychology</i> , 124(1): 155-171.	No PTSD incidence	14
29.	Polusny MA, Kumpula MJ, Meis LA, Erbes CR, Arbisi PA, Murdoch M, Thuras P, Kehle-Forbes SM, Johnson AK. Gender differences in the effects of deployment-related stressors and pre-deployment risk factors on the development of PTSD symptoms in National Guard Soldiers deployed to Iraq and Afghanistan. 2014. <i>Journal of Psychiatric Research</i> , 49(1): 1-9.	No PTSD incidence	15
30.	Rona RJ, Jones M, Sundin J, Goodwin L, Hull L, Wessely S, Fear NT. Predicting persistent posttraumatic stress disorder (PTSD) in UK military personnel who served in Iraq: a longitudinal study. 2012. <i>Journal of Psychiatric Research</i> , 46(9): 1191-1198.	No PTSD incidence	16
31.	Ryan-Gonzalez C, Kimbrel N, Meyer EC, Gordon EM, DeBeer BB, Gulliver SB, Elliott TR, Mosissette S. Differences in PTSD symptoms among post-9/11 veterans with blast- and non-blast mild TBI. 2019. <i>Journal of Neurotrauma</i> , 0897-7151.	No PTSD incidence	17
32.	Steenkamp MM, Schlenger WE, Corry N, Henn-Haase C, Qian M, Li M, Horesh D, Karstoft KI, Williams C, Ho CL, Shalev A, Kulka R, Marmar C. Predictors of PTSD 40 years after combat: Findings from the National Vietnam Veterans longitudinal study. 2017. <i>Depression & Anxiety</i> , 34(8): 711-722.	No PTSD incidence	18
33.	Wolf E, Mitchell K, Koenen K, Miller M. Combat exposure severity as a moderator of genetic and environmental liability to post-traumatic stress disorder. 2014. <i>Psychological Medicine</i> , 44(7): 1499-1509.	No PTSD incidence	19
34.	Yuan C, Wang Z, Inslicht SS, McCaslin SE, Metzler TJ, Henn-Haase C, Apfel BA, Tong H, Neylan TC, Fang Y, Marmar CR. Protective factors for posttraumatic stress disorder symptoms in a prospective study of police officers. 2011. <i>Psychiatry Research</i> , 188(1): 45-50.	No PTSD incidence	20

35.	Amster ED, Fertig SS, Green M, Carel R. Occupational exposures and psychological symptoms among fire fighters and police during a major wildfire: The carmel cohort study. 2018. <i>Occupational and Environmental Medicine</i> , 75: A590-A591	Not about PTSD	1
36.	Cavanaugh CE, Campbell JC, Messing JT. A longitudinal study of the impact of cumulative violence victimization on comorbid posttraumatic stress and depression among female nurses and nursing personnel. 2014. <i>Workplace Health and Safety</i> , 62 (6): 224-232.	Not about PTSD	2
37.	Han M, Park S, Park JH, Hwang SS, Kim I. Do police officers and firefighters have a higher risk of disease than other public officers? A 13-year nationwide cohort study in South Korea. 2018, <i>BMJ Open</i> ; 8(1):e019987.	Not about PTSD	3
38.	Jacobson IG, Horton JL, Leardmann CA, Ryan MA, Boyko EJ, Wells TS, Smith B, Smith TC. Posttraumatic stress disorder and depression among U.S. military health care professionals deployed in support of operations in Iraq and Afghanistan. 2012, <i>J Trauma Stress</i> ;25(6):616-23.	Not about PTSD	4
39.	Tvaryanas AP, Maupin GM. Risk of incident mental health conditions among critical care air transport team members. 2014. <i>Aviation Space & Environmental Medicine</i> , 85(1): 30-38.	Not about PTSD	5
40.	Vasterling JJ, Brailey K, Proctor SP, Kane RL, Heeren T, Franz, Molly R. Neuropsychological outcomes of mild traumatic brain injury, post-traumatic stress disorder and depression in Iraq-deployed US Army soldiers. 2012. <i>British Journal of Psychiatry</i> , 201(3): 186-192.	Not about PTSD	6
41.	Bandelow BB, Koch M, Zimmermann P, Biesold KH, Wedekind D, Falkai P. Posttraumatic stress disorder (PTSD) in the German Armed Forces: a retrospective study in inpatients of a German army hospital. 2012. <i>European Archives of Psychiatry & Clinical Neuroscience</i> , 262(6): 459-467.	No control group	1
42.	Aslan M, Concato J, Peduzzi PN, Proctor SP, Schnurr PP, Marx BP, McFall ME, Gleason TC, Huang GD, Vasterling JJ. Design of 'Neuropsychological and mental health outcomes of Operation Iraqi Freedom: a longitudinal cohort study'. 2013. <i>Journal of Investigative Medicine</i> , 61(3):569-577.	Protocol paper only	1
43.	Dinenberg RE, McCaslin SE, Bates MN, Cohen BE. Social support may protect against development of posttraumatic stress disorder: findings from the Heart and Soul Study. 2014. <i>American Journal of Health Promotion</i> , 28(5): 294-297.	Not work-related	1
44.	Erbes CR, Polusny MA, Arbisi PA, Koffel E. PTSD symptoms in a cohort of National Guard soldiers deployed to Iraq: Evidence for nonspecific and specific components. 2012. <i>Journal of Affective Disorders</i> , 142(1): 269-274.	Not work-related	2
45.	Eskridge SL, Macera CA, Galarneau MR, Holbrook TL, Woodruff SI, MacGregor AJ, Morton DJ, Shaffer RA. Influence of combat blast-related mild traumatic brain injury acute symptoms on mental health and service discharge outcomes. 2013. <i>Journal of Neurotrauma</i> , 30(16): 1391-1397.	Not work-related	3
46.	Eskridge SL, Macera CA, Galarneau MR, Holbrook, TL, Woodruff SI, Macgregor AJ, Morton DJ, Shaffer RA. Combat blast injuries: Injury severity and posttraumatic stress disorder interaction on career outcomes in male servicemembers. 2013. <i>Journal of Rehabilitation Research and Development</i> , 50(1): 7-16.	Not work-related	4
47.	Fink DS, Gradus JL, Keyes KM, Calabrese JR, Liberzon I, Tamburrino MB, Cohen GH, Sampson L, Galea S. Subthreshold PTSD and PTSD in a prospective-longitudinal cohort of military personnel: Potential targets for preventive interventions. 2018. <i>Depression & Anxiety</i> , 35(11): 1048-1055.	Not work-related	5
48.	Fitch TJ, Yu X, Chien LC, Karim MM, Alamgir H. Traumatic life events and development of post-traumatic stress disorder among female factory workers in a developing country. 2018. <i>International Journal of Social Psychiatry</i> , 64(4): 351-358.	Not work-related	6
49.	Gilbertson MW, McFarlane AC, Weathers FW, Keane TM, Yehuda R, Shalev AY, Lasko NB, Goetz JM, Pitman RK, Harvard VA. Is trauma a causal agent of psychopathologic symptoms in posttraumatic stress disorder? Findings from identical twins discordant for combat exposure. 2010. <i>Journal of Clinical Psychiatry</i> , 71(10): 1324-1330.	Not work-related	7
50.	Horesh D, Solomon Z, Keinan G, Ein-Dor T. The clinical picture of late-onset PTSD: a 20-year longitudinal study of Israeli war veterans. 2013. <i>Psychiatry Research</i> , 208(3): 265-273.	Not work-related	8

51.	Goldmann E, Calabrese JR, Prescott MR, Tamburrino M, Liberzon I, Slembariski R, Shirley E, Fine T, Goto T, Wilson K, Ganocy S, Chan P, Serrano MB, Sizemore J, Galea S. Potentially modifiable pre-, peri-, and postdeployment characteristics associated with deployment-related posttraumatic stress disorder among ohio army national guard soldiers. <i>Ann Epidemiol.</i> 2012;22(2): 71-78.	No work-related exposure	1
52.	Banducci AN, McCaughey VK, Gradus JL, Street AE. The associations between deployment experiences, PTSD, and alcohol use among male and female veterans. 2019. <i>Addictive Behaviors</i> , 98: 106032,	Cross-sectional	1
53.	Huang, J. and Liu, Q. and Li, J. and Li, X. and You, J. and Zhang, L. and Tian, C. and Luan, R. Post-traumatic stress disorder status in a rescue group after the Wenchuan earthquake relief. 2013. <i>Neural Regeneration Research</i> , 8(20): 1898-1906.	Cross-sectional	2
54.	Jones M, Sundin J, Goodwin G, Hull L, Fear NT, Wessely S, Rona RJ. 2013. What Explains Post-Traumatic Stress Disorder (PTSD) in UK Service Personnel: Deployment or Something Else? <i>Psychological Medicine</i> , 43(8):1703-12.	Cross-sectional	3
55.	Rybojad B, Aftyka A, Baran M, Rzonca P. Risk Factors for Posttraumatic Stress Disorder in Polish Paramedics: A Pilot Study. 2016. <i>Journal of Emergency Medicine</i> , 50(2): 270-276.	Cross-sectional	4
56.	Liu B, Tarigan LH, Bromet EJ, Kim H. World Trade Center disaster exposure-related probable posttraumatic stress disorder among responders and civilians: a meta-analysis. 2014. <i>PLoS ONE</i> , 9(7): e101491.	Systematic review	1
57.	Schutte N, Bar O, Weiss U, Heuft G. Prediction of PTSD in police officers after six months--a prospective study. 2012. <i>Spanish Journal of Psychology</i> , 15(3): 1339-1348.	Systematic review	2
58.	Milosavljevic M, Drakulic B, Crnobaric C, Perunicic I, Tosevski DL. Risk factor assessment for posttraumatic stress disorder in war veterans in former Yugoslavia. 2011. <i>Psihijatrija Danas</i> , 43(2): 141-153.	Not in English	1
59.	Giupponi G, Thoma H, Lamis D, Forte A, Pompili M, Kapfhammer HP. Posttraumatic stress reactions of underground drivers after suicides by jumping to arriving trains; feasibility of an early stepped care outpatient intervention. <i>J Trauma Dissociation</i> . 2019; 20(5):495-510.	No effect sizes	1
60.	Osofsky HJ, Osofsky JD, Arey J, Kronenberg ME, Hansel TC, Many MM. Hurricane Katrina's first responders: the struggle to protect and serve in the aftermath of the disaster. 2011. <i>Disaster Medicine and Public Health Preparedness</i> , 5: S214-S219.	No effect sizes	2
61.	Rosenblatt AS, Li R, Fortier C, Liu X, Fonda JR, Villalon A, McGlinchey RE, Jorge RE. Latent factor structure of PTSD symptoms in veterans with a history of mild traumatic brain injury and close-range blast exposure. 2018. <i>Psychological Trauma: Theory, Research, Practice, and Policy</i> , 442-450.	No effect sizes	3
62.	Sheffler JL, Rushing NC, Stanley IH, Sachs-Ericsson NJ. The long-term impact of combat exposure on health, interpersonal, and economic domains of functioning. 2016. <i>Aging and Mental Health</i> , 20(11): 1202-1212.	No effect sizes	4
63.	Solberg O, Birkeland MS, Blix I, Hansen MB, Heir T. Towards an exposure-dependent model of post-traumatic stress: longitudinal course of post-traumatic stress symptomatology and functional impairment after the 2011 Oslo bombing. 2016. <i>Psychological Medicine</i> , 46(15): 3241-3254.	No effect sizes	5
64.	Taymur I, Sargin AE, Ozdel K, Turkcapar HM, Calisgan L, Zamki E, Demirel B. Possible Risk Factors for Acute Stress Disorder and Post-Traumatic Stress Disorder After an Industrial Explosion. 2014. <i>Noropsikiyatri Arsivi</i> , 51(1): 23-29.	No effect sizes	6
65.	Wisnivesky JP, Teitelbaum S, Todd AC, Boffetta P, Crane M, Crowley L, De la Hoz RE, Dellenbaugh C, Harrison DJ, Herbert R, Kim H, Jeon Y, Kaplan J, Katz CL, Levin SM, Luft BJ, Markowitz S, Moline JM, Ozbay F, Pietrzak RH, Shapiro M, Sharma V, Skloot G, Southwick SM, Stevenson LA, Udasin IG, Wallenstein S, Landrigan PJ. Persistence of multiple illnesses in World Trade Center rescue and recovery workers: a cohort study. 2011. <i>Lancet</i> , 378(9794): 888-897.	No effect sizes	7

Supplementary file 3. Data extraction of included studies.

First author, Year;	Study (name, design and follow-up period)	Sample description (n, Country, Type of job/company, relevant inclusion/exclusion criteria, %Female, Age)	Description of exposure assessment (way and year of baseline exposure assessment and description of categories)	Description of outcome (type of symptoms, way of assessment, and incidence over the follow-up period)	Adjustment	Effect estimates (e.g., HR, RR or OR with 95% confidence interval). Super scripts refer to the models specified in the 'adjustment' column
1. Armed Forces Health Surveillance Center, 2011 ²¹	<p><u>Name:</u> Armed forces health surveillance</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 12 months post deployment</p>	<p><u>n</u>=1,344,668</p> <p><u>Country</u>=USA</p> <p><u>%Female</u>= 11%</p> <p><u>Age</u>= The majority was <25, with lower numbers of participants in the 25-29 and 30+ categories.</p> <p><u>Type of job/company</u>= Active components of the forces (on Afghanistan and Iran missions).</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> between Oct 2001 and Dec 2010</p> <p><u>Exposure categories:</u> % PTSD diagnosis were compared between deployment number, gender, age group, military occupation (combat, health care and other) and 'dwelling time' between employments.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Mental disorders assessed with ICD-9-CM (309.81), reported in military or civilian hospitals</p> <p><u>Incidence:</u> -</p>	No	<p>PTSD incidence was in general higher after the second, third and fourth deployment, compared to the first and fifth.</p> <p>PTSD incidence was in general higher among males, those in lowest age group, health care workers and those with longer dwelling time between the deployments.</p> <p>No effect estimates were reported (only incidences).</p>
2. Andersen, 2019 ¹⁹	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal (with cross-sectional and longitudinal analyses)</p> <p><u>Follow-up period:</u> 4 years</p>	<p><u>n</u>= 2,678</p> <p><u>Country</u>= Denmark</p> <p><u>%Female</u>= 66%</p> <p><u>Age</u>= 45.1(10.1) years</p> <p><u>Type of job/company</u>= Employees working in psychiatric wards, in the</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2011</p> <p><u>Exposure categories:</u> Work-related violence and threats on a 5 point likert scale with 0=never to 4=almost daily, with</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Self-reported with the Impact of Event Scale-Revised</p> <p><u>Incidence:</u> 14% (2 incidences)</p>	Unadjusted (model 1), adjusted for gender, age, bullying, sexual harassment, conflicts at work, negative acts, private traumas and sector (model 2), additionally adjusted for	<p>Work-related threats</p> <p>All four sectors</p> <p>PTSD at 2011</p> <p>OR: 1.11 [1.07 1.14]¹</p> <p>OR: 1.10 [1.05 1.15]²</p> <p>PTSD at 2015</p> <p>OR: 1.10 [1.07 1.13]¹</p> <p>OR: 1.11 [1.07 1.15]²</p> <p>OR: 1.10 [1.04 1.15]³</p> <p>Elder care</p>

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		elder sector, at special schools and in the prison and probation service. <u>Inclusion/exclusion</u> =-	summary scores 0-24 and 0-44, respectively.		baseline PTSD (model 3)	PTSD at 2011 OR: 0.99 [0.88 1.23] ¹ OR: 0.98 [0.82 1.18] ² PTSD at 2015 OR: 1.12 [1.00 1.25] ¹ OR: 1.12 [0.94 1.33] ² OR: 1.22 [0.95 1.56] ³ Prison and probation service PTSD at 2011 OR: 1.21 [1.14 1.28] ¹ OR: 1.18 [1.08 1.27] ² PTSD at 2015 OR: 1.73 [1.20 1.35] ¹ OR: 1.25 [1.17 1.34] ² OR: 1.22 [1.13 1.31] ³ Psychiatry PTSD at 2011 OR: 1.14 [1.06 1.12] ¹ OR: 1.19 [1.09 1.32] ² PTSD at 2015 OR: 1.06 [0.99 1.13] ¹ OR: 1.06 [0.97 1.17] ² OR: 0.94 [0.83 1.07] ³ Special schools PTSD at 2011 OR: 1.01 [0.93 1.09] ¹ OR: 0.95 [0.85 1.05] ² PTSD at 2015 OR: 1.08 [1.01 1.15] ¹ OR: 1.06 [0.98 1.14] ² OR: 1.07 [0.95 1.12] ³ PTSD at 2011 Males
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						<p>OR: 1.19 [1.12 1.26]² Females OR: 1.04 [0.99 1.09]² PTSD at 2015 Males OR: 1.18 [1.09 1.26]³ Females OR: 1.02 [0.96 1.09]³</p> <p>Work-related violence All four sectors PTSD at 2011 OR: 1.05 [1.03 1.08]¹ OR: 1.05 [1.01 1.08]² PTSD at 2015 OR: 1.02 [0.98 1.04]¹ OR: 1.03 [1.00 1.06]² OR: 1.02 [0.98 1.06]³</p> <p>Elder care PTSD at 2011 OR: 1.04 [0.95 1.12]¹ OR: 1.03 [0.94 1.13]² PTSD at 2015 OR: 1.07 [0.97 1.15]¹ OR: 1.03 [0.93 1.14]² OR: 1.02 [0.90 1.16]³</p> <p>Prison and probation service PTSD at 2011 OR: 1.29 [1.15 1.49]¹ OR: 1.26 [1.09 1.46]² PTSD at 2015 OR: 1.50 [1.31 1.73]¹ OR: 1.42 [1.22 1.65]² OR: 1.36 [1.36 1.60]³</p>
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						Psychiatry PTSD at 2011 OR: 1.08 [1.01 1.15] ¹ OR: 1.13 [1.03 1.24] ² PTSD at 2015 OR: 1.04 [0.98 1.10] ¹ OR: 1.05 [0.96 1.14] ² OR: 0.98 [0.88 1.10] ³ Special schools PTSD at 2011 OR: 1.04 [0.98 1.09] ¹ OR: 1.03 [0.97 1.10] ² PTSD at 2015 OR: 1.02 [0.97 1.07] ¹ OR: 1.02 [0.97 1.07] ² OR: 1.01 [0.42 1.08] ³ PTSD at 2011 Males OR: 1.06 [0.99 1.12] ² Females OR: 1.03 [0.99 1.07] ² PTSD at 2015 Males OR: 1.07 [0.99 1.14] ³ Females OR: 0.99 [0.95 1.05] ³
3. Anderson, 2019 ²⁰	<u>Name:</u> Army STARRS study <u>Design:</u> Prospective longitudinal (with baseline measurements 1-2 months before	<u>n</u> =4,645 <u>Country</u> =USA <u>%Female</u> =5% <u>Age</u> =26.9(0.2) years <u>Type of job/company</u> =	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 2012 <u>Exposure categories:</u> Unit cohesion, stressful employment	<u>Type of symptoms:</u> PTSD (30 days) <u>Way of assessment:</u> Composite International Diagnostic Interview screening scales (CIDI-SC) and a six-item	Models were adjusted for all other exposures (model 1) and for lifetime PTSD at baseline (model 2).	<u>Age</u> OR: 1.00 [0.99 1.02] ¹ OR: 1.00 [0.99 1.02] ² <u>Sex</u> <u>Female</u> OR: Ref OR: Ref <u>Male</u>

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	<p>the deployment) <u>Follow-up period:</u> 9 months post-employment</p>	<p>Soldiers from three combat teams employed in Afghanistan <u>Inclusion/exclusion= -</u></p>	<p>characteristics and sociodemographic were assessed</p>	<p>screening version of the PTSD Checklist (PCL) to assess lifetime DSM-4 mental disorders <u>Incidence:</u> 11.9% (lifetime)</p>	<p>OR: 0.73 [0.46 1.14]¹ OR: 0.88 [0.51 1.51]²</p> <p>Race <u>White</u> OR: Ref OR: Ref <u>Black</u> OR: 0.99 [0.67 1.48]¹ OR: 1.04 [0.72 1.49]² <u>Asian</u> OR: 1.28 [0.77 2.12]¹ OR: 1.38 [0.80 2.39]² <u>Other</u> OR: 1.49 [1.04 2.15]¹ OR: 1.25 [0.86 1.82]²</p> <p>Ethnicity <u>Non-Hispanic</u> OR: Ref OR: Ref <u>Hispanic</u> OR: 1.15 [0.83 1.59]¹ OR: 1.22 [0.87 1.73]²</p> <p>Brigade Combat Team <u>Fort #1</u> OR: Ref OR: Ref <u>Fort #2</u> OR: 1.15 [0.90 1.47]¹ OR: 1.31 [0.97 1.77]² <u>Fort #3</u> OR: 1.00 [0.80 1.24]¹ OR: 1.09 [0.82 1.45]²</p> <p>Number of deployments</p>
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						<p><u>Zero</u> OR: Ref OR: Ref</p> <p><u>One</u> OR: 1.09 [0.84 1.42]¹ OR: 0.96 [0.73 1.27]²</p> <p><u>≥Two</u> OR: 1.12 [0.87 1.43]¹ OR: 0.92 [0.71 1.19]²</p> <p>Time in unit <u>>6months</u> OR: Ref OR: Ref</p> <p><u><1month</u> OR: 1.51 [1.12 2.05]¹ OR: 1.81 [1.24 2.63]²</p> <p><u>1–6 months</u> OR: 0.75 [0.58 0.96]¹ OR: 0.77 [0.64 0.94]²</p> <p>Lifetime PTSD at baseline OR: 3.06 [2.24 4.17]¹</p> <p>30-day PTSD at baseline OR: 2.28 [1.36 3.82]¹</p> <p>Deployment stress <u>Low/moderate</u> OR: Ref OR: Ref</p> <p><u>High</u> OR: 3.21 [2.75 3.74]¹ OR: 3.52 [2.94 4.21]²</p> <p>Unit cohesion at baseline OR: 0.82 [0.73 0.91]¹</p>
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<p>4. Berninger, 2010²²</p>	<p>Name: FDNY-WTC-MMP</p> <p>Design: Prospective longitudinal with baseline measurement within 6 months from the disaster.</p> <p>Follow-up period: 2.9 years</p>	<p>n=5,656</p> <p>Country= USA</p> <p>%Female= 0%</p> <p>Age= -</p> <p>Type of job/company= New York fire department rescue workers who were involved in the 9/11 WTC disaster</p> <p>Inclusion/exclusion= Fire fighters who retired during the study, who arrived at the disaster site >14 days after the rescue, and females; firefighters</p>	<p>Exposure assessment: Demographic and retirement from employee databases, all other information from self-reports.</p> <p>Year of assessment: 2001</p> <p>Exposure categories: -</p>	<p>Type of symptoms: Probable PTSD</p> <p>Way of assessment: Self-reported using PTSD checklist (PCL-m)</p> <p>Incidence:16%</p>	<p>Univariate (model 1) and multivariate adjusting for all other exposures that contributed statistically significant in the univariate model (model 2).</p>	<p>OR: 0.74 [0.65 0.84]²</p> <p>Age</p> <p><u>20-29 years</u> OR: Ref</p> <p><u>30-39 years</u> OR: 1.0 [0.8 1.3]¹</p> <p><u>40-49 years</u> OR: 1.0 [0.8 1.3]¹</p> <p><u>50-59 years</u> OR: 0.6 [0.4 1.1]¹</p> <p><u>60+ years</u> OR: -</p> <p><u>Continuous</u> OR: 0.98 [0.97 1.00]²</p> <p>Education</p> <p><u>High School</u> OR: Ref</p> <p><u>Some College</u> OR: 1.1 [0.9 1.3]¹</p> <p><u>College</u> OR: 1.1 [0.9 1.3]¹</p> <p><u>Post-College</u> OR: 1.2 [0.8 1.8]¹</p> <p>Living with a partner</p> <p><u>Yes</u> OR: Ref</p> <p><u>No</u> OR: 1.06 [0.89 1.27]¹</p> <p>Arrival Group</p> <p><u>Morning of 9/11</u> OR: 4.8 [3.0 7.5]¹</p> <p>OR: 2.0 [1.3 2.9]²</p> <p><u>Afternoon of 9/11</u> OR: 2.3 [1.5 3.5]¹</p>
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OR: 1.1 [0.8 1.5]²
Day 2
OR: 1.4 [0.8 2.3]¹
Days 3-14
OR: Ref

Prolonged work at the WTC site
≥4 months
OR: 2.0 [1.7 2.3]¹
<4 months
OR: Ref

Rank
Firefighter
OR: Ref
Line officer
OR: 1.1 [0.95 1.30]¹
Chiefs
OR: 0.96 [0.70 1.32]¹

Number of deaths in firehouse
0 deaths
OR: Ref
1-3 deaths
OR: 1.5 [1.2 1.9]¹
4+ deaths
OR: 2.3 [1.8 2.9]¹

Supervising responsibilities
Yes
OR: 2.2 [1.7 2.9]¹
No
OR: Ref

Previous disaster experience

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						<p><u>Yes</u> OR: 1.4 [1.2 1.6]¹</p> <p><u>No</u> OR: Ref</p> <p>Duration of work at WTC site (per month) OR: 1.1 [1.1 1.2]²</p> <p>Reported increase in alcohol OR: 1.3 [1.0 1.7]²</p> <p>Baseline probable PTSD OR: 5.6 [4.4 7.0]²</p>
5. Brownlow, 2018 ²³	<p><u>Name:</u> Army STARSS study</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n=</u> 14,254 for AAS and 25,629 for NSS.</p> <p><u>Country=</u> USA</p> <p><u>%Female=</u> 12% for AAS and 17% for NSS</p> <p><u>Age=</u> 29.0(0.1) for AAS and 21.0(0.0) for NSS</p> <p><u>Type of job/company=</u> Soldiers at all stages of their activity (AAS sub-study) and new recruits (NSS sub-study)</p> <p><u>Inclusion/exclusion=</u> -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2011-2013</p> <p><u>Exposure categories:</u> Deployment-related and lifetime stress were assessed (the former only for the AAS cohort).</p>	<p><u>Type of symptoms:</u> Probable PTSD (lifetime and past 30-day prevalence) was assessed using the PTSD Checklist (PCL) using DSM-4 criteria</p> <p><u>Way of assessment:</u> Self-reported</p> <p><u>Incidence:-</u></p>	-	<p>Diversity of Deployment-Related Traumatic Stress Score [0-15] <i>30-day PTSD</i> OR: 1.15 [1.13 1.16] (AAS) <i>Lifetime PTSD</i> OR: 1.17 [1.16 1.18] (AAS)</p> <p>Cumulative Deployment-Related Traumatic Stress Score [0 60] <i>30-day PTSD</i> OR: 1.03 [1.03 1.04] (AAS) <i>Lifetime PTSD</i> OR: 1.00 [0.99 1.00] (AAS)</p> <p>Diversity of Lifetime Traumatic Stress Score <i>30-day PTSD</i> OR: 1.14 [1.13 1.16] (AAS) OR: 1.34 [1.30 1.38] (NSS) <i>Lifetime PTSD</i> OR: 1.16 [1.15 1.17] (AAS) OR: 1.34 [1.31 1.38] (NSS)</p>

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						Cumulative Lifetime Traumatic Stress Score <i>30-day PTSD</i> OR: 1.02 [1.02 1.03] (AAS) OR: 0.99 [0.98 1.01] (NSS) <i>Lifetime PTSD</i> OR: 1.02 [1.01 1.02] (AAS) OR: 1.00 [0.99 1.01] (NSS)
6. Brundage, 2015 ²⁴	<u>Name:</u> Defense Medical Surveillance System (DMSS) <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 36 months post-deployment.	n= 2,020,340 (Iraq/Afghanistan) and 529,609 (Korea/Japan) <u>Country</u> = USA <u>%Female</u> = - <u>Age</u> = - <u>Type of job/company</u> = Individuals who served in army, air force, navy and marine. Those who were deployed in Iraq and Afghanistan were compared with a reference group who returned from assignments in Korea and Japan. <u>Inclusion/exclusion</u> = -	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2003-2014 <u>Exposure categories:</u> Iraq/Afghanistan vs Korea/Japan, and occupation. Also other factors were assessed but were not considered for this review.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Diagnosis using ICD-9 criteria. <u>Incidence:</u> -	-	There were 4.85 diagnoses per 100 deployments among those who served in Iraq/Afghanistan, this was 1.04 among those who went to Japan/Korea (with a 4.66 ratio between the two groups). Diagnosis per 100 deployments were highest among combat specific (5.62) and health care (8.52) occupations who went to Iraq/Afghanistan, compared to others (4.17).
7. Cameron, 2019 ²⁵	<u>Name:</u> Defence Manpower Data Center (DMDC) Database and Defense Medical	n= 1.35 million <u>Country</u> = USA <u>%Female</u> = 12%	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u>	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Data from the	Unadjusted (model 1) and adjusted for all other exposures (model 2).	Sex <u>Female</u> RR: 1.65 [1.54 1.77] ¹ RR: 1.92 [1.84 2.00] ² <u>Male</u>

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	<p>Surveillance System (DMSS)</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>Age=</u> -</p> <p><u>Type of job/company =</u> Active duty service members between 1999 and 2008.</p> <p><u>Inclusion/exclusion=</u> -</p>	<p>1999-2008</p> <p><u>Exposure categories:</u> Rank and service type.</p>	<p>Defence Medical Surveillance System (DMSS), with ICD-9-CM coded diagnoses, were used.</p> <p><u>Incidence:</u> 52,771 incident cases (~4%)</p>	<p>RR: Ref. RR: Ref.</p> <p>Age</p> <p><u>< 20</u> RR: Ref. RR: Ref.</p> <p><u>20–24</u> RR: 1.41 [1.25 1.60]¹ RR: 1.36 [1.27 1.46]²</p> <p><u>25–29</u> RR: 1.36 [1.20 1.54]¹ RR: 1.52 [1.41 1.65]²</p> <p><u>30–34</u> RR: 1.00 [0.87 1.15]¹ RR: 1.37 [1.25 1.50]²</p> <p><u>35–39</u> RR: 0.88 [0.76 1.02]¹ RR: 1.37 [1.24 1.52]²</p> <p><u>> 39</u> RR: 0.93 [0.80 1.08]¹ RR: 1.68 [1.51 1.87]²</p> <p>Race</p> <p><u>Black</u> RR: Ref. RR: Ref.</p> <p><u>Other</u> RR: 1.32 [1.18 1.47]¹ RR: 1.45 [1.36 1.54]²</p> <p><u>White</u> RR: 1.35 [1.25 1.47]¹ RR: 1.58 [1.51 1.66]²</p> <p>Marital Status</p> <p><u>Married</u> RR: 1.13 [1.06 1.20]¹</p>
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						RR: 1.38 [1.32 1.44] ² <u>Other</u> RR: 1.59 [1.40 1.80] ¹ RR: 1.72 [1.59 1.86] ² <u>Single</u> RR: Ref. RR: Ref. Rank <u>E1-E4</u> RR: 3.90 [3.19 4.77] ¹ RR: 4.93 [4.31 5.63] ² <u>E5-E9</u> RR: 3.02 [2.47 3.70] ¹ RR: 3.42 [3.02 3.89] ² <u>O1-O3</u> RR: 1.08 [0.84 1.38] ¹ RR: 1.17 [1.00 1.36] ² <u>O4-O9</u> RR: Ref. RR: Ref. Service <u>Air Force</u> RR: Ref. RR: Ref. <u>Army</u> RR: 3.80 [3.50 4.12] ¹ RR: 3.80 [3.59 4.02] ² <u>Marines</u> RR: 2.90 [2.63 3.19] ¹ RR: 2.92 [2.73 3.12] ² <u>Navy</u> RR: 1.38 [1.25 1.52] ¹ RR: 1.51 [1.41 1.61] ²
8. Chiu, 2011 26	<u>Name:</u> FDNY pension database	n= 1,915	<u>Exposure assessment:</u> Deployment	<u>Type of symptoms:</u> PTSD symptoms	Unadjusted (model 1) and adjusted for	Exposure group <u>morning of 9/11</u>

	<p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4 years post-attack.</p>	<p><u>Country</u>= USA</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 47.0 (6.9) years</p> <p><u>Type of job/company</u>= New York fire department firefighters who were involved in the 9/11 WTC attacks.</p> <p><u>Inclusion/exclusion</u>= Fire marshals, females, those who retired due to mental health disability and those who did not first arrive at the disaster site were excluded.</p>	<p>administration</p> <p><u>Year of assessment:</u> 2001</p> <p><u>Exposure categories:</u> Retirement status, rank, and exposure.</p>	<p><u>Way of assessment:</u> Self-reported using the PTSD checklist (PCL-17) , using a cut-off ≥ 39 (range 17-85).</p> <p><u>Incidence:</u> 22%</p>	<p>all remaining exposures in the model (model 2).</p>	<p>OR: 4.9 [3.0 7.9]¹ OR: 4.0 [2.5 6.6]² <u>afternoon of 9/11</u> OR: 2.4 [1.5 3.7]¹ OR: 2.1 [1.3 3.3]² <u>day 2</u> OR: 1.7 [1.0 2.8]¹ OR: 1.4 [0.9 2.4]² <u>day 3 to day 14</u> OR: Ref. OR: Ref.</p> <p>Retirement status</p> <p><u>Disability</u> OR: 1.9 [1.5 2.4]¹ OR: 1.7 [1.4 2.2]²</p> <p><u>Non-disability</u> OR: Ref. OR: Ref.</p> <p>AUDIT score</p> <p><u>≥ 8</u> OR: 2.0 [1.5 2.5]¹ OR: 1.9 [1.5 2.4]²</p> <p><u>≤ 8</u> OR: Ref. OR: Ref.</p> <p>Age on 9/11 [in years]</p> <p><u>< 55</u> OR: 2.0 [1.4 3.0]¹ OR: 1.5 [1.0 3.0]²</p> <p><u>≥ 55</u> OR: Ref. OR: Ref.</p> <p>Age on 9/11 - in years</p>
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						<p><u>Continuous</u> OR: 1.0 [1.0 1.0]¹</p> <p>Marital status <u>Married</u> OR: 0.8 [0.6 1.2]¹ <u>Living with a partner</u> OR: 1.1 [0.6 2.1]¹ <u>Never married</u> OR: 0.9 [0.5 1.6]¹ <u>Separated/widowed/divorced</u> OR: Ref.</p> <p>Marital status change since 9/11 <u>Status change</u> OR: 1.3 [0.9 1.9]¹ <u>No change</u> OR: Ref.</p> <p>Previous profession <u>No other profession</u> OR: 1.2 [0.9 1.4]¹ <u>Other professions</u> OR: Ref.</p> <p>Rank <u>Chiefs</u> OR: 0.5 [0.3 0.9]¹ <u>Captains and lieutenants</u> OR: 0.8 [0.6 1.0]¹ <u>Firefighters</u> OR: Ref.</p>
9. Ciarleglio, 2018 ²⁷	<u>Name:</u> VU Cooperative Studies Program Study, combined	<u>n=</u> 375 <u>Country=</u> USA	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u>	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u>	Multivariate models adjusting for all other exposures.	Age in years OR: 1.04 [0.99 1.09] Gender

	<p>with data from Neurocognition Deployment Health Study (NDHS).</p> <p>Design: Retrospective longitudinal</p> <p>Follow-up period: Between 5.7 months (baseline) and 7.5 months post-deployment (long-term follow-up).</p>	<p><u>%Female</u>= 5%</p> <p><u>Age</u>= 35.1 (5.9) years</p> <p><u>Type of job/company</u>= Army soldiers who were deployed in Iraq</p> <p><u>Inclusion/exclusion</u>= -</p>	<p>2003-2005</p> <p><u>Exposure categories:</u> Deployment history and stress exposure.</p>	<p>Using a clinically administered PTSD scale.</p> <p><u>Incidence:</u> 24% (prevalence)</p>	<p><u>Male</u> OR: Ref.</p> <p><u>Female</u> OR: 0.31 [0.07 1.53]</p> <p>Number of deployments</p> <p><u>Single deployment</u> OR: Ref.</p> <p><u>Multiple deployments</u> OR: 0.83 [0.27 2.57]</p> <p>Months since most recent deployment OR: 1.00 [0.98 1.02]</p> <p>Composite emotional health factor post-deployment OR: 1.09 [0.79 1.50]</p> <p>Mental health treatment received post-deployment</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 4.12 [2.18 7.80]</p> <p>Early life events summary score OR: 0.92 [0.84 1.00]</p> <p>Combat and post-battle experiences OR: 0.99 [0.95 1.03]</p> <p>Deployment concerns summary score OR: 1.01 [0.98 1.04]</p>
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						<p>Life and family concerns OR: 0.99 [0.94 1.03]</p> <p>Post-deployment life events summary score OR: 1.07 [0.96 1.19]</p> <p>Post-war-zone social support OR: 0.92 [0.89 0.95]</p>
10. Cone, 2015 28	<p><u>Name:</u> World Trade Center Health Registry</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 10 years</p>	<p><u>n=</u> 2,204</p> <p><u>Country=</u> USA</p> <p><u>%Female=</u> 13%</p> <p><u>Age=</u> 38 (median)</p> <p><u>Type of job/company=</u> Police responders to the 9/11 WTC attacks</p> <p><u>Inclusion/exclusion=</u> Those with at least one shift at the disaster site, those without pre-9/11 PTSD and with follow-up measurements.</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2001</p> <p><u>Exposure categories:</u> Demographic, injury, stressors, life threatening event, support.</p>	<p><u>Type of symptoms:</u> Probable PTSD</p> <p><u>Way of assessment:</u> Self-reported using a combination of the PCL checklist and DSM-4 criteria.</p> <p><u>Incidence:</u> 11% (prevalence)</p>	Adjusting for all other exposures.	<p>Age group at 9/11 <u>18-44</u> OR: Ref.</p> <p><u>45-69</u> OR: 0.6 [0.3 1.3]</p> <p>Gender <u>Male</u> OR: Ref.</p> <p><u>Female</u> OR: 1.3 [0.7 2.5]</p> <p>Hispanic <u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 1.2 [0.7 2.0]</p> <p>Household gross income at wave 3 <u>≥75K</u> OR: Ref.</p> <p><u><75K</u> OR: 2.0 [1.2 3.4]</p> <p>Having social support <u>All of the time</u></p>

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						<p>OR: Ref. <u>Most</u> OR: 3.5 [2.0 6.1] <u>Some</u> OR: 3.6 [1.9 6.9] <u>Little or none</u> OR: 2.6 [1.04 6.5]</p> <p>Current employment status at wave 3 <u>Employed</u> OR: Ref. <u>Unable to work because of health</u> OR: 3.7 [1.9 7.3] <u>Retired</u> OR: 1.3 [0.8 2.2] <u>Other</u> OR: 2.9 [0.8 10.1]</p> <p>Number of life stressors in last 12 months <u>None</u> OR: Ref. <u>1 to 2</u> OR: 1.7 [1.0 2.7] <u>≥3</u> OR: 3.2 [1.2 8.5]</p> <p>Number of events threatened your life since 9/11 <u>None</u> OR: Ref. <u>1 to 2</u> OR: 1.0 [0.5 1.9] <u>≥3</u></p>
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						<p>OR: 3.3 [1.9 5.6]</p> <p>Number of injuries sustained during the 9/11 attacks</p> <p><u>None</u> OR: Ref.</p> <p><u>One</u> OR: 1.1 [0.6 2.0]</p> <p><u>Two or more</u> OR: 1.4 [0.6 3.4]</p> <p>Report of unmet mental health care needs at wave 3</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 9.5 [5.3 16.9]</p>
11. Connorton, 2011 ²⁹	<p><u>Name:</u> National Comorbidity Survey Replication (NCS-R)</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 217 exposed and 2,110 unexposed.</p> <p><u>Country</u>=USA</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 55.0(0.9) for exposed workers, 43.8 (0.9) for non-exposed workers</p> <p><u>Type of job/company</u>= Participants employed in combat or service as peacekeeper or relief worker.</p> <p><u>Inclusion/exclusion</u>= Females were excluded</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2001-2002</p> <p><u>Exposure categories:</u> Participants who were exposed to combat and peacekeeping/relieve work or combat only vs non-exposed participants.</p>	<p><u>Type of symptoms:</u> PTSD (according to DSM-4 criteria)</p> <p><u>Way of assessment:</u> Self-reported (no specific questionnaire mentioned)</p> <p><u>Incidence:</u> 29/(217+2110)=1%</p>	<p>Univariate and multivariate analyses adjusting for age of exposure, age of onset diagnoses, race</p>	<p>Exposure</p> <p><u>No exposure</u> OR: Ref</p> <p><u>Exposure to peacekeeping/relieve work and combat</u> OR: 11.2 [2.9 43.2]</p> <p><u>Exposure to combat only</u> OR: 7.3 [3.3 15.8]</p> <p>According to the authors the results remained the same in multivariate analyses (data not reported)</p>

<p>12. Cukor, 2011 30</p>	<p><u>Name:</u> Weill Cornell 9/11 Screening Program</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> Up to 4 years.</p>	<p><u>n</u>= 2,960</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= 9/11 WTC disaster recovery workers.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2002-2004</p> <p><u>Exposure categories:</u> Occupational exposure</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Using the CAPS standardized clinical interview and using the PCL-C questionnaire using DSM-4 criteria. CAPS data were used for exposure-outcome assessment.</p> <p><u>Incidence:</u> 9%, 5% and 2% had probable self-reported PTSD at T1, T2 and T3, respectively. 15%, 8% and 6% had diagnosed PTSD at T1, T2 and T3, respectively.</p>	<p>Adjusting for baseline PTSD and demographic variables.</p>	<p>Occupational exposure</p> <p><u>No</u> OR: Ref.</p> <p><u>Yes</u> OR: 1.31 [1.13 1.51]</p>
<p>13. Fear, 2010 31</p>	<p><u>Name:</u> HERRICK cohort (and other samples)</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 3600</p> <p><u>Country</u>= UK</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Armed forces who were deployed in Iraq and Afghanistan, who were compared to armed forces who were not deployed.</p>	<p><u>Exposure assessment:</u> Deployment administration</p> <p><u>Year of assessment:</u> 2003</p> <p><u>Exposure categories:</u> Deployment, rank, number of deployments and time since deployment.</p>	<p><u>Type of symptoms:</u> PTSD symptoms</p> <p><u>Way of assessment:</u> Self-reporting using the PCL-C questionnaire.</p> <p><u>Incidence:</u> 4%</p>	<p>Unadjusted (model 1) and adjusted for age, sex, marital status, education and rank (model 2)</p>	<p>Deployment</p> <p><u>Not deployed</u> OR: Ref.</p> <p><u>Regulars</u> OR: 1.03 [0.79 1.36]¹ OR: 1.13 [0.82 1.54]²</p> <p><u>Reservists</u> OR: 2.90 [1.37 6.12]¹ OR: 2.83 [1.23 6.51]²</p> <p>Location of deployment</p> <p><u>Not deployed in Iraq/Afghanistan</u> OR: Ref.</p>

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		<u>Inclusion/exclusion= -</u>				<u>Deployed in Iraq</u> OR: 1.20 [0.87 1.67] ² <u>Deployed in Afghanistan</u> OR: 0.93 [0.54 1.59] ² <u>Deployed in Iraq and Afghanistan</u> OR: 0.92 [0.58 1.46] ² Role of deployment <u>Combat service report</u> OR: Ref. OR: Ref. <u>Combat</u> OR: 1.99 [1.42 2.78] ¹ OR: 1.87 [1.26 2.78] ² <u>Service support</u> OR: 0.58 [0.28 1.19] ¹ OR: 0.67 [0.32 1.41] ² Number of deployments <u>One deployment</u> OR: Ref. OR: Ref. <u>Two deployments</u> OR: 0.83 [0.51 1.36] ¹ OR: 0.96 [0.58 1.57] ² <u>More than three deployments</u> OR: 0.61 [0.29 1.26] ¹ OR: 0.72 [0.34 1.50] ² Time since return from deployment <u>Up to 1 year</u> OR: Ref. OR: Ref. <u>Up to 2 years</u>
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						<p>OR: 1.19 [0.76 1.86]¹ OR: 1.18 [0.75 1.86]² <u>Up to 3 years</u> OR: 1.95 [1.16 3.27]¹ OR: 1.80 [1.05 3.10]² <u>Up to 4 years</u> OR: 1.98 [1.08 3.65]¹ OR: 1.88 [0.98 3.62]² <u>Up to 5 years</u> OR: 1.59 [0.99 2.57]¹ OR: 1.53 [0.92 2.55]² <u>Up to 6.5 years</u> OR: 1.79 [0.98 3.26]¹ OR: 1.89 [0.99 3.60]²</p>
14. Ferrajao, 2016 ³²	<p><u>Name:</u> -</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 120</p> <p><u>Country</u>= Portugal</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= 64 [59-72]</p> <p><u>Type of job/company</u>= Colonial war veterans</p> <p><u>Inclusion/exclusion</u>= Participants who received psychiatric and psychological treatment during the last 5 years, and no history of traumatic brain injury, neurological disorders or physical disability were included.</p>	<p><u>Exposure assessment:</u> Self-reported.</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Combat exposure, abusive violence, sense of coherence.</p>	<p><u>Type of symptoms:</u> PTSD symptoms</p> <p><u>Way of assessment:</u> Self-reported using the Impact of Event Scale Revised (with a cut-off score: >=33)</p> <p><u>Incidence:</u> 41% (prevalence)</p>	Unadjusted	<p>Combat exposure scale [1 5] OR: 1.98 [1.50, 2,62]</p> <p>Sense of coherence OR: -5.08 [-3.32, -7.78]</p> <p>Observation of abusive violence <u>No</u> OR: Ref. <u>Yes</u> OR: 8.36 [4.56, 15.35]</p> <p>Participation in abusive violence <u>No</u> OR: Ref. <u>Yes</u> OR: 3.32 [1.81, 6.08]</p>
15. Fichera,	<u>Name:</u> -	<u>n</u> = 383	<u>Exposure assessment:</u>	<u>Type of symptoms:</u>	Adjusting for all	Number of robberies during

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<p>2015³³</p>	<p><u>Design:</u> Prospective longitudinal, with baseline 7-15 days post-robbery</p> <p><u>Follow-up period:</u> 45 days after the first session</p>	<p><u>Country</u>= Italy</p> <p><u>%Female</u>= 52%</p> <p><u>Age</u>= 43 (9) years</p> <p><u>Type of job/company</u>= Employees of a large bank who were victims of robberies.</p> <p><u>Inclusion/exclusion</u>= Participants who had voluntarily joined and employer sponsored post-robbery support program.</p>	<p>Self-reported (questionnaires and interviews)</p> <p><u>Year of assessment:</u> 2010-2012</p> <p><u>Exposure categories:</u> Personal characteristics and characteristics of the robberies</p>	<p>PTSD</p> <p><u>Way of assessment:</u> Self-reported using the Impact of Events Scale (IES).</p> <p><u>Incidence:</u> 14%</p>	<p>other exposures (model 1), when additionally adjusting for baseline PTSD (model 2), and the latter two models in which random intercepts were adopted (model 3 and 4).</p>	<p>working life OR: 1.25 [1.07 1.44]¹ OR: 1.15 [0.97 1.36]² OR: 1.27 [1.07 1.51]³ OR: 1.18 [0.97 1.44]⁴</p> <p>Gender <u>Males</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴ <u>Females</u> OR: 0.63 [0.31 1.29]¹ OR: 0.72 [0.33 1.58]² OR: 0.77 [0.34 1.78]³ OR: 0.85 [0.33 2.13]⁴</p> <p>Being cashier <u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴ <u>Yes</u> OR: 0.52 [0.22 1.22]¹ OR: 0.94 [0.36 2.42]² OR: 0.40 [0.14 1.07]³ OR: 0.76 [0.25 2.25]⁴</p> <p>Physical contacts with robbers <u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴</p>
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						<p><u>Yes</u> OR: 1.21 [0.58 2.54]¹ OR: 0.83 [0.36 1.87]² OR: 1.23 [0.50 2.98]³ OR: 0.86 [0.32 2.28]⁴</p> <p>Scuffle [taking part or being present]</p> <p><u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴</p> <p><u>Yes</u> OR: 1.41 [0.61 3.27]¹ OR: 1.64 [0.64 4.20]² OR: 1.72 [0.62 4.78]³ OR: 1.92 [0.63 5.79]⁴</p> <p>Being injured during the robbery</p> <p><u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴</p> <p><u>Yes</u> OR: 1.69 [0.58 4.89]¹ OR: 1.44 [0.44 4.73]² OR: 1.81 [0.49 6.61]³ OR: 1.28 [0.31 5.21]⁴</p> <p>Worried by other issues related to robbery</p> <p><u>No</u> OR: Ref¹ OR: Ref²</p>
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						<p>OR: Ref³ OR: Ref⁴ <u>Yes</u> OR: 2.47 [1.16 5.27]¹ OR: 2.11 [0.91 4.91]² OR: 2.88 [1.16 7.19]³ OR: 2.64 [0.95 7.36]⁴</p> <p>Feeling terror and hopelessness <u>True</u> OR: 6.96 [2.25 21.53]¹ OR: 1.19 [0.32 4.36]² OR: 8.64 [2.19 34.10]³ OR: 1.59 [0.33 7.58]⁴ <u>Partly true</u> OR: 2.82 [0.98 8.10]¹ OR: 1.10 [0.33 3.65]² OR: 3.48 [1.00 12.12]³ OR: 1.45 [0.35 6.02]⁴</p> <p>Post-session individual interview requested <u>No</u> OR: Ref¹ OR: Ref² OR: Ref³ OR: Ref⁴ <u>Yes</u> OR: 1.09 [0.29 4.09]¹ OR: 0.41 [0.09 1.81]² OR: 0.75 [0.14 4.07]³ OR: 0.35 [0.06 2.07]⁴</p> <p>PTSD at T1 <u>No</u> OR: Ref¹</p>
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						<p>OR: Ref² OR: Ref³ OR: Ref⁴ Yes OR: – OR: 1.11 [1.07 1.15]² OR: – OR: 1.11 [1.07 1.16]⁴</p>
16. Fink, 2016 ³⁴	<p>Name: Reserve and National Guard (RNG) study.</p> <p>Design: Prospective longitudinal</p> <p>Follow-up period: 4 years</p>	<p>n= 2,003</p> <p>Country= USA</p> <p>%Female= 18%</p> <p>Age= -</p> <p>Type of job/company= Army reservists</p> <p>Inclusion/exclusion= -</p>	<p>Exposure assessment: Self-reported</p> <p>Year of assessment: 2010</p> <p>Exposure categories: Personal characteristics, deployment history and rank.</p>	<p>Type of symptoms: PTSD</p> <p>Way of assessment: Self-reported using the PCL-C checklist, based on DSM-4 criteria. Criteria that sensitive and specific were used leading to two different PTSD definitions.</p> <p>Incidence: 4.7 and 2.9 per 100 person-year for sensitive and specific definition, respectively.</p>	<p>Univariate models using the sensitive (model 1) and specific (model 2) outcome definition.</p>	<p>Effects in incidence rate (IR) per 100/per-years</p> <p>Age</p> <p><u>18–24 years</u> IR: 4.8 [3.0–7.5]¹ IR: 1.9 [0.8–4.3]²</p> <p><u>25–34 years</u> IR: 4.4 [3.2–6.1]¹ IR: 2.9 [1.9–4.4]²</p> <p><u>>35 years</u> IR: 4.9 [3.8–6.3]¹ IR: 3.4 [2.5–4.7]²</p> <p>Sex</p> <p><u>Male</u> IR: 4.6 [3.8–5.7]¹ IR: 3.2 [2.5–4.2]²</p> <p><u>Female</u> IR: 4.9 [3.2–7.4]¹ IR: 1.4 [0.7–2.8]²</p> <p>Race/ethnicity</p> <p><u>Non-Hispanic, white</u> IR: 4.3 [3.4–5.3]¹ IR: 2.4 [1.8–3.3]²</p> <p><u>Non-Hispanic, black</u> IR: 6.4 [4.0–10.2]¹ IR: 4.6 [2.6–8.2]²</p>

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						<p><u>Hispanic</u> IR: 5.5 [3.3–9.1]¹ IR: 4.3 [2.4–7.6]²</p> <p><u>Other</u> IR: 5.3 [3.0–9.1]¹ IR: 3.8 [2.0–7.2]²</p> <p>Education</p> <p><u>< High school</u> IR: 4.2 [1.0–16.6]¹ IR: 7.9 [2.1–29.1]²</p> <p><u>High school</u> IR: 6.1 [3.9–9.4]¹ IR: 3.6 [2.0–6.4]²</p> <p><u>Some college</u> IR: 4.8 [3.7–6.2]¹ IR: 2.8 [2.0–3.8]²</p> <p><u>> College</u> IR: 3.5 [2.6–4.8]¹ IR: 2.3 [1.6–3.4]²</p> <p>Marital status</p> <p><u>Never married</u> IR: 3.9 [2.7–5.7]¹ IR: 2.3 [1.3–4.0]²</p> <p><u>Married</u> IR: 4.9 [3.8–6.2]¹ IR: 2.9 [2.1–4.0]²</p> <p><u>Previously married</u> IR: 6.1 [3.9–9.5]¹ IR: 4.8 [3.0–7.6]²</p> <p>Rank</p> <p><u>Junior enlisted</u> IR: 4.4 [2.2–8.8]¹ IR: 1.2 [0.4–3.4]²</p> <p><u>Non-Commissioned Officers</u></p>
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						<p>IR: 5.1 [4.1–6.2]¹ IR: 3.4 [2.6–4.4]² <u>Officer</u> IR: 3.0 [2.0–4.5]¹ IR: 1.4 [0.8–2.5]²</p> <p>Number of baseline deployments</p> <p><u>Zero</u> IR: 3.9 [2.5–5.9]¹ IR: 1.4 [0.7–2.5]²</p> <p><u>One</u> IR: 4.8 [3.4–6.7]¹ IR: 3.9 [2.6–5.9]²</p> <p><u>Two</u> IR: 5.1 [3.7–7.0]¹ IR: 3.5 [2.4–5.0]²</p> <p><u>More than three</u> IR: 5.5 [3.6–8.3]¹ IR: 2.9 [1.6–5.4]²</p> <p>Past-year deployment</p> <p><u>Yes</u> IR: 7.2 [4.6–11.2]¹ IR: 3.0 [1.4–6.3]²</p> <p><u>No</u> IR: 5.3 [4.4–6.5]¹ IR: 3.6 [2.8–4.6]²</p> <p>Past-year deployment trauma</p> <p><u>Yes</u> IR: 5.3 [3.2–8.7]¹ IR: 2.0 [0.9–4.4]²</p> <p><u>No</u> IR: 4.6 [3.7–5.6]¹ IR: 3.1 [2.4–4.0]²</p>
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						<p>Past-year civilian trauma</p> <p><u>Yes</u> IR: 6.5 [5.2–8.1]¹ IR: 4.2 [3.1–5.6]²</p> <p><u>No</u> IR: 2.9 [2.1–4.0]¹ IR: 1.6 [1.0–2.5]²</p> <p>Component</p> <p><u>Reserve</u> IR: 4.0 [3.0–5.3]¹ IR: 3.0 [2.1–4.2]²</p> <p><u>National Guard</u> IR: 5.3 [4.2–6.8]¹ IR: 2.8 [2.0–4.0]²</p> <p>Branch</p> <p><u>Air Force Reserve</u> IR: 2.7 [1.3–5.6]¹ IR: 1.1 [0.3–3.5]²</p> <p><u>Army Reserve</u> IR: 4.2 [2.8–6.3]¹ IR: 4.2 [2.7–6.6]²</p> <p><u>Marine Reserve</u> IR: 5.3 [3.0–9.7]¹ IR: 2.5 [1.1–5.5]²</p> <p><u>Navy Reserve</u> IR: 4.0 [2.2–7.2]¹ IR: 1.9 [0.9–4.0]²</p> <p><u>Air National Guard</u> IR: 3.4 [1.9–6.1]¹ IR: 0.4 [0.1–1.4]²</p> <p><u>Army National Guard</u> IR: 5.9 [4.5–7.7]¹ IR: 3.6 [2.4–5.0]²</p>
17. Goodwin,	Name: -	n= 1,397	Exposure assessment:	Type of symptoms:	Univariate (model	Sex

2012 ³⁵	<p>Design: Prospective longitudinal.</p> <p>Follow-up period: 40.3 months (median)</p>	<p>Country= UK</p> <p>%Female= 11%</p> <p>Age= -</p> <p>Type of job/company= Military personnel that were and were not deployed in the Iraq war.</p> <p>Inclusion/exclusion= -</p>	<p>Self-reported.</p> <p>Year of assessment: 2004-2006.</p> <p>Exposure categories: Personal characteristics, service, rank and deployment history.</p>	<p>PTSD symptoms (delayed onset)</p> <p>Way of assessment: Self-reported using the PCL-C checklist.</p> <p>Incidence: 3.5%</p>	<p>1) and multivariate (model 2) adjusting for service, rank, deployment characteristics, depression, anxiety/panic disorder, childhood adversity and general health, alcohol misuse, common mental disorders, and subthreshold PTSD all at phase 1.</p>	<p>Male OR: Ref.</p> <p>Female OR: 1.46 [0.64 3.36]¹</p> <p>Age <35 OR: Ref.</p> <p>≥35 OR: 0.71 [0.38 1.34]¹</p> <p>Marital status In a relationship OR: Ref.</p> <p>Single, divorced, separated, widowed OR: 0.92 [0.39 2.14]¹</p> <p>Service Naval services OR: 0.40 [0.14 1.19]¹ OR: 0.45 [0.16 1.28]²</p> <p>Army OR: Ref. OR: Ref.</p> <p>Royal Air Force OR: 0.23 [0.07 0.81]¹ OR: 0.53 [0.15 1.87]²</p> <p>Rank Officer OR: 0.17 [0.05 0.57]¹ OR: 0.21 [0.06 0.72]²</p> <p>Other rank OR: Ref. OR: Ref.</p>
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Deployment

Regular

OR: Ref.

Reservist

OR: 0.83 [0.42 1.68]¹

In a combat role on deployment

No

OR: Ref.

OR: Ref.

Yes

OR: 3.00 [1.57 5.75]¹

OR: 2.61 [1.20 5.68]²

Thought might be killed

No

OR: Ref.

OR: Ref.

Yes

OR: 3.69 [1.61 8.45]¹

OR: 2.38 [1.03 5.46]²

Discharged weapon on deployment

No

OR: Ref.

Yes

OR: 1.48 [0.61 3.60]¹

Handled bodies on deployment

No

OR: Ref.

Yes

OR: 2.01 [0.93 4.35]¹

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						<p>History of depression</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 4.31 [2.19 8.49]¹ OR: 3.67 [1.75 7.67]²</p> <p>History of anxiety/panic disorder</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 4.77 [1.92 11.82]¹ OR: 2.85 [0.87 9.30]²</p> <p>Childhood adversity, antisocial behavior</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u> OR: 3.26 [1.66 6.40]¹ OR: 1.58 [0.73 3.43]²</p> <p>Childhood adversity, family relationship</p> <p><u>0 adversities</u> OR: Ref. OR: Ref.</p> <p><u>1 adversity</u> OR: 1.36 [0.53 3.48]¹ OR: 1.29 [0.46 3.63]²</p> <p><u>2 or more adversities</u> OR: 2.92 [1.41 6.04]¹ OR: 2.18 [0.99 4.77]²</p>
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						<p>General health status</p> <p><u>Fair/ poor</u> OR: 3.05 [1.49 6.23]¹ OR: 1.84 [0.79 4.28]²</p> <p><u>Excellent/ good</u> OR: Ref. OR: Ref.</p> <p>Common mental disorder</p> <p><u>Non-case</u> OR: Ref. OR: Ref.</p> <p><u>Case</u> OR: 5.58 [2.94 10.58]¹ OR: 2.47 [1.12 5.46]²</p> <p>Multiple physical symptoms</p> <p><u>Non-case</u> OR: Ref. OR: Ref.</p> <p><u>Case</u> OR: 7.32 [3.81 14.07]¹ OR: 3.40 [1.54 7.47]²</p> <p>Alcohol misuse</p> <p><u>Non-case</u> OR: Ref.</p> <p><u>Case</u> OR: 2.18 [1.00 4.75]¹</p> <p>Subthreshold PTSD reported at phase 1</p> <p><u>No</u> OR: Ref. OR: Ref.</p> <p><u>Yes</u></p>
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						<p>OR: 9.96 [4.67 21.20]¹ OR: 4.87 [2.05 11.58]²</p> <p>Cumulative physical/psychological morbidity at phase 1</p> <p><u>0 reports</u> OR: Ref. OR: Ref.</p> <p><u>1 report</u> OR: 4.40 [1.88 10.33]¹ OR: 3.37 [1.30 8.73]²</p> <p><u>2 reports</u> OR: 10.72 [4.09 28.08]¹ OR: 6.56 [2.29 8.73]²</p> <p><u>3-4 reports</u> OR: 17.14 [6.84 42.97]¹ OR: 8.14 [2.81 23.57]²</p> <p>Relationship status</p> <p><u>No change</u> OR: Ref.</p> <p><u>In a new relationship since phase 1</u> OR: 1.17 [0.39 3.52]¹</p> <p><u>End of a relationship since phase 1</u> OR: 2.18 [0.84 5.62]¹</p> <p>Serving status</p> <p><u>In service phases 1 and 2</u> OR: Ref. OR: Ref.</p> <p><u>Not in service phases 1 and 2</u> OR: 1.51 [0.58 3.89]¹ OR: 1.14 [0.40 3.29]²</p> <p><u>Left service</u></p>
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OR: 2.24 [1.13 4.42] ¹ OR: 1.46 [0.66 3.23] ²
General health status
<u>Good health stable</u>
OR: Ref.
OR: Ref.
<u>Poor health stable</u>
OR: 7.83 [3.33 18.44] ¹
OR: 3.72 [1.19 11.65] ²
<u>Decline in health since phase 1</u>
OR: 6.44 [2.89 14.35] ¹
OR: 3.74 [1.41 9.91] ²
<u>Improvement in health since phase 1</u>
OR: 1.71 [0.47 6.24] ¹
OR: 0.88 [0.24 3.24] ²
Alcohol misuse
<u>No change [no misuse]</u>
OR: Ref.
OR: Ref.
<u>No change [misuse]</u>
OR: 3.84 [1.37 10.77] ¹
OR: 1.29 [0.40 4.18] ²
<u>Deterioration change since phase 1</u>
OR: 6.10 [2.45 15.17] ¹
OR: 6.15 [2.05 18.48] ²
<u>Improvement change since phase 1</u>
OR: 1.60 [0.47 5.47] ¹
OR: 0.76 [0.21 2.71] ²
Common mental disorders
<u>No change or positive change</u>

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						<p>OR: Ref. OR: Ref. <u>Negative change since phase 1</u> OR: 6.29 [3.24 12.21]¹ OR: 7.12 [3.07 16.52]²</p> <p>Multiple physical symptoms <u>No change or improvement</u> OR: Ref. OR: Ref. <u>Decline in health since phase 1</u> OR: 9.73 [4.56 20.76]¹ OR: 7.85 [2.86 21.52]²</p>
18. Green, 2016 <small>36</small>	<p><u>Name:</u> Project VALOR</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 738</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 51%</p> <p><u>Age</u>= 37.7 (9.9) years.</p> <p><u>Type of job/company</u>= Iraq and Afghanistan army and marine corps veterans.</p> <p><u>Inclusion/exclusion</u>= Participants who had undergone mental health evaluation at a veterans facility were included. Participants with probable PTSD and females were oversampled to get a</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Deployment risk and resilience.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Using a structured clinical interview with DSM-4 criteria.</p> <p><u>Incidence:</u> 73% and 68% for females and males, respectively.</p>	Unadjusted	<p>Age OR: 1.01 [0.81 1.03]</p> <p>Race <u>White</u> OR: Ref. <u>Black</u> OR: 1.83 [0.76 4.41] <u>Other</u> OR: 0.46 [0.19 1.11]</p> <p>Combat experiences OR: 1.03 [1.00 1.07]</p> <p>Aftermath of battle OR: 1.03 [1.00 1.06]</p> <p>Social support OR: 0.96 [0.93 0.98]</p> <p>Length of deployment OR: 0.97 [0.92 1.03]</p>

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		good representation of these groups in the final sample. Only participants with one deployment were included.				Deployment phase <u>Insurgency</u> OR: Ref. <u>Invasion</u> OR: 0.38 [0.16 0.91] <u>Surge</u> OR: 0.44 [0.21 0.93]
19. Hansen, 2017 ³⁷	<u>Name:</u> Mental Health and Work Environment Factors in the Aftermath of the Oslo Terrorist Attack <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 10, 22 and 34 months after the attack	<u>n</u> = 1,933 <u>Country</u> = Norway <u>%Female</u> = 58% <u>Age</u> = 45.4(10.9) years <u>Type of job/company</u> = Employees of the ministries at the moment of the Oslo terrorist attack. <u>Inclusion/exclusion</u> = -	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2011 <u>Exposure categories:</u> Mental health, exposure, work, perceived safety and psychosocial variables.	<u>Type of symptoms:</u> PTS symptoms <u>Way of assessment:</u> Self-reported using a Norwegian version of the Posttraumatic Stress Disorder Checklist – Specific (PCL-C), using DSM-4 criteria. <u>Incidence:</u> 6%, 4%, and 4% during the three follow-up periods, respectively.	Unadjusted (model 1) and multivariate (model 2) with age and gender and traumatic experiences, education level and leadership position.	Presence during attack <u>Not present during attack</u> 10 months OR: Ref. ¹ OR: Ref. ² 22 months OR: Ref. ¹ OR: Ref. ² 34 months OR: Ref. ¹ OR: Ref. ² <u>Present during attack</u> 10 months OR: 8.4 [5.6 12.6] ¹ OR: 9.3 [6.1 14.2] ² 22 months OR: 6.9 [4.3 11.2] ¹ OR: 8.9 [5.2 15.3] ² 34 months OR: 8.8 [5.2 15.1] ¹ OR: 10.0 [5.4 18.6] ²
20. Harvey, 2012 ³⁸	<u>Name:</u> - <u>Design:</u> Prospective longitudinal	<u>n</u> = 552 in combat group, 391 in control group <u>Country</u> = UK <u>%Female</u> = 17% in	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2003	<u>Type of symptoms:</u> PTSD symptoms (using a cut-off >=50) <u>Way of assessment:</u> 17-item National	Univariate (model 1) and adjusted for gender, age, rank and service (model 2).	Combat status <u>Control group</u> Short-term OR: Ref OR: Ref Long-term

	<u>Follow-up period:</u> 16 months and 4.8 year post- deployment	combat group, 19% in control group <u>Age</u> = 39.4(7.9) in combat group, 42.0(8.9) in control group <u>Type of job/company</u> = Military personnel that were and were not deployed in the Iraq war <u>Inclusion/exclusion</u> = -	<u>Exposure categories:</u> Combat versus control group	Centre for PTSD Checklist (PCL-C) <u>Incidence:</u> Short term: 2.2% in control group and 6.3% in the combat group. Long- term: 2.0% in the control group and 5.1 in the combat group.		OR: Ref OR: Ref <u>Combat group</u> <i>Short-term</i> OR: 3.01 [1.36 6.64] ¹ OR: 2.91 [1.34 6.31] ² <i>Long-term</i> OR: 2.62 [1.12 6.16] ¹ OR: 2.42 [1.04 5.62] ²
21. Horesh, 2011 ³⁹	<u>Name:</u> - <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 1, 2 and 20 years post-war	<u>n</u> = 675 <u>Country</u> = Israel <u>%Female</u> = - <u>Age</u> = - <u>Type of job/company</u> = War veterans from the Lebanon war <u>Inclusion/exclusion</u> = -	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 1983 <u>Exposure categories:</u> Combat exposure was self-reported.	<u>Type of symptoms:</u> PTSD, grouped into four groups: no-PTSD, 1983 PTSD, 1984 delayed onset PTSD and 2002 delayed onset PTSD. <u>Way of assessment:</u> Self-reported using the PTSD inventory, using DSM-3 criteria. <u>Incidence:</u> 16.5%	-	64.5% of the participants in the 1983 PTSD group reported extreme exposure to danger, compared to 24.5% of the no-PTSD group, 35.8% of the 2002 delayed onset PTSD group and 41.4% of the 1984 delayed onset PTSD group. Whereas 27.9% of the participants in the no- PTSD group reported extreme battles severity, 48.2% of the participants in the 1983 PTSD group reported extreme battles severity. In comparison, 39.6% of the participants in the 2002 delayed onset PTSD group and 34.5% of the participants in the 1984 delayed onset PTSD group reported extreme battles severity.
22. Hourani,	<u>Name:</u> -	<u>n</u> = 2116	<u>Exposure assessment:</u>	<u>Type of symptoms:</u>	-	Those with PTSD symptoms

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<p>2012⁴⁰</p>	<p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 6 months</p>	<p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Marines</p> <p><u>Inclusion/exclusion</u>= Participants who transitioned from active military duty to civilian life were for a minimum of 2 months were included.</p>	<p>Self-reported</p> <p><u>Year of assessment:</u> 2010</p> <p><u>Exposure categories:</u> Exposures like number of deployments and stress were used.</p>	<p>PTSD symptoms</p> <p><u>Way of assessment:</u> Self-reported using the National Centre for PTSD Checklist (PCL-C) of the Department of Veterans Affairs – Civilian Version.</p> <p><u>Incidence:</u> Baseline prevalence 28%, follow-up incidence 10%</p>		<p>also were more likely to report a previous trauma during their lifetime at baseline. High combat exposure scale scores were associated with PTSD. Baseline social support was associated with PTSD.</p>
<p>23. Ikeda, 2017⁴¹</p>	<p><u>Name:</u> Fukushima Nuclear Energy Worker’s Support (NEWS) Project.</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> Baseline at 2-3 months post-disaster, with follow-up 3 years after that.</p>	<p><u>n</u>= 1,417</p> <p><u>Country</u>= Japan</p> <p><u>%Female</u>= 5%</p> <p><u>Age</u>= 39.3 years</p> <p><u>Type of job/company</u>= Employers of the Tokyo Electric Power Company in Fukushima.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2011</p> <p><u>Exposure categories:</u> Sociodemographic, disaster-related experiences and psychological distress.</p>	<p><u>Type of symptoms:</u> PTSD symptoms (using a cut-off >=25)</p> <p><u>Way of assessment:</u> Self-reported using the Japanese version of the Impact of Event Scale-Revisited (IES-R), using DSM-4 criteria.</p> <p><u>Incidence:</u> 26%</p>	<p>Adjusted for age, gender and job location.</p>	<p>Experience of life-threatening danger</p> <p><u>No</u> OR: Ref. (2011) OR: Ref. (2012) OR: Ref. (2013) OR: Ref. (2014)</p> <p><u>Yes</u> OR: 4.32 [2.89 6.48] (2011) OR: 3.47 [2.43 4.95] (2012) OR: 2.78 [1.87 4.14] (2013) OR: 2.23 [1.34 3.72] (2014)</p> <p>Major property loss</p> <p><u>No</u> OR: Ref. (2011) OR: Ref. (2012) OR: Ref. (2013) OR: Ref. (2014)</p> <p><u>Yes</u></p>

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OR: 3.45 [2.28 5.23] (2011)
OR: 2.55 [1.77 3.66] (2012)
OR: 1.88 [1.25 2.84] (2013)
OR: 1.39 [0.81 2.37] (2014)
Discrimination/slurs
<u>No</u>
OR: Ref. (2011)
OR: Ref. (2012)
OR: Ref. (2013)
OR: Ref. (2014)
<u>Yes</u>
OR: 5.72 [3.37 9.71] (2011)
OR: 4.47 [2.83 7.08] (2012)
OR: 3.50 [2.10 5.84] (2013)
OR: 2.74 [1.42 5.30] (2014)
Escape from tsunami
<u>No</u>
OR: Ref. (2011)
OR: Ref. (2012)
OR: Ref. (2013)
OR: Ref. (2014)
<u>Yes</u>
OR: 5.65 [3.27 9.74] (2011)
OR: 3.72 [2.30 6.02] (2012)
OR: 2.45 [1.40 4.27] (2013)
OR: 1.61 [0.78 3.35] (2014)
Witnessing of plant explosions
<u>No</u>
OR: Ref. (2011)
<u>Yes</u>
OR: 2.09 [1.43 3.06] (2011)
Family member deaths

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						<p><u>No</u> OR: Ref. (2011)</p> <p><u>Yes</u> OR: 1.60 [0.80 3.19] (2011)</p> <p>Colleague deaths</p> <p><u>No</u> OR: Ref. (2011)</p> <p><u>Yes</u> OR: 2.08 [1.33 3.26] (2011)</p> <p>Home evacuation</p> <p><u>No</u> OR: Ref. (2011)</p> <p><u>Yes</u> OR: 1.49 [1.03 2.15] (2011)</p>
24. Joseph, 2014 ⁴²	<p><u>Name:</u> -</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 453</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 24%</p> <p><u>Age</u>= -</p> <p><u>Type of job/company</u>= Traumatic surgeons</p> <p><u>Inclusion/exclusion</u> = --</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Personal characteristics, and exposure at work.</p>	<p><u>Type of symptoms:</u> PTSD (symptoms and diagnosed PTSD - only diagnosed PTSD was extracted for this review)</p> <p><u>Way of assessment:</u> Self-reported using the PCL checklist (with a cut-off score >=44).</p> <p><u>Incidence:</u> 15% (prevalence)</p>	<p>Univariate (model 1) and adjusting for all other exposure (model 2).</p>	<p>Age</p> <p><u><51 years</u> OR: Ref.¹ OR: Ref.²</p> <p><u>≥51 years</u> OR: 1.8 [0.7 3.4]¹</p> <p>Gender</p> <p><u>Female</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Male</u> OR: 2.1 [1.4 4.6]¹ OR: 1.8 [0.9 5.3]²</p> <p>Marital status</p> <p><u>Other</u> OR: Ref.¹</p> <p><u>Single</u> OR: 1.2 [0.4 2.8]¹</p>

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						<p>Race</p> <p><u>Other</u> OR: Ref.¹</p> <p><u>White</u> OR: 1.1 [0.8 2.6]¹</p> <p>Comorbidities</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 2.4 [0.6 4.1]¹</p> <p>Urban hospital</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.6 [0.5 2.4]¹</p> <p>Academic facility</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 3.6 [0.9 7.8]¹</p> <p>24-h resident coverage</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.8 [1.1 3.2]¹ OR: 1.4 [0.8 4.2]²</p> <p>≥5 critical cases per call</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u></p>
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						<p>OR: 2.4 [1.6 9.4]¹ OR: 7 [1.1 8]²</p> <p>≥7 call duties a month</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.6 [2.1 14.6]¹ OR: 3.8 [0.9 7.2]²</p> <p>≥15 operative cases per month</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 3.1 [1.1 7.2]¹ OR: 2.8 [0.4 3.2]²</p> <p>≥4-h relaxation per day</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.6 [1.8 11.5]¹ OR: 3.1 [0.9 6.7]²</p> <p>≥2-wk vacation per year</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.1 [0.9 6.8]¹ OR: 1.4 [0.6 4.1]²</p> <p>Military experience</p>
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						<p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.4 [0.8 5.6]¹ OR: 1.1 [0.7 3.8]²</p> <p>War deployment</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.2 [2.8 14.1]¹ OR: 2.8 [0.9 7.9]²</p> <p>Smoking</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.2 [0.8 3.1]¹</p> <p>Alcohol</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.1 [0.5 2.3]¹</p> <p>Annual income >\$300,000</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 3.6 [0.9 8.4]¹</p>
25. Karstoft, 2013 ⁴³	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal</p>	n= 675 (369 who were diagnosed with a combat stress reaction and 306 without)	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 1983</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Self-reported using</p>	-	<p>Severity of battles</p> <p>OR: 0.96 [0.63 1.48] (combat stress reaction)</p> <p>OR: 0.87 [0.55 1.36] (no combat stress reaction)</p>

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	<p><u>Follow-up period:</u> 1, 2 and 20 years post-war.</p>	<p><u>Country</u>= Israel <u>%Female</u>= 0% <u>Age</u>= 25.8(4.7) <u>Type of job/company</u>= Combat veterans who were on active duty in the Lebanon war. <u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure categories:</u> Exposures such as the severity of battles, life threatening war, unit atmosphere and social support were assessed.</p>	<p>the PTSD inventory, using DSM-3 criteria. Latent growth modelling was used to identify PTSD subgroups. For the current review we only assessed the 'delayed onset' PTSD group, as this reflects incidence of PTSD. <u>Incidence:</u> -</p>	<p>Life threatening war OR: 1.90 [1.08 3.35] (combat stress reaction) OR: 0.95 [0.64 1.43] (no combat stress reaction)</p> <p>Unit atmosphere OR: 1.08 [1.00 1.17] (combat stress reaction) OR: 1.02 [0.96 1.09] (no combat stress reaction)</p> <p>Social support OR: 0.58 [0.25 1.31] (combat stress reaction) OR: 0.66 [0.29 1.53] (no combat stress reaction)</p>
<p>26. Karstoft, 2015⁴⁴</p>	<p><u>Name:</u> - <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 1, 2 and 20 years post-war.</p>	<p><u>n</u>= 675 (369 who were diagnosed with a combat stress reaction and 306 without) <u>Country</u>= Israel <u>%Female</u>= 0% <u>Age</u>= 25.8(4.7) <u>Type of job/company</u>= Combat veterans who were on active duty in the Lebanon war. <u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 1983 <u>Exposure categories:</u> Exposures such as the severity of battles, life threatening war, coping were assessed.</p>	<p><u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Self-reported using the PTSD inventory, using DSM-3 criteria. Latent growth modelling was used to identify PTSD subgroups. For the current review we only assessed the 'delayed onset' PTSD group, as this reflects incidence of PTSD. <u>Incidence:</u> -</p>	<p>-</p> <p>Severity of battles OR: 1.01 [0.67 1.35] (combat stress reaction) OR: 0.87 [0.57 1.32] (no combat stress reaction)</p> <p>Life threatening war OR: 1.91 [1.07 3.24] (combat stress reaction) OR: 1.01 [0.68 1.50] (no combat stress reaction)</p> <p>Locus of control OR: 1.12 [0.93 1.35] (combat stress reaction) OR: 0.88 [0.73 1.05] (no combat stress reaction)</p> <p>Problem-focused coping</p>

						<p>OR: 1.72 [0.80 3.73] (combat stress reaction) OR: 3.11 [1.16 8.38] (no combat stress reaction)</p> <p>Emotion-focused coping OR: 0.60 [0.26–1.35] (combat stress reaction) OR: 0.28 [0.09–0.93] (no combat stress reaction)</p>
27. Kim, 2014 ⁴⁵	<p><u>Name:</u> -</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 980</p> <p><u>Country</u>= Korea</p> <p><u>%Female</u>= 0%</p> <p><u>Age</u>= Most participants were in their 40s.</p> <p><u>Type of job/company</u>= Subway drivers employed by a public company in Seoul</p> <p><u>Inclusion/exclusion</u>= Participants currently on sick leave and female drivers were excluded.</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> -</p> <p><u>Exposure categories:</u> Person under train experiences and other work-related exposures were assessed.</p>	<p><u>Type of symptoms:</u> PTSD (1 year and lifetime prevalence).</p> <p><u>Way of assessment:</u> The Korean version of the Composite International Diagnostic Interview (K-CIDI) was administered to diagnose PTSD, using DSM-4 criteria.</p> <p><u>Incidence:</u> 1.6% (one year prevalence)</p>	<p>Multi-variate analyses with all other exposures and age. For 1 year prevalence (model 1) and lifetime prevalence (model 2).</p>	<p>Person under train experience</p> <p><u>No</u> OR: Ref</p> <p><u>Yes</u> OR: Ref</p> <p>OR: 1.54 [0.52 4.55]¹ OR: 2.06 [0.94 4.55]²</p> <p>Number of person under train experiences</p> <p><u>0 experiences</u> OR: Ref</p> <p><u>1 experience</u> OR: Ref</p> <p>OR: 1.77 [0.31 4.47]¹ OR: 1.45 [0.55 3.85]²</p> <p><u>≥2 experiences</u> OR: 2.36 [0.57 9.70]¹ OR: 3.57 [1.32 3.65]²</p> <p>Severity of victim's injury</p> <p><u>Alive</u> OR: Ref</p> <p><u>Death</u> OR: Ref</p> <p>OR: 2.49 [0.27 23.27]¹</p>

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						<p>OR: 1.39 [0.40 4.82]²</p> <p>Person under train experience</p> <p><u>>5 years ago</u></p> <p>OR: Ref</p> <p>OR: Ref</p> <p><u>≤5 years</u></p> <p>OR: 1.01 [0.11 9.06]¹</p> <p>OR: 0.33 [0.03 2.63]²</p> <p>Conflict with passengers</p> <p><u>No</u></p> <p>OR: Ref.¹</p> <p>OR: Ref.²</p> <p><u>Yes</u></p> <p>OR: 3.21 [1.14 9.03]¹</p> <p>OR: 3.32 [1.55 7.12]²</p> <p>Sudden stop</p> <p><u>No</u></p> <p>OR: Ref.¹</p> <p>OR: Ref.²</p> <p><u>Yes</u></p> <p>OR: 3.66 [0.82 16.4]¹</p> <p>OR: 7.53 [1.77 32.02]²</p> <p>Near accident</p> <p><u>No</u></p> <p>OR: Ref.¹</p> <p>OR: Ref.²</p> <p><u>Yes</u></p> <p>OR: 8.81 [1.96 39.3]¹</p> <p>OR: 6.36 [2.40 16.90]²</p> <p>Breakdown</p> <p><u>No</u></p> <p>OR: Ref.¹</p> <p>OR: Ref.²</p> <p><u>Yes</u></p>
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						<p>OR: 1.71 [0.48 6.14]¹ OR: 1.89 [0.75 4.75]² Person under train experience of colleague <u>No</u> OR: Ref.¹ OR: Ref.² <u>Yes</u> OR: 0.55 [0.12 2.47]² OR: 2.84 [1.32 6.12]²</p>
28. Levin-Rector, 2018 ⁴⁶	<p>Name: Defence Manpower Data Center (DMDC), Career History and Archival Medical Personnel System (CHAMPS), and the Expeditionary Medical Encounter Database (EMED)</p> <p>Design: Prospective longitudinal</p> <p>Follow-up period: 35-43 months.</p>	<p>n= 332,093 (marine) and 773,359 (army)</p> <p>Country= USA</p> <p>%Female= 7% (marine) and 17% (army)</p> <p>Age= 20.0 (3.9) (marine) and 21.7 (2.1) (army)</p> <p>Type of job/company= All service members who went into the army or navy between 2001 and 2011.</p> <p>Inclusion/exclusion= -</p>	<p>Exposure assessment: Military databases</p> <p>Year of assessment: 2001-2011</p> <p>Exposure categories: Personal and deployment characteristics.</p>	<p>Type of symptoms: PTSD</p> <p>Way of assessment: Diagnosed PTSD obtained from military records.</p> <p>Incidence: 4.3% (marine); 7.6% (army).</p>	<p>Adjusting for clustering within units.</p>	<p>Sex <u>Female</u> HR: Ref. (marine) HR: Ref. (army) <u>Male</u> HR: 0.40 [0.36 0.44] (marine) HR: 0.57 [0.55 0.59] (army)</p> <p>Age at accession HR: 0.99 [0.98 1.00] (marine) HR: 1.01 [1.00 1.01] (army)</p> <p>Race <u>White</u> HR: Ref. (marine) HR: Ref. (army) <u>Non-white</u> HR: 0.95 [0.91 1.00] (marine) HR: 0.96 [0.94 0.98] (army)</p> <p>Ethnicity <u>Non-Hispanic</u> HR: Ref. (marine) HR: Ref. (army) <u>Hispanic</u> HR: 0.80 [0.75 0.84] (marine) HR: 0.86 [0.84 0.89] (army)</p>

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Prior substance abuse disorder diagnosis

HR: 3.10 [2.92 3.30] (marine)
HR: 2.05 [2.00 2.10] (army)

Waiver status

No waiver

HR: Ref. (marine)
HR: Ref. (army)

Received medical waiver

HR: 1.13 [1.07 1.20] (marine)
HR: 1.02 [0.99 1.05] (army)

Received other waiver

HR: 1.12 [1.08 1.16] (marine)
HR: 1.12 [1.10 1.15] (army)

Marital status

Single

HR: Ref. (marine)
HR: Ref. (army)

Divorced/widowed

HR: 1.21 [1.06 1.39] (marine)
HR: 1.18 [1.12 1.24] (army)

Married

HR: 1.31 [1.24 1.38] (marine)
HR: 1.20 [1.18 1.23] (army)

Rank

Enlisted

HR: Ref. (marine)
HR: Ref. (army)

Officer

HR: 0.16 [0.13 0.21] (marine)
HR: 0.20 [0.15 0.26] (army)

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						<p><u>Combat specialist</u> HR: Ref. (marine) HR: Ref. (army)</p> <p><u>Communications/intelligence</u> HR: 0.54 [0.48 0.62] (marine) HR: 0.73 [0.70 0.77] (army)</p> <p><u>Craft/repair specialist</u> HR: 0.46 [0.40 0.54] (marine) HR: 0.62 [0.60 0.65] (army)</p> <p><u>Functional support/other</u> HR: 0.46 [0.41 0.51] (marine) HR: 0.56 [0.53 0.59] (army)</p> <p><u>Service and supply</u> HR: 0.77 [0.68 0.87] (marine) HR: 0.84 [0.80 0.88] (army)</p> <p><u>Healthcare specialist</u> HR: 1.03 [0.98 1.08] (army)</p> <p>Cumulative years deployed HR: 2.04 [1.93 2.15] (marine) HR: 1.74 [1.71 1.76] (army)</p> <p>Unit cumulative high deployment stress rate (per 100) HR: 1.04 [1.03 1.05] (marine) HR: 1.05 [1.04 1.06] (army)</p> <p>Unit stability HR: 1.11 [0.92 1.33] (marine) HR: 0.69 [0.64 0.74] (army)</p>
29. MacGregor, 2015 ⁴⁷	<p><u>Name:</u> Defence Manpower Data Center (DMDC)</p> <p><u>Design:</u> Prospective</p>	<p><u>n</u>= 8,064 (3,416 health care profession, 4,648 no health care profession)</p> <p><u>Country</u>= USA</p>	<p><u>Exposure assessment:</u> Self-reported.</p> <p><u>Year of assessment:</u> 2001-2008</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed, according to ICD-9-CM criteria,</p>	<p>Univariate (model 1) and multivariate (model 1) adjusting for all remaining exposures</p>	<p>Health Care Occupation</p> <p><u>No</u> OR: Ref. (1 deployment) OR: Ref. (2 deployments) OR: Ref. (3 deployments)</p> <p><u>Yes</u></p>

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	<p>longitudinal</p> <p><u>Follow-up period:</u> Up to 60 days.</p>	<p><u>%Female=</u> 0%</p> <p><u>Age=</u> Ranging from 27.9 (5.7) to 30.2 (7.0) in various participating groups.</p> <p><u>Type of job/company=</u> Navy personnel with one, two or three deployments in Iraq and/or Afghanistan.</p> <p><u>Inclusion/exclusion=</u> Participants who completed a health assessment within 60 days post-deployment were included. Women were excluded</p>	<p><u>Exposure categories:</u> military occupation, combat rank, deployment specific variables</p>	<p>from inpatient and outpatient databased.</p> <p><u>Incidence:</u> Ranging from 1.9% to 17.9% for various participating groups.</p>	<p>OR: 2.02 [1.45 2.80]¹ (1 deployment) OR: 2.27 [1.26 4.08]¹ (2 deployments) OR: 4.37 [1.25 15.28]¹ (3 deployments)</p> <p>Age OR: 0.97 [0.94 0.99]¹ (1 deployment) OR: 0.97 [0.93 1.02]¹ (2 deployments) OR: 0.94 [0.86 1.03]¹ (3 deployments)</p> <p>Rank <u>Enlisted</u> OR: Ref. OR: Ref. <u>Officer</u> OR: 0.35 [0.18 0.65]¹ (1 deployment) OR: 0.54 [0.12 2.47]¹ (2 deployments)</p> <p>Married <u>No</u> OR: Ref. (1 deployment) OR: Ref. (2 deployments) OR: Ref. (3 deployments) <u>Yes</u> OR: 0.93 [0.67 1.30]¹ (1 deployment) OR: 0.54 [0.32 0.89]¹ (2 deployments) OR: 0.96 [0.36 2.56]¹ (3 deployments)</p>
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						<p>Some College</p> <p><u>No</u> OR: Ref. (1 deployment) OR: Ref. (2 deployments) OR: Ref. (3 deployments)</p> <p><u>Yes</u> OR: 1.61 [0.97 2.68]¹ (1 deployment) OR: 0.66 [0.22 1.97]¹ (2 deployments) OR: 0.41 [0.04 3.92]¹ (3 deployments)</p> <p>Medical utilization</p> <p><u>Low</u> OR: Ref. OR: Ref. OR: Ref.</p> <p><u>Moderate</u> OR: 6.64 [3.50 12.60]¹ (1 deployment) OR: 3.40 [1.64 7.06]¹ (2 deployments) OR: 13.84 [1.69 113.49]¹ (3 deployments)</p> <p><u>High</u> OR: 34.52 [19.35 61.59]¹ (1 deployment) OR: 15.25 [7.89 29.49]¹ (2 deployments) OR: 46.96 [5.98 368.58]¹ (3 deployments)</p> <p>Deployment location</p> <p><u>Afghanistan/Iraq</u> OR: Ref.</p>
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						<p>OR: Ref. OR: Ref. <u>Kuwait</u> OR: 0.78 [0.55 1.10]¹ (1 deployment) OR: 0.81 [0.44 1.48]¹ (2 deployments) OR: 1.32 [0.94 1.82]¹ (3 deployments)</p> <p>Number of combat exposures OR: 1.62 [1.46 1.79]¹ (1 deployment) OR: 1.37 [1.17 1.61]¹ (2 deployments) OR: 1.30 [0.94 1.82]¹ (3 deployments)</p> <p>Current Deployment Time OR: 1.00 [1.00 1.01]¹ (1 deployment) OR: 1.00 [1.00 1.01]¹ (2 deployments) OR: 1.00 [0.99 1.01]¹ (3 deployments)</p> <p>Previous deployment time OR: 1.00 [1.00 1.01]¹ (2 deployments) OR: 1.00 [0.99 1.01]¹ (3 deployments)</p> <p>Previous dwell time OR: 1.00 [1.00 1.00]¹ (2 deployments) OR: 1.00 [1.00 1.00]¹ (3 deployments)</p>
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						<p>deployments)</p> <p><i>Only health care occupation below</i></p> <p>Felt in great danger of being killed</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 4.14 [3.13 5.46]¹ OR: 3.44 [2.50 4.72]²</p> <p>Engaged in direct combat and discharged weapon</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 3.43 [2.42 4.87]¹ OR: 1.67 [1.15 2.44]²</p> <p>Exposed to wounded/dead civilians</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.51 [1.16 1.96]¹</p> <p>Exposed to wounded/dead friendly forces</p> <p><u>No</u> OR: Ref.¹ OR: Ref.²</p> <p><u>Yes</u> OR: 1.99 [1.52 2.60]¹ OR: 1.53 [1.13 2.07]²</p>
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						<p>Exposed to wounded/dead enemy</p> <p><u>No</u> OR: Ref.¹</p> <p><u>Yes</u> OR: 1.79 [1.38 2.34]¹</p>
30. MacGregor, 2012 ⁴⁸	<p><u>Name:</u> Defence Manpower Data Center (DMDC)</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4 years</p>	<p><u>n</u>=65,704</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= -</p> <p><u>Age</u>= 22 (19-53)</p> <p><u>Type of job/company</u>= Marine corps personnel deployed to Iraq or Kuwait.</p> <p><u>Inclusion/exclusion</u>= Deployments between 4 and 8 months were considered. Special forces and participants with earlier mental health issues were excluded. Only those with more than one deployment were analysed.</p>	<p><u>Exposure assessment:</u> Deployment administration</p> <p><u>Year of assessment:</u> 2003-2007</p> <p><u>Exposure categories:</u> Dwell-to-deployment ratios were categorised into <1:1, 1:1 and 2:1.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed PTSD with ICD-9-CM criteria were obtained from impatient and outpatient registers</p> <p><u>Incidence:</u> 1.5%</p>	<p>Adjustment for age and military rank</p>	<p>Dwell to deployment ratio</p> <p><u><1:1</u> OR: Ref.</p> <p><u>1:1</u> OR: 0.83 [0.60 1.13]</p> <p><u>2:1</u> OR: 0.47 [0.32 0.70]</p>
31. Maguen, 2012 ⁴⁹	<p><u>Name:</u> Department of Veterans Affairs (VA) database</p>	<p><u>n</u>= 968</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 12%</p>	<p><u>Exposure assessment:</u> Department of Veterans Affairs administrative data (including self-reports)</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Using the self-</p>	<p>Univariate (model 1) and multivariate (model 2), adjusting for age, sex, race, marital status, unit,</p>	<p>Number of exposures</p> <p><u>None</u> OR: Ref.</p> <p><u>One</u> OR: Ref.</p>

	<p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> 11 days</p>	<p><u>Age</u>= 30.3(8.4) years</p> <p><u>Type of job/company</u>= War veterans who have been deployed in Iran and Afghanistan.</p> <p><u>Inclusion/exclusion</u>= Participants with either no head injury or a head injury with traumatic brain injury were included, but not those with head injury without brain damage.</p>	<p><u>Year of assessment:</u> 2007-2010</p> <p><u>Exposure categories:</u> Exposure to traumatic brain injury mechanisms</p>	<p>reported Primary Care PTSD Screen (PC-PTSD) screening instrument</p> <p><u>Incidence:</u> -</p>	<p>branch of service, rank and number of deployments.</p>	<p>OR: 4.93 [3.3 7.3]¹ OR: 4.67 [3.1 7.1]² <u>Two +</u> OR: 6.96 [5.1 9.6]¹ OR: 6.15 [4.4 8.7]²</p> <p>Type of exposure</p> <p><u>None</u> OR: Ref. OR: Ref.</p> <p><u>Blast only</u> OR: 5.13 [3.2 8.2]¹ OR: 4.72 [2.9 7.7]²</p> <p><u>Blast plus</u> OR: 7.45 [5.4 10.3]¹ OR: 6.52 [4.6 9.3]²</p> <p><u>1 Non blast</u> OR: 4.53 [2.4 8.6]¹ OR: 4.60 [2.4 8.8]²</p> <p><u>2+ Non blast</u> OR: 2.94 [1.17 7.4]¹ OR: 3.36 [1.32 8.6]²</p>
<p>32. Maguen, 2010⁵⁰</p>	<p><u>Name:</u> Department of Veterans Affairs (VA) database</p> <p><u>Design:</u> Retrospective longitudinal</p> <p><u>Follow-up period:</u> -</p>	<p><u>n</u>= 329,049</p> <p><u>Country</u>= USA</p> <p><u>%Female</u>= 12%</p> <p><u>Age</u>= 31.2(9.0)</p> <p><u>Type of job/company</u>= War veterans who have been deployed in Iran and Afghanistan.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Exposure assessment:</u> Deployment data</p> <p><u>Year of assessment:</u> 2001</p> <p><u>Exposure categories:</u> Demographic and military service data.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> PTSD obtained from medical health records of those who visited veteran facilities from 2002 to 2008. Diagnosis was done with ICD-9-CM criteria.</p> <p><u>Incidence:</u> 17% among females, 22% among</p>	<p>Univariate models were conducted for females (model 1) and males (model 2) separately.</p>	<p>Age</p> <p><u>16–24</u> RR: Ref. RR: Ref.</p> <p><u>25–29</u> RR: 1.05 [0.99 1.11]¹ RR: 0.96 [0.94 0.97]²</p> <p><u>30–39</u> RR: 1.24 [1.17 1.32]¹ RR: 0.98 [0.96 0.99]²</p> <p><u>40–71</u> RR: 1.21 [1.13 1.30]¹ RR: 0.79 [0.77 0.81]²</p> <p>Race/Ethnicity</p>

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				males.		<p><u>White</u> RR: Ref. RR: Ref.</p> <p><u>Black</u> RR: 0.95 [0.86 0.98]¹ RR: 0.98 [0.96 1.00]²</p> <p><u>Hispanic</u> RR: 0.95 [0.88 1.01]¹ RR: 0.89 [0.88 0.92]²</p> <p><u>Other</u> RR: 0.97 [0.86 1.10]¹ RR: 1.02 [0.98 1.07]²</p> <p>Marital status</p> <p><u>Married</u> RR: Ref. RR: Ref.</p> <p><u>Never married</u> RR: 0.97 [0.92 1.02]¹ RR: 0.82 [0.80 0.83]²</p> <p><u>Divorced/separated/widowed</u> RR: 1.15 [1.08 1.22]¹ RR: 1.08 [1.06 1.10]²</p> <p>Component type</p> <p><u>Active duty</u> RR: Ref. RR: Ref.</p> <p><u>Reserve/National Guard</u> RR: 0.90 [0.86 0.94]¹ RR: 0.74 [0.73 0.75]²</p> <p>Branch of service</p> <p><u>Army</u> RR: Ref. RR: Ref.</p> <p><u>Marine</u></p>
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						RR: 0.94 [0.85 1.05] ¹ RR: 0.95 [0.93 0.97] ² <u>Navy</u> RR: 0.45 [0.41 0.49] ¹ RR: 0.33 [0.32 0.34] ² <u>Air Force</u> RR: 0.45 [0.41 0.49] ¹ RR: 0.26 [0.25 0.27] ² Rank <u>Enlisted</u> RR: Ref. RR: Ref. <u>Officer</u> RR: 0.69 [0.63 0.77] ¹ RR: 0.51 [0.49 0.54] ² Number of deployments <u>One</u> RR: Ref. RR: Ref. <u>More than one</u> RR: 1.14 [1.09 1.19] ¹ RR: 1.15 [1.13 1.16] ²
33. Martindale, 2018 ⁵¹	<u>Name:</u> - <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> Between 6 and 9 years.	<u>n</u> = 19 <u>Country</u> = USA <u>%Female</u> = 16% <u>Age</u> = 39.0(9.4) years. <u>Type of job/company</u> = Military personnel deployed in Afghanistan or Iraq	<u>Exposure assessment:</u> Self-reported <u>Year of assessment:</u> 2007-2010 <u>Exposure categories:</u> Blast exposure, traumatic brain injury and re-deployment were assessed.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Via a structured interview, the Structured Clinical Interview for DSM-4 Axis I Disorders (SCID) <u>Incidence:</u> 6/19 and 5/19 had current PTSD at T1 and T2,	-	Only individual participant data were presented, showing associations between the exposures and PTSD.

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		<u>Inclusion/exclusion</u> = Participants with a history in traumatic brain injury or other neurological or mental disorders were excluded.		respectively.		
34. Nagamine, 2018 ⁵²	<u>Name</u> : - <u>Design</u> : Prospective longitudinal, with baseline measurements one month post-deployment. <u>Follow-up period</u> : 6 and 12 months post-deployment.	<u>n</u> = 56,753 <u>Country</u> = Japan <u>%Female</u> = 3% <u>Age</u> =- <u>Type of job/company</u> = Members of the ground defence force at 2011 Great East Japan Earthquake. <u>Inclusion/exclusion</u> = -	<u>Exposure assessment</u> : Self-reported <u>Year of assessment</u> : - <u>Exposure categories</u> : Information on personal attributes and mission duties.	<u>Type of symptoms</u> : PTSD symptoms (using a cut-off: >- 25) <u>Way of assessment</u> : Self-reported with the Impact of Event Scale-Revised (IES-R). <u>Incidence</u> : 2283/56753=4%	Multivariate model	Age OR: 1.39 [1.27 1.52] Sex <u>Male</u> OR: Ref. <u>Female</u> OR: 1.61 [1.29 2.00] Rank <u>Enlisted/private</u> OR: Ref. <u>Officer</u> OR: 0.77 [0.67 0.88] <u>Administrative official</u> OR: 1.24 [0.82 1.87] Deployment length <u>< 1 month</u> OR: Ref. <u>1–3 months</u> OR: 1.53 [1.37 1.70] <u>≥ 3 months</u> OR: 2.64 [2.33 2.99] Personally affected <u>No</u> OR: Ref. <u>Yes</u> OR: 2.19 [1.95 2.44]

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						<p>Body recovery duties <u>No</u> OR: Ref. <u>Yes</u> OR: 1.37 [1.25 1.51]</p> <p>Duties with radiation exposure risk <u>No</u> OR: Ref. <u>Yes</u> OR: 1.08 [0.97 1.20]</p> <p>Timing of post-deployment leave <u>Within two weeks</u> OR: Ref. <u>Over two weeks</u> OR: 1.34 [1.22 1.47] <u>No leave taken</u> OR: 1.50 [1.29 1.75]</p> <p>Post-deployment overwork <u>No</u> OR: Ref. <u>Yes: < 3 months</u> OR: 1.39 [1.26 1.53] <u>Yes: ≥ 3 months</u> OR: 2.02 [1.78 2.29]</p> <p>Post-deployment relocation <u>No</u> OR: Ref. <u>Yes</u> OR: 1.12 [0.98 1.28]</p>
35. Osorio, 2018 ⁵³	<u>Name:</u> Secondary analyses on the	<u>n</u> = 1,635	<u>Exposure assessment:</u> Self-reported	<u>Type of symptoms:</u> PTSD symptoms (re-	Nine different models:	Violent combat <u>No</u>

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	<p>Battlemind RCT.</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 4-6 months post deployment.</p>	<p><u>Country</u>= UK</p> <p><u>%Female</u>= 2%</p> <p><u>Age</u>= 39% was younger than 25 years.</p> <p><u>Type of job/company</u>= Members of three branches of the army forces, returning from deployment in Afghanistan.</p> <p><u>Inclusion/exclusion</u>= -</p>	<p><u>Year of assessment:</u> 2009</p> <p><u>Exposure categories:</u> Violent combat situations, proximity to wounding or death and encountering explosive devices.</p>	<p>experience is extracted for this review - in the paper also: avoidance, numbing, arousal and anxious is reported)</p> <p><u>Way of assessment:</u> Using the National Center for Posttraumatic Stress Disorders Checklist – Civilian Version (PCL-C). PTSD in general, but also avoiding, numbing and arousal behaviour were reported. For this review we only extracted PTSD.</p> <p><u>Incidence:</u> 34%</p>	<p>Model 1: Unadjusted</p> <p>Model 2: Adjusted</p> <p>Model 3: Adjusted for proximity to wounding or death.</p> <p>Model 4: Adjusted for encountering explosive devices.</p> <p>Model 5: adjusted for PTSD re-experiencing, avoidance, numbing, or arousal.</p> <p>Model 6: Adjusted for distress.</p> <p>Model 7: Adjusted for alcohol.</p> <p>Model 8: Ranks, deployment and gender.</p> <p>Model 9: Adjusted for violent combat, proximity to wounding or death, encountering explosive devices, PTSD re-experiencing, avoidance, numbing, arousal, distress, alcohol consumption, rank, gender, reserves, deployment.</p>	<p>RR: Ref.¹</p> <p>RR: Ref.²</p> <p>RR: Ref.³</p> <p>RR: Ref.⁴</p> <p>RR: Ref.⁵</p> <p>RR: Ref.⁶</p> <p>RR: Ref.⁷</p> <p>RR: Ref.⁸</p> <p>RR: Ref.⁹</p> <p><u>Yes</u></p> <p>RR: 2.43 [1.95 3.02]¹</p> <p>RR: —²</p> <p>RR: 1.56 [1.21 2.01]³</p> <p>RR: 2.04 [1.62 2.58]⁴</p> <p>RR: 1.81 [1.43 2.29]⁵</p> <p>RR: 2.63 [2.10 3.31]⁶</p> <p>RR: 2.32 [1.85 2.89]⁷</p> <p>RR: 2.36 [1.89 2.95]⁸</p> <p>RR: 1.35 [1.01 1.81]⁹</p> <p>Proximity to wounding or death</p> <p><u>No</u></p> <p>RR: Ref.¹</p> <p>RR: Ref.²</p> <p>RR: Ref.³</p> <p>RR: Ref.⁴</p> <p>RR: Ref.⁵</p> <p>RR: Ref.⁶</p> <p>RR: Ref.⁷</p> <p>RR: Ref.⁸</p> <p>RR: Ref.⁹</p> <p><u>Yes</u></p> <p>RR: 3.01 [2.42 3.74]¹</p> <p>RR: 2.42 [1.89 3.11]²</p> <p>RR: —³</p> <p>RR: 2.62 [2.08 3.31]⁴</p>
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						RR: 2.02 [1.59 2.56] ⁵ RR: 3.03 [2.42 3.80] ⁶ RR: 2.94 [2.36 3.67] ⁷ RR: 3.01 [2.41 3.75] ⁸ RR: 1.67 [1.25 2.23] ⁹ Encountering explosive devices <u>No</u> RR: Ref. ¹ RR: Ref. ² RR: Ref. ³ RR: Ref. ⁴ RR: Ref. ⁵ RR: Ref. ⁶ RR: Ref. ⁷ RR: Ref. ⁸ RR: Ref. ⁹ <u>Yes</u> RR: 2.14 [1.71 2.67] ¹ RR: 1.66 [1.30 2.10] ² RR: 1.54 [1.21 1.95] ³ RR: — ⁴ RR: 1.70 [1.33 2.16] ⁵ RR: 2.17 [1.72 2.73] ⁶ RR: 2.01 [1.60 2.52] ⁷ RR: 2.06 [1.65 2.59] ⁸ RR: 1.26 [0.95 1.66] ⁹
36. Pihl-Thingvad, 2019 ⁵⁴	<u>Name:</u> Everyday violence project <u>Design:</u> Prospective longitudinal <u>Follow-up period:</u> 12 months	<u>n</u> = 1,763 <u>Country</u> = Denmark <u>%Female</u> = 78% <u>Age</u> = 48.7 (9.4) years. <u>Type of job/company</u> =	<u>Exposure assessment:</u> Self-reported. <u>Year of assessment:</u> 2016-2017 <u>Exposure categories:</u> Patient-initiated violence.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Self-reported using the International Trauma Questionnaire, with ICD-11 criteria.	Crude model adjusting for age and gender (model 1), additionally adjusting for BMI, alcohol, years of experience, critical incidents outside of work, posttraumatic	Frequency of violence <u>No violence</u> OR: Ref. OR: Ref. OR: Ref. <u>Low frequency</u> OR: 4.4 [1.3 14.8] ¹ OR: 3.0 [0.90 10.4] ² OR: 4.0 [1.0 16.3] ³

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		<p>Social educators working with disabled adults.</p> <p><u>Inclusion/exclusion</u>= Participants in leadership position and with PTSD at baseline were excluded.</p>		<p><u>Incidence</u>: 3.5%</p>	<p>stress disorder symptom level at baseline, trauma coping self-efficacy, workplace social capital linking, and training (model 2). In model 3, additional for frequency and severity of violence was done.</p>	<p><u>Medium frequency</u> OR: 6.3 [1.8 22.9]¹ OR: 3.7 [1.0 13.8]² OR: 5.9 [1.4 24.2]³ <u>High frequency</u> OR: 10.2 [2.9 36.3]¹ OR: 4.2 [1.1 15.9]² OR: 6.5 [1.6 25.6]³ Severity of violence <u>No violence</u> OR: Ref. OR: Ref. OR: Ref. <u>Max. mild violence</u> OR: 2.3 [0.2 22.8]¹ OR: 2.3 [0.2 24.4]² OR: 3.8 [0.3 46.2]³ <u>Max. threats of violence</u> OR: 5.1 [1.5 17.5]¹ OR: 3.6 [1.0 12.4]² OR: 5.4 [1.2 24.2]³ <u>Max. moderate violence</u> OR: 4.1 [1.1 14.5]¹ OR: 2.1 [0.6 8.1]² OR: 2.6 [0.6 10.8]³ <u>Max. severe violence</u> OR: 13.7 [3.1 37.1]¹ OR: 5.3 [1.5 19.5]² OR: 6.5 [1.6 26.0]³</p>
<p>37. Polusny, 2011⁵⁵</p>	<p><u>Name</u>: Readiness and Resilience in National Guard Soldiers. <u>Design</u>: Prospective</p>	<p><u>n</u>= 426 <u>Country</u>= USA <u>%Female</u>= 12% <u>Age</u>= Mostly younger</p>	<p><u>Exposure assessment</u>: Self-reported <u>Year of assessment</u>: 2006 <u>Exposure categories</u>:</p>	<p><u>Type of symptoms</u>: Probable PTSD (new onset) <u>Way of assessment</u>: Self-reported using the PCL checklist, with</p>	<p>Adjusting for all other pre-deployment factors (model 1), additionally adjusting for deployment</p>	<p>Baseline PTSD symptoms <u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³ <u>Yes</u> OR: 0.73 [0.34 1.58]¹</p>

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	<p>longitudinal</p> <p><u>Follow-up period:</u> 2 months</p>	<p>than 30.</p> <p><u>Type of job/company=</u> National Guard soldiers</p> <p><u>Inclusion/exclusion=</u> Those with PTSD at baseline were excluded.</p>	<p>Psychosocial risk, protective factors and deployment exposures.</p>	<p>DSM-4 criteria.</p> <p><u>Incidence:</u> 14%</p>	<p>exposures (model 2) and additionally adjusting for post-deployment factors (model 3).</p>	<p>OR: 0.79 [0.34 1.85]² OR: 0.69 [0.27 1.79]³</p> <p>Military preparedness</p> <p><u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³</p> <p><u>Yes</u> OR: 0.58 [0.39 0.87]¹ OR: 0.62 [0.40 0.95]² OR: 0.77 [0.48 1.25]³</p> <p>Concerns about life/family disruptions</p> <p><u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³</p> <p><u>Yes</u> OR: 1.38 [0.97 1.97]¹ OR: 1.31 [0.88 1.95]² OR: 1.12 [0.71 1.77]³</p> <p>Unit support</p> <p><u>No</u> OR: Ref.¹ OR: Ref.² OR: Ref.³</p> <p><u>Yes</u> OR: 1.43 [0.95 2.15]¹ OR: 1.15 [0.73 1.79]² OR: 1.15 [0.70 1.89]³</p> <p>Combat experiences</p> <p><u>No</u> OR: Ref.²</p>
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						OR: Ref. ³ <u>Yes</u> OR: 2.19 [1.40 3.41] ² OR: 2.35 [1.41 3.92] ³ Exposure to aftermath of battle <u>No</u> OR: Ref. ² OR: Ref. ³ <u>Yes</u> OR: 1.62 [1.04 2.53] ² OR: 1.81 [1.08 3.06] ³ Perceived life threat <u>No</u> OR: Ref. ² OR: Ref. ³ <u>Yes</u> OR: 1.21 [0.81 1.81] ² OR: 1.01 [0.63 1.64] ³ Post-deployment social support <u>No</u> OR: Ref. ³ <u>Yes</u> OR: 0.31 [0.19 0.50] ³ Post-deployment life stressors <u>No</u> OR: Ref. ³ <u>Yes</u> OR: 1.96 [1.17 3.28] ³
38. Reijnen, 2015 ⁵⁶	<u>Name:</u> -	n= 994	<u>Exposure assessment:</u> Self-reported	<u>Type of symptoms:</u> PTSD symptoms	-	Deployment <u>Pre-deployment</u>

	<p><u>Design:</u> Prospective longitudinal with baseline measurements 1 month prior to deployment</p> <p><u>Follow-up period:</u> 2 years post deployment.</p>	<p><u>Country=</u> Netherlands</p> <p><u>%Female=</u> 9%</p> <p><u>Age=</u> 28.5 (9.0)</p> <p><u>Type of job/company=</u> Dutch military personnel who were deployed to Afghanistan</p> <p><u>Inclusion/exclusion=-</u></p>	<p><u>Year of assessment:</u> 2005-2008</p> <p><u>Exposure categories:</u> Different categories of time since deployment (compared to pre-deployment)</p>	<p><u>Way of assessment:</u> Self-reported with the Dutch Self-Rating Inventory for PTSD, using DSM-4 cut-off values</p> <p><u>Incidence:</u> 8.9%</p>		<p>OR: Ref</p> <p><u>1 month post-deployment</u> OR: 2.12 [1.4 3.3]</p> <p><u>6 months post-deployment</u> OR: 2.18 [1.4 3.4]</p> <p><u>1 year post-deployment</u> OR: 1.62 [1.0 2.6]</p> <p><u>2 years post-deployment</u> OR: 1.33 [2.8 5.8]</p>
39. Shea, 2013 57	<p><u>Name:</u> -</p> <p><u>Design:</u> Prospective longitudinal</p> <p><u>Follow-up period:</u> 6 months post deployment.</p>	<p><u>n=</u> 238</p> <p><u>Country=</u> USA</p> <p><u>%Female=</u> 8%</p> <p><u>Age=</u> 33.5 (9.5) years.</p> <p><u>Type of job/company=</u> Members of the National Guard units recently returned from deployment to Iraq and Afghanistan.</p> <p><u>Inclusion/exclusion=</u> -</p>	<p><u>Exposure assessment:</u> Self-reported</p> <p><u>Year of assessment:</u> 2006-2009</p> <p><u>Exposure categories:</u> Personal characteristics, pre-deployment and deployment characteristics.</p>	<p><u>Type of symptoms:</u> PTSD</p> <p><u>Way of assessment:</u> Diagnosed during a CAPS structured interview.</p> <p><u>Incidence:</u> 13%</p>	<p>Adjusting for demographics (model 1), additionally adjusting for pre-deployment characteristics (model 2), additionally adjusting for deployment-related variables (model 3), and additionally adjusting for post-deployment characteristics (model 4).</p>	<p>It is unclear what the reference group is for the below associations</p> <p>Gender OR: 1.03 [0.12 8.89]¹ OR: 0.46 [0.04 5.14]² OR: 0.94 [0.03 28.56]³ OR: 1.12 [0.03 38.70]⁴</p> <p>Ethnicity OR: 0.33 [0.04 2.64]¹ OR: 0.17 [0.02 1.61]² OR: 0.08 [0.00 1.45]³ OR: 0.07 [0.00 1.18]⁴</p> <p>Age OR: 1.09 [0.69 1.72]¹ OR: 1.01 [0.60 1.72]² OR: 0.7 [0.34 1.41]³ OR: 1.12 [0.31 1.45]⁴</p> <p>Negative temperament OR: 2.95 [1.66 5.23]² OR: 2.23 [1.18 4.22]³</p>

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						<p>OR: 1.46 [0.69 3.09]⁴</p> <p>Pre-deployment life events OR: 1.92 [1.19 3.10]² OR: 1.78 [1.00 3.19]³ OR: 1.1 [0.56 2.18]⁴</p> <p>Preparation and training OR: 0.89 [0.52 1.55]² OR: 1.41 [0.68 2.91]³ OR: 1.99 [0.83 4.62]⁴</p> <p>Life and family concerns OR: 2.77 [1.34 5.75]³ OR: 2.77 [1.28 6.01]⁴</p> <p>Deployment environment OR: 1.44 [0.68 3.05]³ OR: 1.31 [0.58 2.99]⁴</p> <p>Unit support OR: 1.03 [0.56 1.90]³ OR: 1.15 [0.58 2.30]⁴</p> <p>Combat exposure OR: 1.88 [1.01 3.50]³ OR: 2.00 [1.01 3.97]⁴</p> <p>Post-deployment support OR: 0.36 [0.15 0.87]⁴</p> <p>Post-deployment life events OR: 1.82 [0.98 3.39]⁴</p>
40. Soo, 2011 ⁵⁸	<u>Name:</u> FDNY-WTC-MMP <u>Design:</u>	<u>n=</u> 11,006 <u>Country=</u> USA	<u>Exposure assessment:</u> Demographics and work status and number of colleagues who died	<u>Type of symptoms:</u> Probable PTSD <u>Way of assessment:</u>	Univariate (model 1 & 3) and adjusted for all other exposures (model 2	Arrival group <u>Group 3 and 4</u> HR: Ref ¹ HR: Ref ²

	<p>Prospective longitudinal</p> <p><u>Follow-up period:</u> 9 years, with follow-up measurements every 18 months.</p>	<p><u>%Female</u>= 0%</p> <p><u>Age</u>= 39.5 (7.4) years</p> <p><u>Type of job/company</u>= New York firefighters involved in the 9/11 WTC attacks.</p> <p><u>Inclusion/exclusion</u>= Firefighters who arrived at the site more than 14 days before the close of the WTC site were included. Women were excluded.</p>	<p>were obtained from databases. Other variables were self-reported.</p> <p><u>Year of assessment:</u> 2002</p> <p><u>Exposure categories:</u> Exposure to the WTC sites</p>	<p>Self-reported using the PCL-C checklist.</p> <p><u>Incidence:</u> 8% (after the first follow-up).</p>	<p>& 4), for those with PTSD at baseline (model 1 & 2) and without (model 3 & 4).</p>	<p>HR: Ref³ HR: Ref⁴</p> <p><u>Group 1</u> HR: 0.76 [0.58-1.00]¹ HR: 0.74 [0.56-0.99]² HR: 2.21 [1.80-2.70]³ HR: 1.38 [1.12-1.70]⁴</p> <p><u>Group 2</u> HR: 0.97 [0.75-1.25]¹ HR: 0.85 [0.66-1.11]² HR: 1.16 [0.98-1.39]³ HR: 0.90 [0.75-1.08]⁴</p> <p>≥1 death at firehouse on 9/11</p> <p><u>No</u> HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴</p> <p><u>Yes</u> HR: 0.84 [0.71-1.00]¹ HR: 0.87 [0.73-1.04]² HR: 1.31 [1.12-1.54]³ HR: 1.11 [0.95-1.31]⁴</p> <p>Received counselling during year 1</p> <p><u>No</u> HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴</p> <p><u>Yes</u> HR: 0.89 [0.76-1.04]¹ HR: 0.98 [0.83-1.15]² HR: 2.02 [1.74-2.35]³</p>
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						<p>HR: 1.59 [1.36-1.85]⁴</p> <p>Each concurrent aerodigestive symptom</p> <p><u>No</u></p> <p>HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴</p> <p><u>Yes</u></p> <p>HR: 0.87 [0.84-0.90]¹ HR: 0.89 [0.86-0.93]² HR: 1.62 [1.56-1.67]³ HR: 1.45 [1.40-1.51]⁴</p> <p>Concurrent alcohol intake</p> <p><u>No increase since 9/11</u></p> <p><u>Increased since 9/11</u></p> <p>HR: 0.77 [0.53-1.12]¹ HR: 0.83 [0.56-1.22]² HR: 5.85 [4.56-7.52]³ HR: 3.43 [2.67-4.43]⁴</p> <p><u>Increased since 9/11, now back to pre-9/11 levels</u></p> <p>HR: 0.95 [0.76-1.18]¹ HR: 1.01 [0.81-1.27]² HR: 2.95 [2.46-3.55]³ HR: 2.06 [1.71-2.47]⁴</p> <p>Concurrent exercise</p> <p><u>No change since last questionnaire</u></p> <p><u>Decreased since last questionnaire</u></p> <p>HR: 0.74 [0.62-0.88]¹ HR: 0.76 [0.63-0.92]² HR: 2.65 [2.27-3.09]³</p>
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						<p>HR: 1.69 [1.44-1.97]⁴ <u>Decreased since last questionnaire for health reasons</u> HR: 0.38 [0.28-0.52]¹ HR: 0.56 [0.41-0.78]² HR: 4.20 [3.53-4.99]³ HR: 3.19 [2.64-3.86]⁴ <u>Increased since last questionnaire</u> HR: 0.95 [0.77-1.18]¹ HR: 0.92 [0.74-1.14]² HR: 1.13 [0.91-1.41]³ HR: 0.92 [0.74-1.14]⁴</p> <p>Concurrent smoking status <u>Never</u> <u>Current</u> HR: 1.03 [0.81-1.32]¹ HR: 1.04 [0.81-1.33]² HR: 1.13 [0.90-1.42]³ HR: 1.07 [0.85-1.35]⁴ <u>Former</u> HR: 0.91 [0.76-1.08]¹ HR: 0.95 [0.79-1.15]² HR: 1.24 [1.07-1.43]³ HR: 1.23 [1.06-1.42]⁴</p> <p>Experience with prior disaster <u>No</u> HR: Ref.¹ HR: Ref.² HR: Ref.³ HR: Ref.⁴ <u>Yes</u> HR: 0.82 [0.69-0.96]¹</p>
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						HR: 0.86 [0.73-1.02] ² HR: 1.29 [1.13-1.48] ³ HR: 1.11 [0.96-1.27] ⁴ Non-white race/ethnicity <u>No</u> HR: Ref. ¹ HR: Ref. ² HR: Ref. ³ HR: Ref. ⁴ <u>Yes</u> HR: 0.98 [0.70-1.36] ¹ HR: 1.05 [0.75-1.46] ² HR: 1.20 [0.94-1.54] ³ HR: 1.37 [1.07-1.75] ⁴ Age on 9/11 HR: 1.02 [1.01-1.04] ² HR: 1.00 [0.99-1.01] ⁴
41. Stevelink, 2018 ⁵⁹	<u>Name:</u> HERRICK cohort <u>Design:</u> Retrospective longitudinal <u>Follow-up period:</u> -	<u>n</u> =8,093 <u>Country</u> = UK <u>%Female</u> = 13% and 8% for those who were deployed and not <u>Age</u> = 40.0 (13.0) and 40.2 (9.4) for those who were not and were deployed, respectively. <u>Type of job/company</u> = Military personnel that were and were not deployed in Iraq.	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2014-2016 <u>Exposure categories:</u> Deployment and service status.	<u>Type of symptoms:</u> Probable PTSD <u>Way of assessment:</u> Self-reported with the PCL-C checklist. <u>Incidence:</u> 5.2% and 6.9% for those who were not deployed and deployed, respectively.	Unadjusted (model 1) and adjusted for age, gender, marital status, education, service and rank (model 2).	Deployment <u>Regulars</u> <u>Not deployed</u> OR: Ref ¹ OR: Ref ² <u>Deployed</u> OR: 1.34 [1.00 1.78] ¹ OR: 1.41 [1.04 1.90] ² <u>Reservists</u> <u>Not deployed</u> OR: Ref ¹ OR: Ref ² <u>Deployed</u> OR: 2.25 [1.14 4.46] ¹ OR: 2.48 [1.20 5.16] ² Serving status

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		<u>Inclusion/exclusion</u> = -				<u>Not serving</u> OR: Ref ¹ OR: Ref ² <u>Serving</u> OR: 1.60 [1.25 2.06] ¹ OR: 1.73 [1.25 2.40] ² Role during last deployment <u>Serving regulars</u> <u>No combat</u> OR: Ref ¹ OR: Ref ² <u>Combat</u> OR: 1.70 [1.08 2.67] ¹ OR: 1.58 [0.98 2.55] ² <u>Ex-serving regulars</u> <u>No combat</u> OR: Ref ¹ OR: Ref ² <u>Combat</u> OR: 3.39 [2.25 5.11] ¹ OR: 2.53 [1.60 3.99] ²
42. Wittchen, 2012 ⁶⁰	<u>Name:</u> PIT-PTSD+ study <u>Design:</u> Retrospective longitudinal <u>Follow-up period:</u> On average 12 months post-deployment.	<u>n</u> = 1,483 <u>Country</u> = Germany <u>%Female</u> = - <u>Age</u> = - <u>Type of job/company</u> = Soldiers deployed in Afghanistan, and those who have not been deployed.	<u>Exposure assessment:</u> Deployment administration <u>Year of assessment:</u> 2010 <u>Exposure categories:</u> Deployment characteristics.	<u>Type of symptoms:</u> PTSD <u>Way of assessment:</u> Diagnosed with a structured interview using DSM-4 criteria. <u>Incidence:</u> 12 month incidence: 2.1% and 0.2% in the deployed and non-deployed group ,respectively.	Unadjusted	Population <u>Control group</u> OR: Ref. (12 month diagnosis) OR: Ref. (12 month incidence) OR: Ref. (lifetime prevalence) <u>Deployed soldiers</u> OR: 2.5 [1.1 5.6] (12 month diagnosis) OR: 4.2 [0.7 24.5] (12 month incidence) OR: 1.7 [0.96 3.1] (lifetime prevalence) Deployed soldiers

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		<u>Inclusion/exclusion</u> = -				<u>Control soldiers</u> OR: Ref. (12 month diagnosis) OR: Ref. (12 month incidence) OR: Ref. (lifetime prevalence) <u>Kunduz</u> OR: 2.1 [0.8 5.8] (12 month diagnosis) OR: 6.6 [1.03 41.9] (12 month incidence) OR: 1.7 [0.8 3.6] (lifetime prevalence) <u>Combat units</u> OR: 3.3 [0.5 23.7] (12 month diagnosis) OR: - (12 month incidence) OR: 2.6 [0.7 9.4] (lifetime prevalence)
OR = Odds ratio RR = Relative risk HR = Hazard ratio						

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Supplementary file 4. Risk of bias of included articles. The risk of bias (i.e. low, moderate and high risk of bias) in six domains (i.e. study participation, study attrition, prognostic factor (i.e. exposure), outcome, study confounding and statistical analysis) is depicted, while also sum scores are shown.

First author, year of publication	Participation	Attrition	Prognostic factor	Outcome	Confounding	Analysis/reporting
1 Armed Forces Health Surveillance Center, 2011	Moderate	Moderate	Moderate	Low	High	High
2 Andersen, 2019	Moderate	Moderate	Moderate	Moderate	Low	Low
3 Anderson, 2019	Low	Moderate	Moderate	Moderate	Low	Low
4 Berninger, 2010	High	High	Low	Moderate	Low	Low
5 Brownlow, 2018	Moderate	Moderate	Moderate	Moderate	High	Low
6 Brundage, 2015	Low	Low	Low	Low	High	High
7 Cameron, 2019	Low	Low	Low	Low	Low	Low
8 Chiu, 2011	Low	Moderate	Moderate	Moderate	Low	Low
9 Ciarleglio, 2018	Low	Moderate	Moderate	Low	Low	Low
10 Cone, 2015	High	High	Moderate	Moderate	Low	Low
11 Connorton, 2011	Moderate	Moderate	High	High	Moderate	Low
12 Cukor, 2011	Low	Moderate	Moderate	Moderate	Low	Low
13 Fear, 2010	High	High	Low	Moderate	Low	Low
14 Ferrajao, 2016	High	High	Moderate	Moderate	High	Low
15 Fichera, 2015	High	High	Moderate	Moderate	Low	Low
16 Fink, 2016	High	High	Moderate	Moderate	High	Low
17 Goodwin, 2012	Low	Low	Moderate	Moderate	Low	Low
18 Green, 2016	Moderate	Moderate	Moderate	Low	High	Low
19 Hansen, 2017	High	Moderate	Moderate	Moderate	Low	Low
20 Harvey, 2012	High	Moderate	Low	Moderate	Low	Low
21 Horesh, 2011	Moderate	Moderate	Moderate	Moderate	High	Moderate
22 Hourani, 2012	Moderate	High	Moderate	Moderate	High	High
23 Ikeda, 2017	Moderate	Moderate	Moderate	Moderate	Low	Low
24 Joseph, 2014	Moderate	Moderate	Moderate	Moderate	Low	Low
25 Karstoft, 2013	Moderate	Low	Moderate	Moderate	High	Low
26 Karstoft, 2015	Moderate	Low	Moderate	Moderate	High	Low
27 Kim, 2014	Low	Low	Moderate	Low	Low	Low
28 Levin-Rector, 2018	Low	Low	Low	Low	Moderate	Low
29 MacGregor, 2015	Moderate	Moderate	Low	Low	Low	Low
30 MacGregor, 2012	Low	Low	Low	Low	Low	Low
31 Maguen, 2012	Moderate	Moderate	Moderate	Moderate	Low	Low
32 Maguen, 2010	Moderate	Moderate	Low	Low	High	Low
33 Martindale, 2018	High	Moderate	Moderate	Low	High	High
34 Nagamine, 2018	Moderate	Moderate	Moderate	Moderate	High	Low
35 Osorio, 2018	High	High	Moderate	Moderate	Low	Low
36 Pihl-Thingvad, 2019	Low	Low	Moderate	Moderate	Low	Low
37 Polusny, 2011	Moderate	Moderate	Moderate	Moderate	Low	Low
38 Reijnen, 2015	High	High	Moderate	Moderate	High	Low
39 Shea, 2013	Moderate	Moderate	Moderate	Low	Low	Low
40 Soo, 2011	Moderate	Moderate	Moderate	Moderate	Low	Low
41 Stevelink, 2018	High	High	Moderate	Moderate	Low	Low
42 Wittchen, 2012	Moderate	Moderate	Moderate	Low	High	Low

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Supplementary file 5. Risk of bias of included studies.

First author, Year;	Item	Risk of bias	Reason
1. Armed Forces Health Surveillance Center, 2011 ²¹	Participation	Moderate	All armed forces were eligible, but no non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	Moderate	Although prognostic factors were self-reported, no substantial bias can be expected from self-reports of the current prognostic factors
	Outcome	Low	Outcomes were diagnosed in a hospital
	Confounding	High	No confounding analysis has been conducted
	Analysis/reporting	High	No proper analysis has been conducted, only descriptives were presented.
2. Andersen, 2019 ¹⁹	Participation	Moderate	No non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
3. Anderson, 2019 ²⁰	Participation	Low	86% of eligible participants, participated at baseline.
	Attrition	Moderate	60% of the participants were filled out their follow-up questionnaires
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
4. Berninger, 2010 ²²	Participation	High	There were differences (e.g. in PTSD status) between participants and non-participants
	Attrition	High	Participants without follow-up data were excluded. The above therefore also holds for those lost at follow-up
	Prognostic factor	Low	Prognostic factors were self-reported and from registers
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
5. Brownlow, 2018 ²³	Participation	Moderate	No non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	High	Only univariate analyses were reported

	Analysis/reporting	Low	Adequate analyses were used
6. Brundage, 2015 ²⁴	Participation	Low	It appears as if all eligible participants were analysed.
	Attrition	Low	It appears as if all eligible participants were analysed.
	Prognostic factor	Low	Deployment records were used
	Outcome	Low	Outcomes were diagnosed (it appears).
	Confounding	High	No confounding adjustment were done
	Analysis/reporting	High	Only descriptive statistics were provided
7. Cameron, 2019 ²⁵	Participation	Low	It appears as if all eligible participants were analysed.
	Attrition	Low	It appears as if all eligible participants were analysed.
	Prognostic factor	Low	Deployment records were used
	Outcome	Low	Outcomes were diagnosed
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
8. Chiu, 2011 ²⁶	Participation	Low	There were some differences between responders and non-responders.
	Attrition	Moderate	Since data were gathered retrospective, participation and attrition are similar.
	Prognostic factor	Moderate	Both self-reports and employer data were used
	Outcome	Moderate	Outcomes were self-reported using a validated questionnaire
	Confounding	Low	Confounding adjustment was performed.
	Analysis/reporting	Low	Adequate analyses were used
9. Ciarleglio, 2018 ²⁷	Participation	Low	11% non-response
	Attrition	Moderate	Since data were gathered retrospective, participation and attrition are similar.
	Prognostic factor	Moderate	Both self-reports and employer data were used
	Outcome	Low	Outcome was diagnosed
	Confounding	Low	Multivariate analyses were done with all available exposures
	Analysis/reporting	Low	Adequate analyses were used
10. Cone, 2015 ²⁸	Participation	High	There are substantial differences between responders and non-responders.
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
11. Connorton, 2011 ²⁹	Participation	Moderate	No non-participant analysis has been presented by the authors.
	Attrition	Moderate	No loss to follow-up analyses were presented by the authors.
	Prognostic factor	High	Prognostic factors were self-reported and it is unclear how
	Outcome	High	Outcomes were self-reported and it is unclear how

	Confounding	Moderate	Multivariate analyses are not reported and it is unclear what was done
	Analysis/reporting	Low	Adequate analyses were done.
12. Cukor, 2011 ³⁰	Participation	Low	There was 86% participation
	Attrition	Moderate	There was 67% participation at follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported.
	Outcome	Moderate	Outcomes were self-reported and obtained from interviews, with interview data used for exposure-outcome associations.
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
13. Fear, 2010 ³¹	Participation	High	There are substantial differences between responders and non-responders.
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Low	Deployment administrative data were used
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
14. Ferrajao, 2016 ³²	Participation	High	Unclear but probably low participation rate
	Attrition	High	Since data were gathered retrospective, participation and attrition are similar.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	High	No adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
15. Fichera, 2015 ³³	Participation	High	There was substantial non-response
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
16. Fink, 2016 ³⁴	Participation	High	There was substantial non-response
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	High	No adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
17. Goodwin, 2012 ³⁵	Participation	Low	There were no substantial differences between responders and non-responders.
	Attrition	Low	There were no substantial differences between responders and non-responders (including

			those lost to follow-up).
	Prognostic factor	Moderate	Prognostic factors were self-reported.
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
18. Green, 2016 ³⁶	Participation	Moderate	There was a substantial non-response (20%)
	Attrition	Moderate	There was a substantial loss to follow-up (39%)
	Prognostic factor	Moderate	Prognostic factors were self-reported.
	Outcome	Low	Outcome was diagnosed in an interview
	Confounding	High	No confounding adjustment was conducted
	Analysis/reporting	Low	Appropriate analyses were used.
19. Hansen, 2017 ³⁷	Participation	High	There was a substantial amount of non-responders and no non-responder analysis.
	Attrition	Moderate	There was a substantial amount of participants lost to follow-up and no loss to follow-up analysis.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Confounding was properly adjusted for
20. Harvey, 2012 ³⁸	Analysis/reporting	Low	Appropriate analyses were used.
	Participation	High	There were substantial differences (e.g. in age and gender) between responders and non-responders.
	Attrition	Moderate	No loss to follow-up analysis were reported
	Prognostic factor	Low	Prospective factors were determined based on deployment characteristics
	Outcome	Moderate	Outcome was self-reported
21. Horesh, 2011 ³⁹	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
	Participation	Moderate	No non-responder analysis was performed
	Attrition	Moderate	No loss to follow-up analysis was performed
	Prognostic factor	Moderate	Prognostic factors were self-reported
22. Hourani, 2012 ⁴⁰	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No confounding analyses were conducted
	Analysis/reporting	Moderate	The description of the analysis is unclear
	Participation	Moderate	No non-responder analysis was performed
22. Hourani, 2012 ⁴⁰	Attrition	High	There was substantial loss to follow-up in this study
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Analysis/reporting	Moderate	The description of the analysis is unclear

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	Confounding	High	No confounding analyses were conducted (at least, not for the exposure-outcome associations)
	Analysis/reporting	High	Only descriptive statistics were reported (at least, for the exposure-outcome associations)
23. Ikeda, 2017 ⁴¹	Participation	Moderate	About 15% non-response.
	Attrition	Moderate	There was substantial loss to follow-up with differences between those who were and were not lost.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
	Analysis/reporting	Low	Appropriate analyses were used.
24. Joseph, 2014 ⁴²	Participation	Moderate	There was a substantial non-response
	Attrition	Moderate	There was a substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding was properly adjusted for
25. Karstoft, 2013 ⁴³	Analysis/reporting	Low	Appropriate analyses were used.
	Participation	Moderate	No non-responder analyses were presented
	Attrition	Low	Loss to follow-up analyses indicated no substantial differences between those who remained in the cohort or not.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No adjustment for confounding were performed
26. Karstoft, 2015 ⁴⁴	Analysis/reporting	Low	Adequate statistical analyses were conducted
	Participation	Moderate	No non-responder analyses were presented
	Attrition	Low	Loss to follow-up analyses indicated no substantial differences between those who remained in the cohort or not.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No adjustment for confounding were performed
27. Kim, 2014 ⁴⁵	Analysis/reporting	Low	Adequate statistical analyses were conducted
	Participation	Low	Very high >99% participation rate
	Attrition	Low	Very high >99% participation rate in follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Low	Outcome was diagnosed during an interview
	Confounding	Low	Adjustment for confounding was performed

	Analysis/reporting	Low	Adequate analyses were conducted
28. Levin-Rector, 2018 ⁴⁶	Participation	Low	Responders comprised >90% of the eligible population
	Attrition	Low	Participants during follow-up comprised >90% of the cohort
	Prognostic factor	Low	Prognostic factors were obtained from database information
	Outcome	Low	Outcomes were obtained from diagnosed register information
	Confounding	Moderate	Only adjustment for clustering within units was done
	Analysis/reporting	Low	Adequate statistical analyses were conducted
29. MacGregor, 2015 ⁴⁷	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Low	Prognostic factors were obtained from register data
	Outcome	Low	Outcomes were obtained from register data and were diagnosed.
	Confounding	Low	Adjustment for confounding has been conducted
	Analysis/reporting	Low	Adequate statistical analyses were used.
30. MacGregor, 2012 ⁴⁸	Participation	Low	All eligible participants were analysed.
	Attrition	Low	All eligible participants were analysed.
	Prognostic factor	Low	Register data were used
	Outcome	Low	Diagnosed register data were used
	Confounding	Low	Adjustment for confounding has been conducted
	Analysis/reporting	Low	Adequate statistical analyses were used.
31. Maguen, 2012 ⁴⁹	Participation	Moderate	No non-responder analyses were presented
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Adjustment for confounding was done
	Analysis/reporting	Low	Adequate analyses were used
32. Maguen, 2010 ⁵⁰	Participation	Moderate	No non-responder analyses were presented
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Low	Prognostic factors were obtained from company data.
	Outcome	Low	Outcome was diagnosed
	Confounding	High	No adjustment for confounding was done
	Analysis/reporting	Low	Adequate analyses were used
33. Martindale, 2018 ⁵¹	Participation	High	No non-responder analyses were presented, with substantial non-response.
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Moderate	Prognostic factors were obtained from an interview
	Outcome	Low	Outcome was diagnosed during an interview

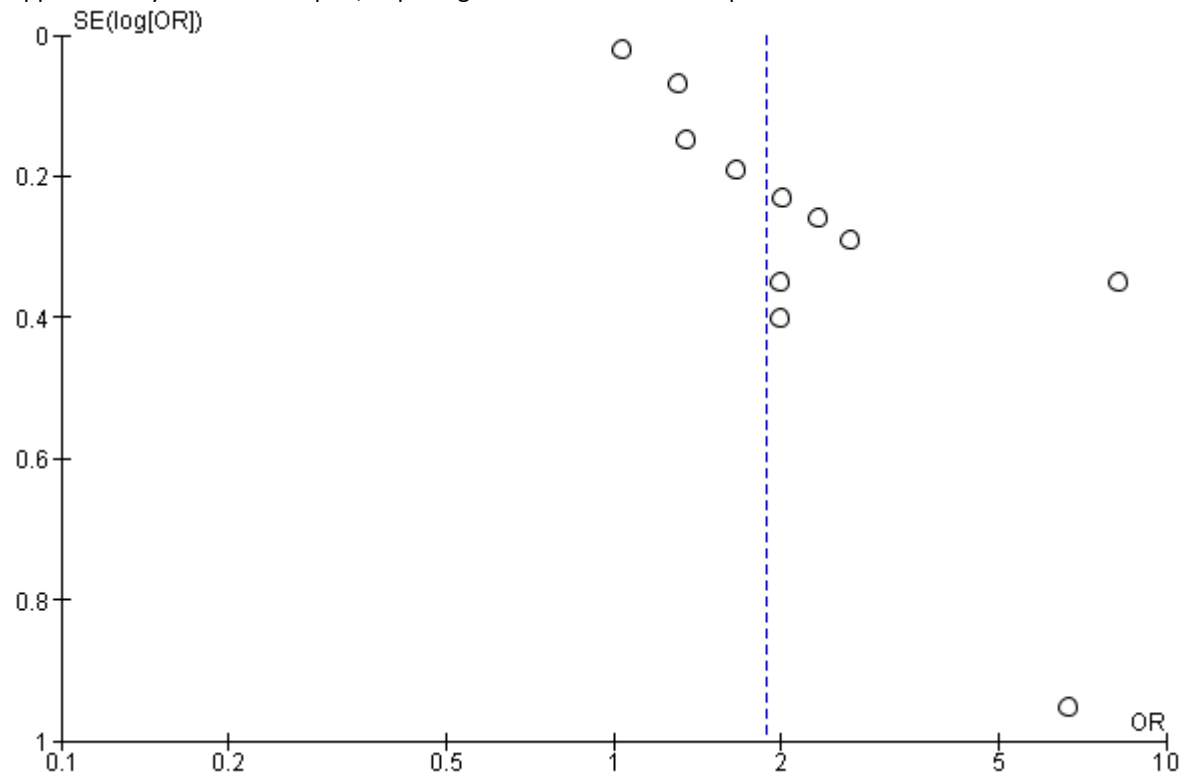
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	Confounding	High	No adjustment for confounding was done
	Analysis/reporting	High	No statistical analysis was done on the exposure-outcome association (only other analysis).
34. Nagamine, 2018 ⁵²	Participation	Moderate	No non-responder analyses were presented
	Attrition	Moderate	No loss to follow-up analyses were presented
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No adjustment for confounding was done
	Analysis/reporting	Low	Adequate analyses were used
35. Osorio, 2018 ⁵³	Participation	High	A substantial amount of eligible participants did not participate. No non responder analysis was conducted.
	Attrition	High	A substantial amount of participants were lost in the follow-up. No loss to follow-up analysis was conducted.
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
36. Pihl-Thingvad, 2019 ⁵⁴	Participation	Low	Responders and non-responders did not differ substantially from one another (only in age)
	Attrition	Low	Variables that predicted loss to follow-up (e.g. baseline PTSD) were adjusted for
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
37. Polusny, 2011 ⁵⁵	Participation	Moderate	There were slight differences between responders and non-responders
	Attrition	Moderate	There were slight differences between those with and without follow-up data
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
38. Reijnen, 2015 ⁵⁶	Participation	High	There were substantial differences (e.g. in mental health) between responders and non-responders.
	Attrition	High	Participants without follow-up data were excluded. The above therefore also holds for those lost at follow-up
	Prognostic factor	Moderate	Prospective factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	High	No confounding adjustment was conducted

	Analysis/reporting	Low	Appropriate analyses were used.
39. Shea, 2013 ⁵⁷	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Low	Outcome was diagnosed during a structured interview.
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
40. Soo, 2011 ⁵⁸	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcome was self-reported
	Confounding	Low	Confounding analyses were conducted
	Analysis/reporting	Low	Adequate statistical analyses were performed.
41. Stevelink, 2018 ⁵⁹	Participation	High	There was substantial non-response
	Attrition	High	There was substantial loss to follow-up
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Moderate	Outcomes were self-reported
	Confounding	Low	Adjustment for confounding was performed.
	Analysis/reporting	Low	Adequate analyses were conducted
42. Wittchen, 2012 ⁶⁰	Participation	Moderate	It is unclear what the non-response in this study was
	Attrition	Moderate	It is unclear what the loss to follow-up in this study was
	Prognostic factor	Moderate	Prognostic factors were self-reported
	Outcome	Low	Outcomes was diagnosed during a structured interview
	Confounding	High	No adjustment for confounding was performed
	Analysis/reporting	Low	Adequate analyses were conducted

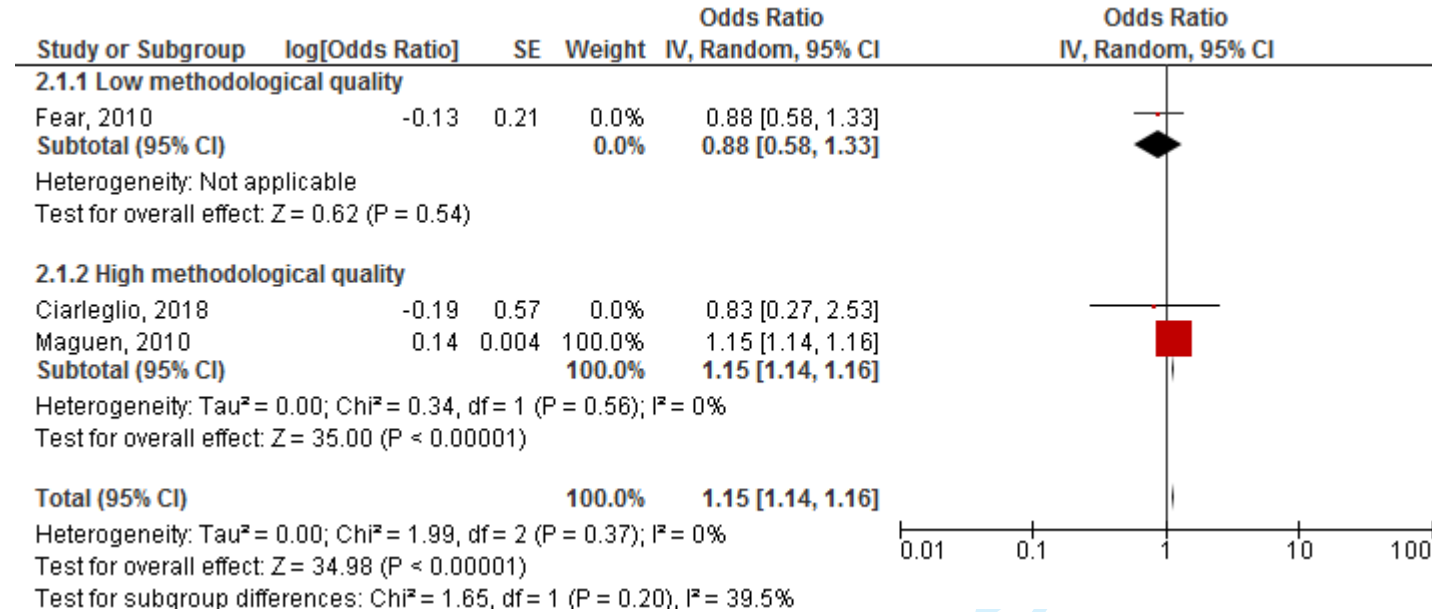
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Supplementary file 6. Funnel plot, depicting the effect of combat exposure on PTSD.



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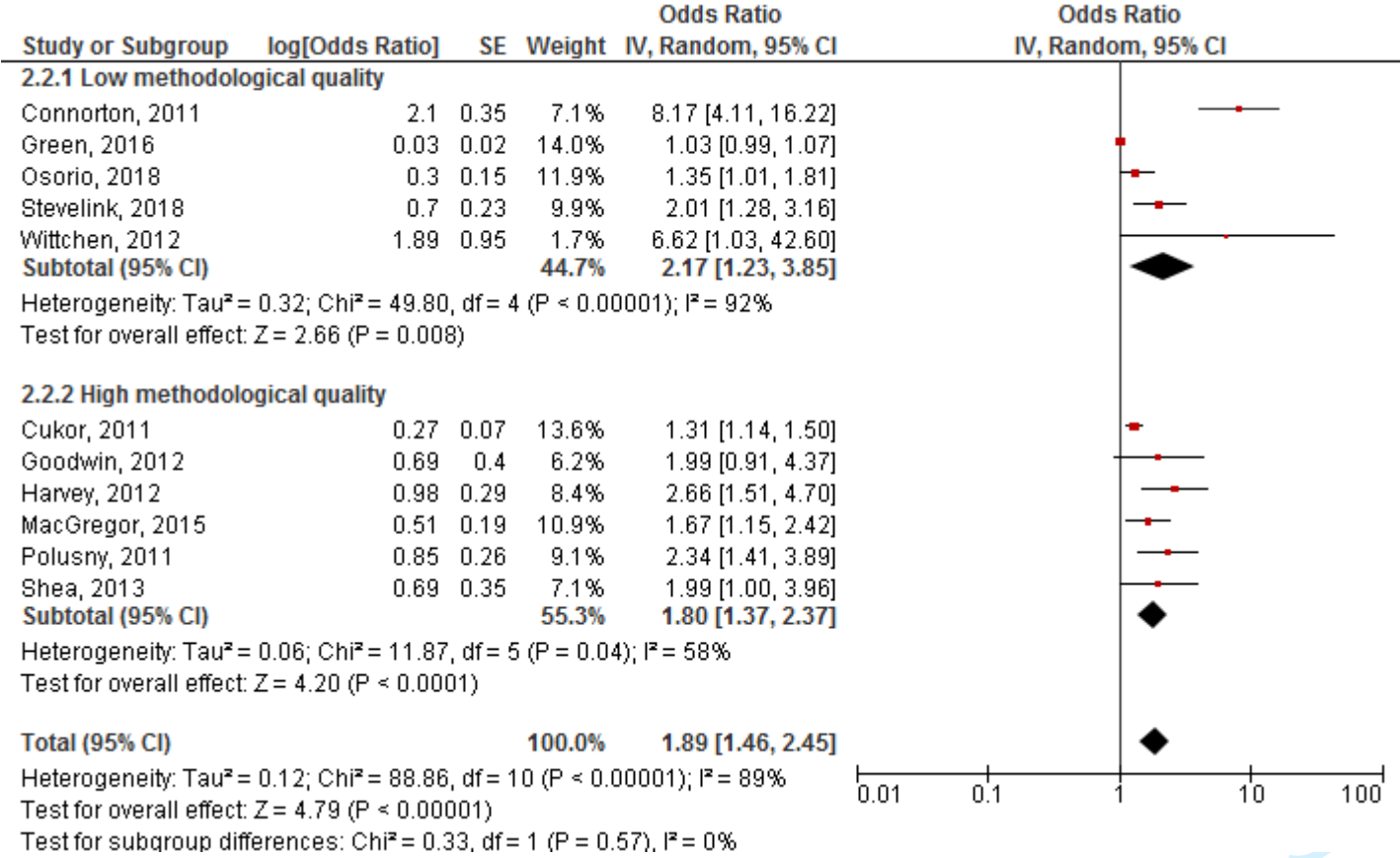
Supplementary file 7. Forest plot depicting the effect of number of army deployments (one versus multiple) with PTSD, stratified for risk of bias.



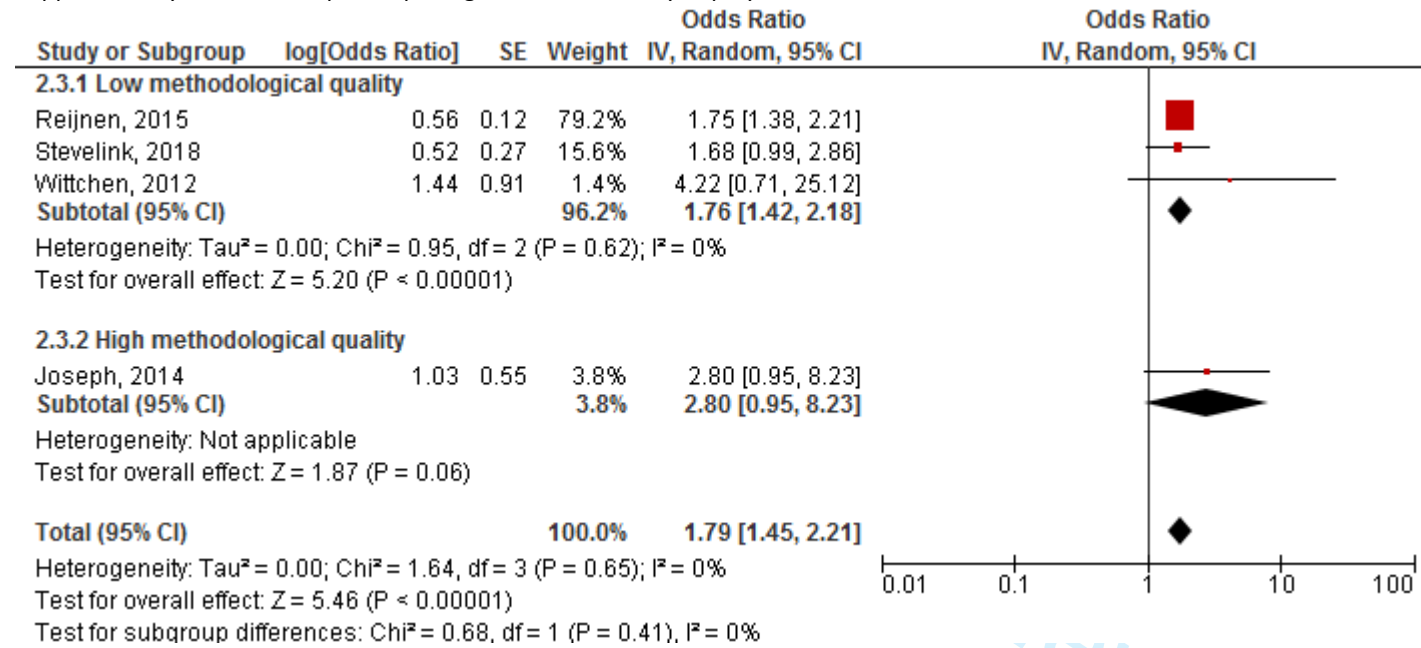
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Supplementary file 8. Forest plot depicting the effect of combat exposure with PTSD, stratified for risk of bias.



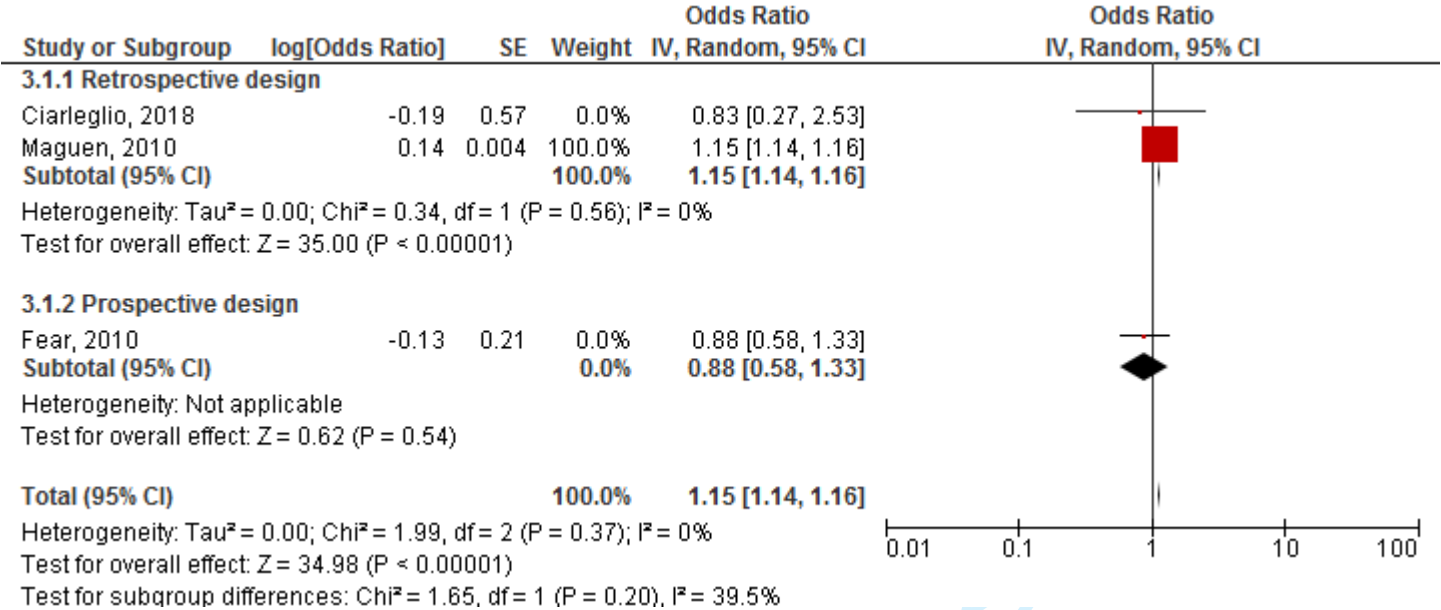
Supplementary file 9. Forest plot depicting the effect of army deployment with PTSD, stratified for risk of bias.



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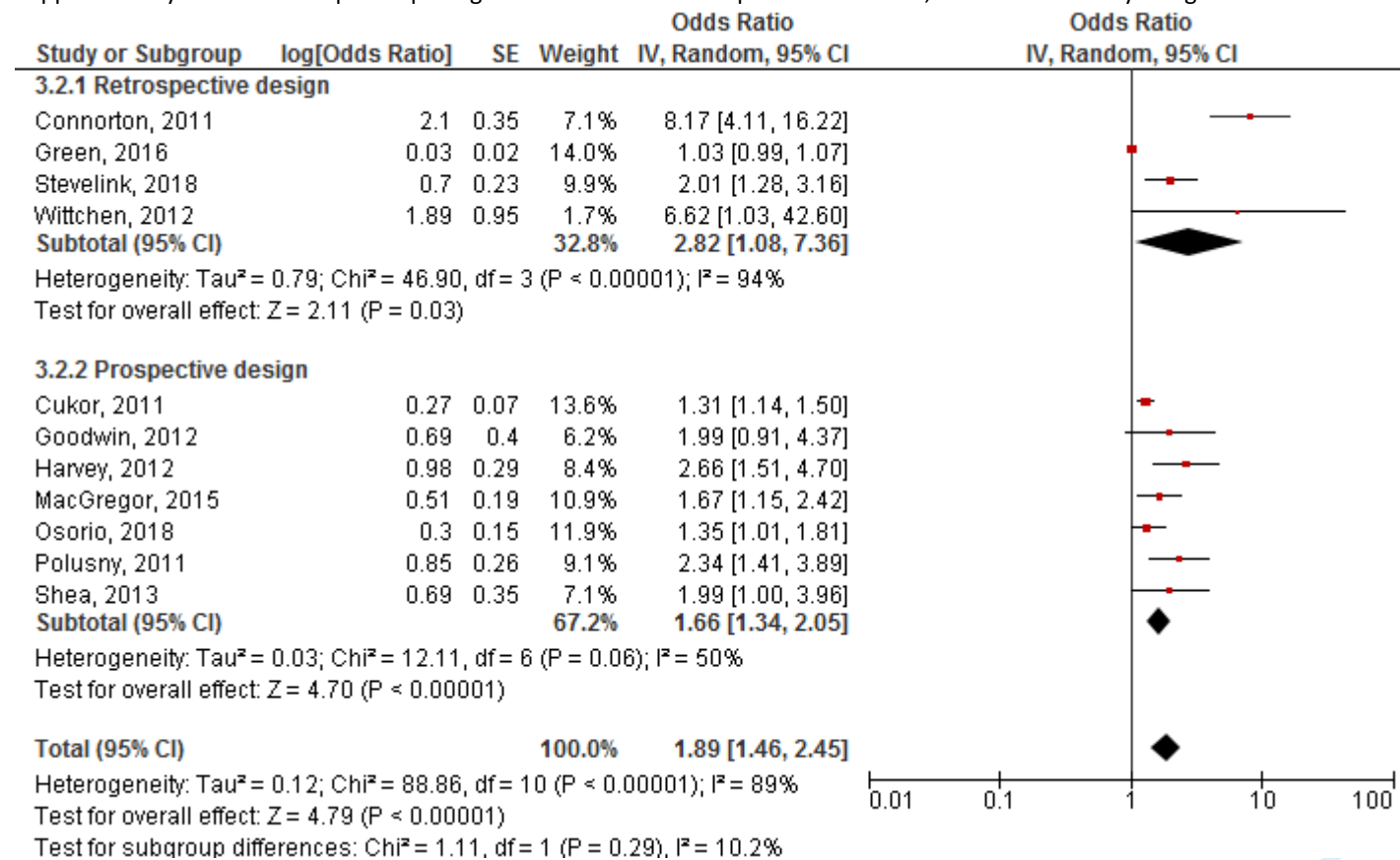
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Supplementary file 10. Forest plot depicting the effect of number of army deployments (one versus multiple) with PTSD, stratified for study design.



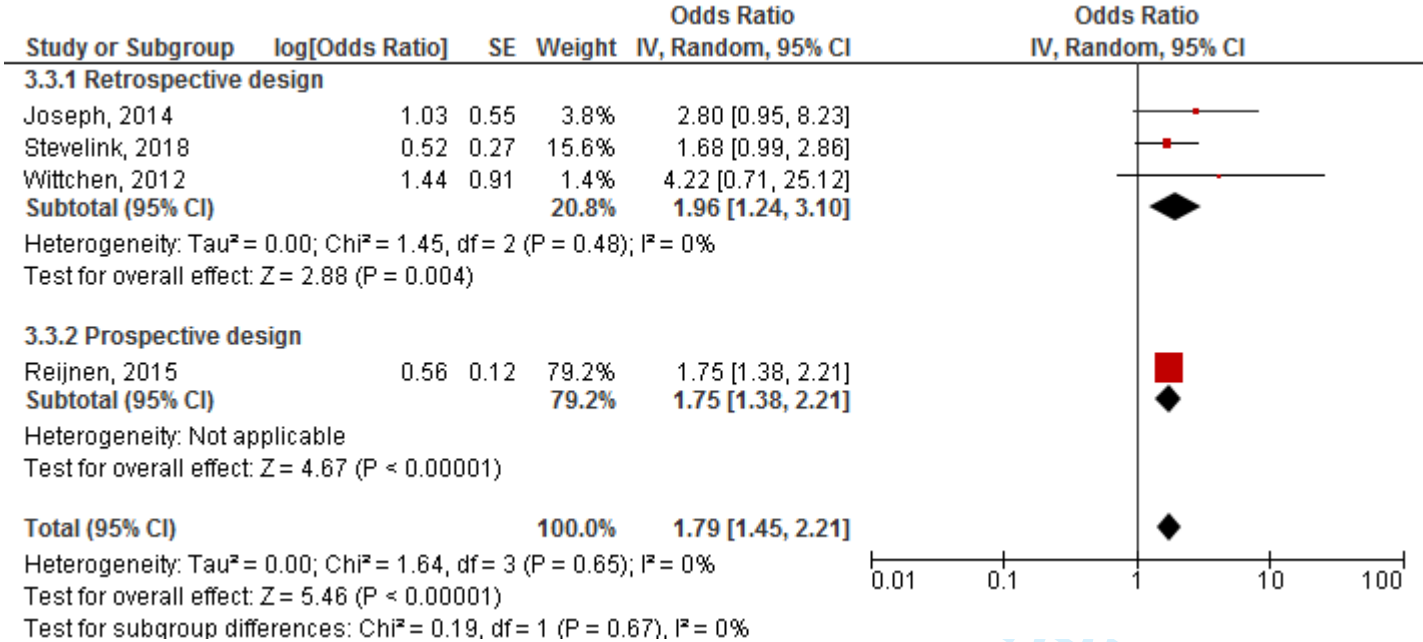
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Supplementary file 11. Forest plot depicting the effect of combat exposure with PTSD, stratified for study design.

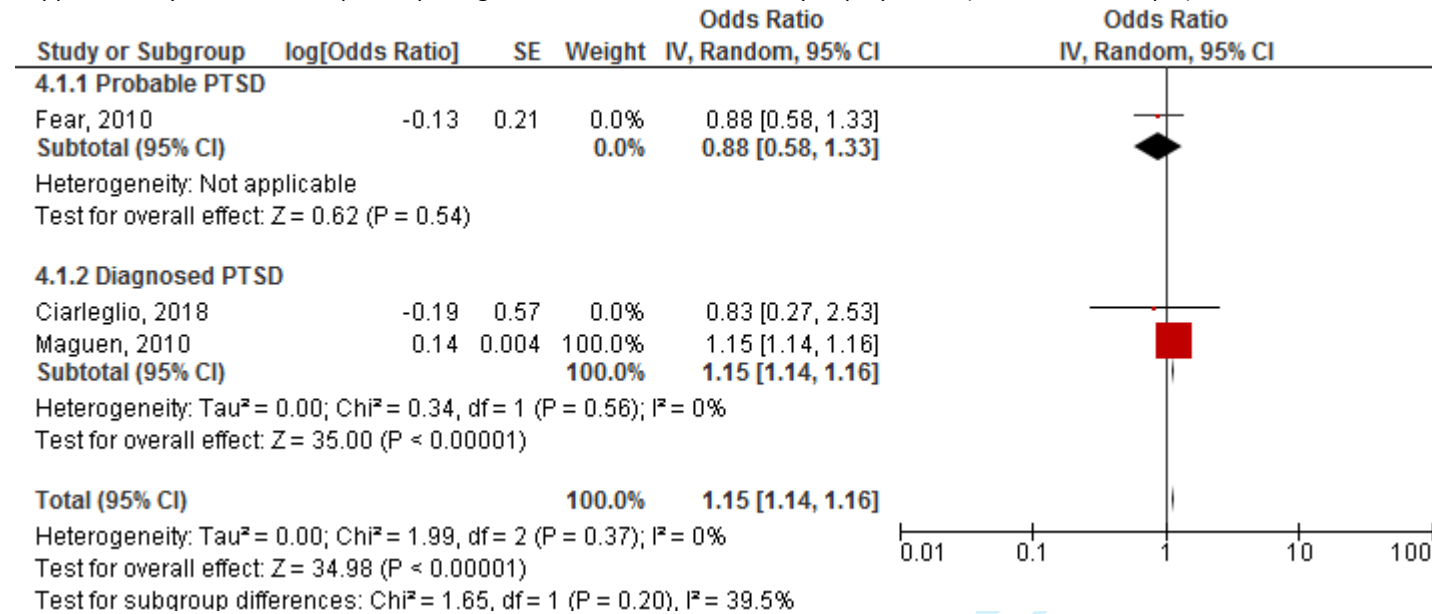


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Supplementary file 12. Forest plot depicting the effect of army deployment with PTSD, stratified for study design.



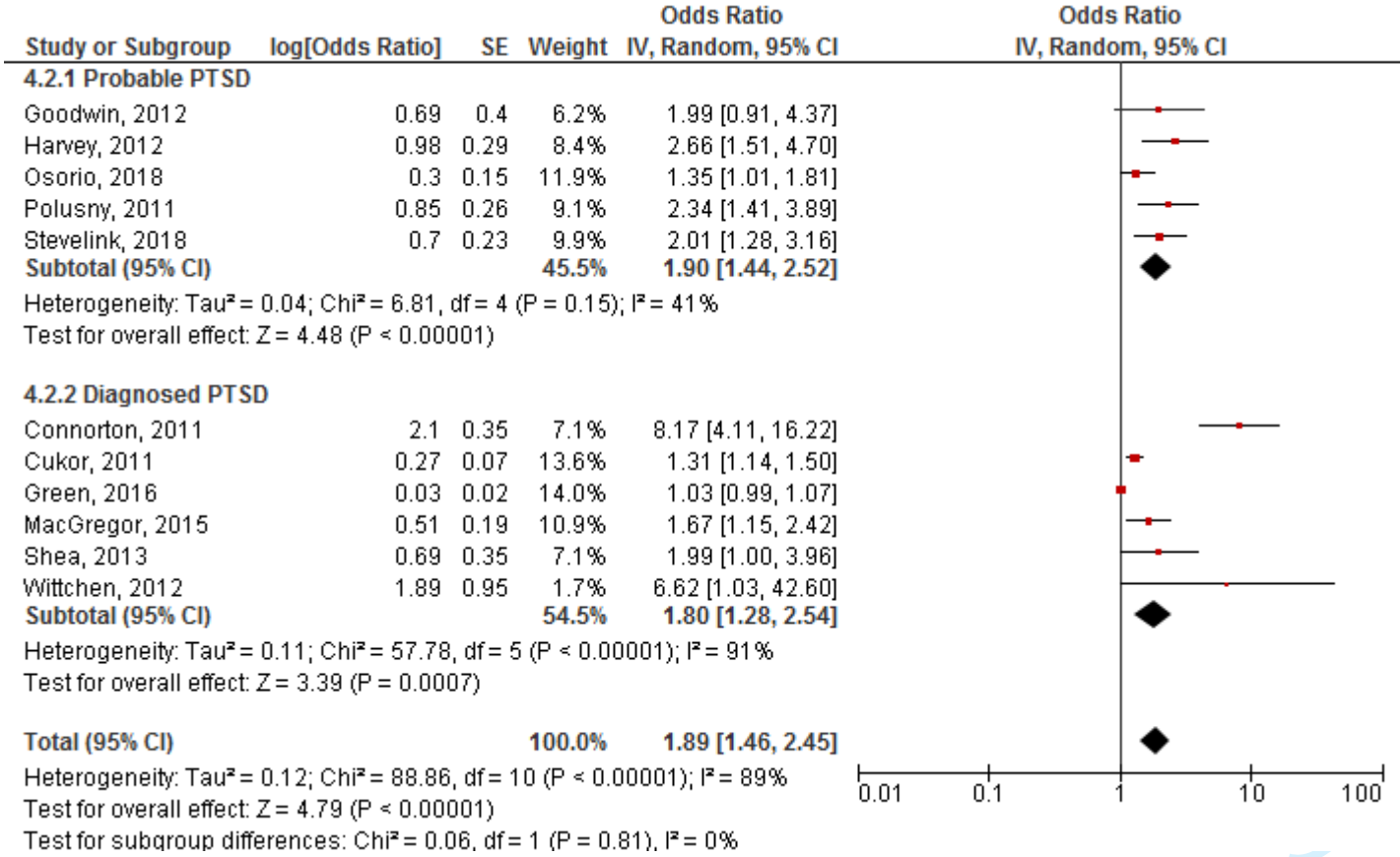
Supplementary file 13. Forest plot depicting the effect of number of army deployments (one versus multiple) with PTSD, stratified for type of PTSD ascertainment.



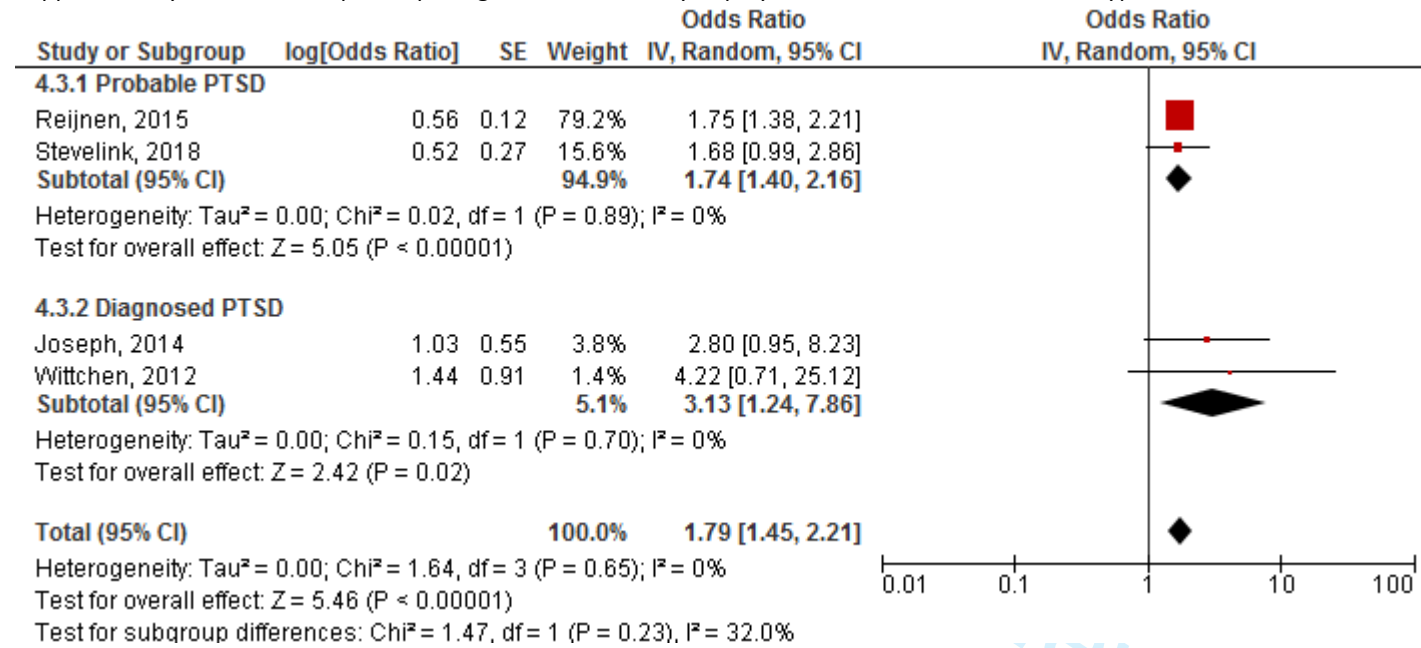
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Supplementary file 14. Forest plot depicting the effect of combat exposure with PTSD, stratified for type of PTSD ascertainment.



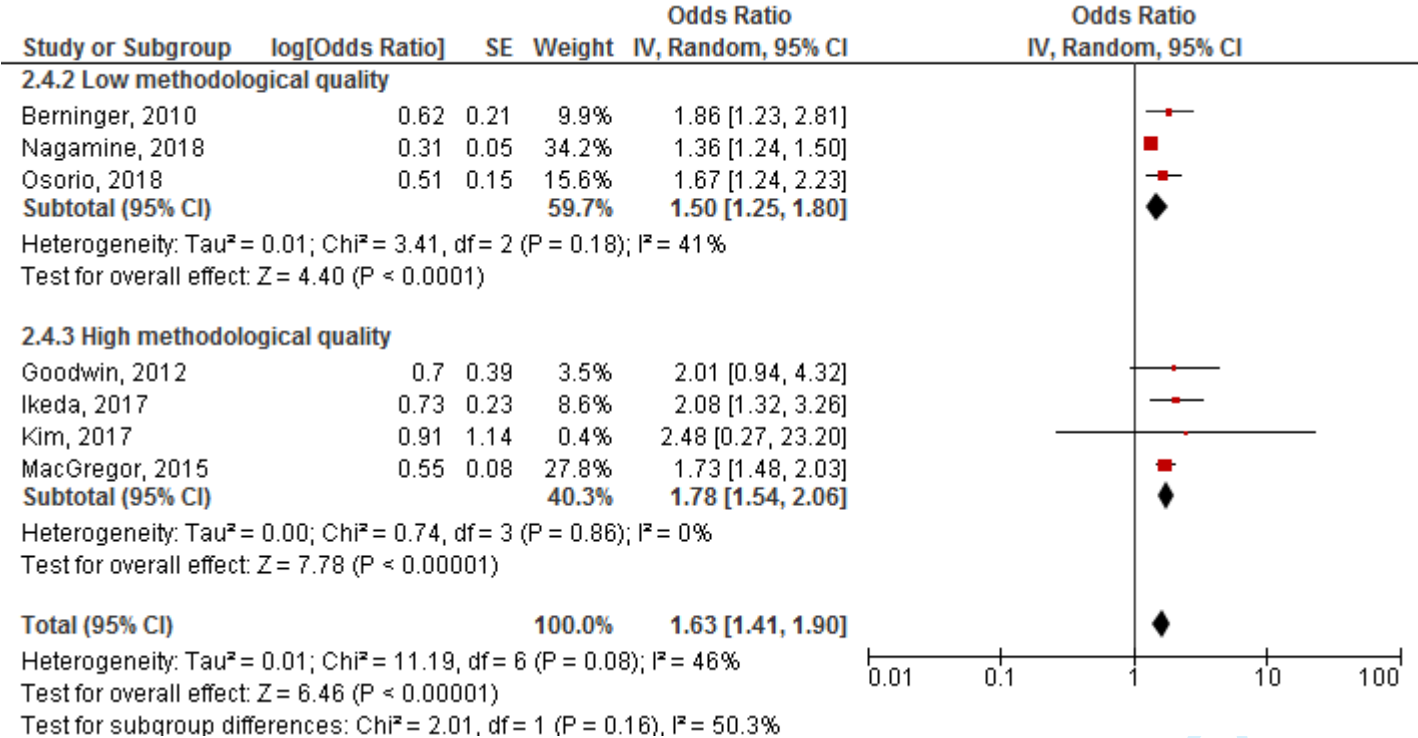
Supplementary file 15. Forest plot depicting the effect of army deployment with PTSD, stratified for type of PTSD ascertainment.



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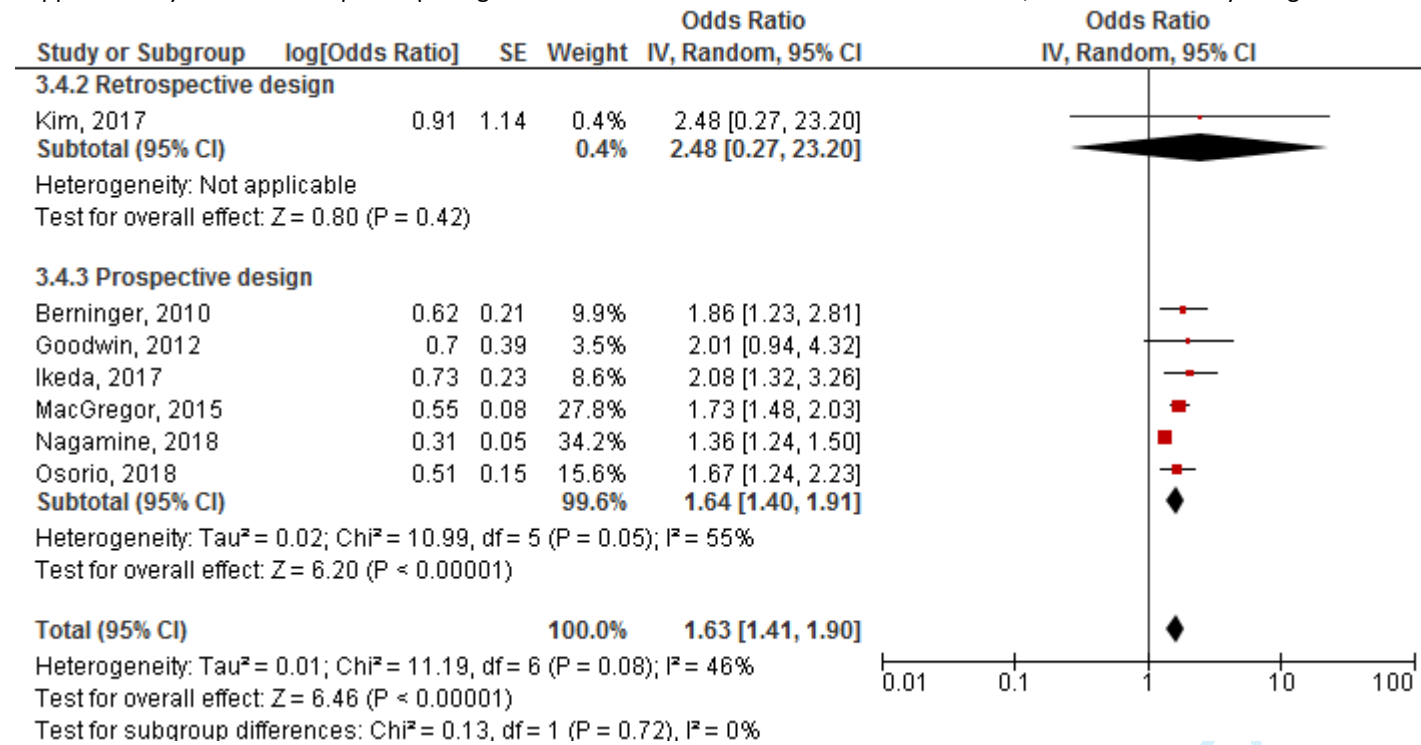
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Supplementary file 16. Forest plot depicting the effect of confrontation with death with PTSD, stratified for risk of bias.



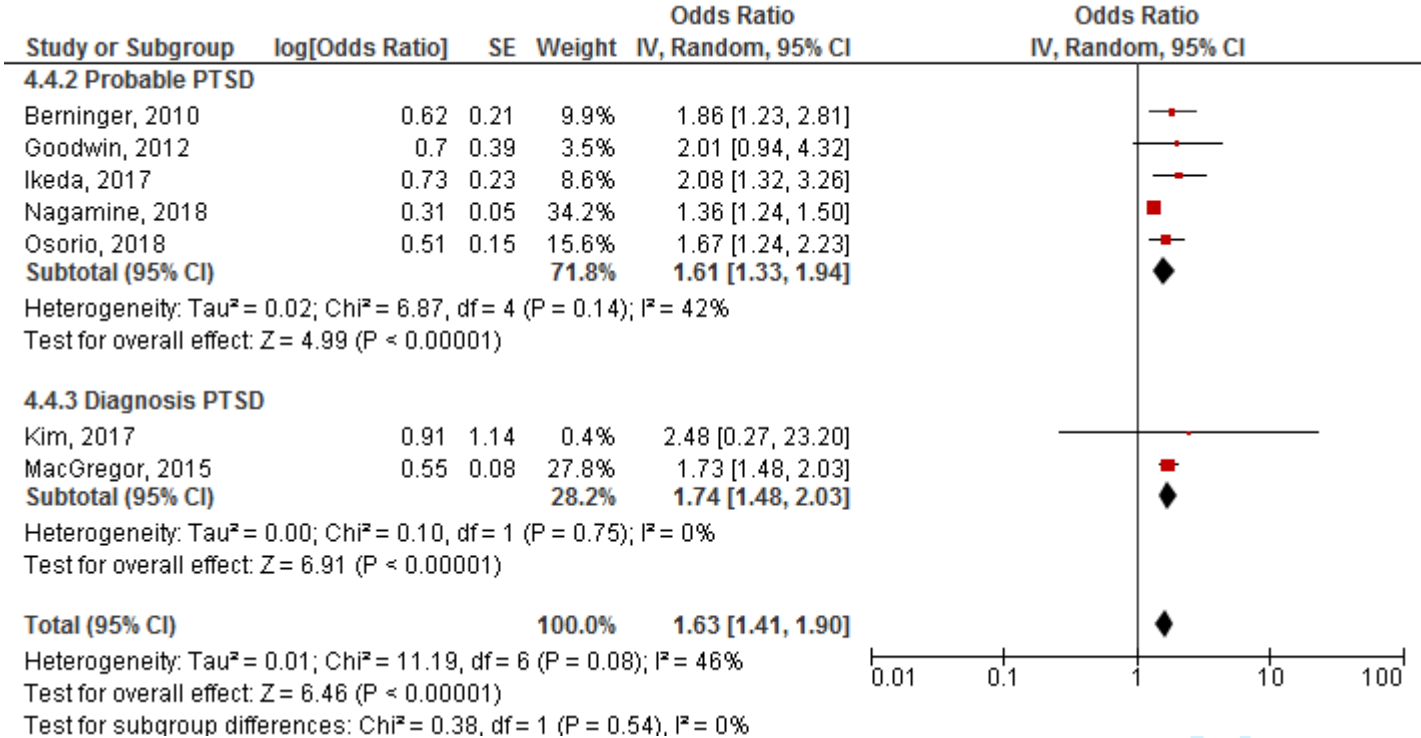
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Supplementary file 17. Forest plot depicting the effect of confrontation with death with PTSD, stratified for study design.



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Supplementary file 18. Forest plot depicting the effect of confrontation with death with PTSD, stratified for type of PTSD ascertainment.



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PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	3
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	4
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	4
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	4
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	4
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	4
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	5
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	5
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	5
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I ²) for each meta-analysis.	5



PRISMA 2009 Checklist

Page 1 of 2

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	5
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	5-6
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	7
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	7
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	7
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	7-9
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	7-9
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	7-9
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	7-9
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	10
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	10-11
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	12
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	13

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

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