TECHNICAL COMMENTARY

Abuse and violence

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POST-TRAUMATIC STRESS DISORDER LIBRARY

Introduction

For a person to be diagnosed with PTSD, at least one stressor is required. Stressors as determined by the latest version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) include being exposed to threatened death, actual or threatened serious injury, or actual or threatened sexual violence. Examples are direct exposure, witnessing the trauma, or learning that a relative or close friend was exposed to a trauma. Stressors can also be encountered in the course of professional duties.

This summary table presents the evidence for risk of PTSD in people exposed to abuse and violence. Please also see the related table on prevalence rates in people exposed to abuse and violence.

Method

We have included only systematic reviews (systematic literature search, detailed methodology with inclusion/exclusion criteria) published in full text, in English, from the year 2010 that report results separately for people with PTSD. Reviews were identified by searching the databases MEDLINE, EMBASE, and PsycINFO. When multiple copies of reviews were found, only the most recent version was included. We prioritised reviews with pooled data for inclusion.

Review reporting assessment was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist that describes a preferred way to present a meta-analysis[1]. Reviews with less than 50% of items checked have been excluded from the library. Note that early reviews may have been guided by less stringent reporting checklists than the PRISMA, and that some reviews may have been limited by journal guidelines.

Evidence was graded using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group approach where high quality evidence such as that gained from randomised controlled trials (RCTs) may be downgraded to moderate or low if review and study quality is limited, if there is inconsistency in results, indirect comparisons, imprecise or sparse data and high probability of reporting bias. It may also be downgraded if risks associated with the intervention or other matter under review are high. Conversely, low quality evidence such as that gained from observational studies may be upgraded if effect sizes are large or if there is a dose dependent response. We have also taken into account sample size and whether results are consistent, precise and direct with low associated risks (see end of table for an explanation of these terms)[2]. The resulting table represents an objective summary of the available evidence, although the conclusions are solely the opinion of staff of NeuRA (Neuroscience Research Australia).

Results

We found seven systematic reviews that met our inclusion criteria[3-9].

- Moderate to high quality evidence found a large association between exposure to sexual assault and subsequent PTSD-related conditions.
- Moderate quality evidence found medium-sized effects of increased PTSD following exposure to childhood sexual or physical abuse compared to people not exposed to childhood abuse. There were no significant effects of neglect or witnessing interpersonal violence.
- Moderate to high quality evidence found a medium-sized association between exposure to bullying and subsequent PTSD.
- Moderate quality evidence found a medium-sized association between exposure to racism and subsequent PTSD.
- Moderate quality evidence found a medium-sized association between victimisation from

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intimate partner violence and PTSD outcome, and a small association between perpetration of intimate partner violence and PTSD outcomes. There was also a large increased risk of partner violence in people with PTSD. These associations were similar in males and females.

- Moderate to high quality evidence found a small association between greater level of exposure to mass shootings (closer proximity, longer duration) and increased PTSD symptoms in those exposed.

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Dworkin ER, Menon SV, Bystrynski J, Allen NE

Sexual assault victimization and psychopathology: A review and meta-analysis

Clinical Psychology Review 2017; 56: 65-81

View review abstract online

Comparison	**PTSD following exposure to sexual assault vs. no sexual assault.**
Summary of evidence	**Moderate to high quality evidence (large sample size, precise, direct) found a large association between exposure to sexual assault and subsequent PTSD-related conditions.**
Sexual assault	
195 studies, N = 238,623 *A large association was found between exposure to sexual assault and PTSD-related conditions;* 103 studies, N = unclear, g = 0.71, 95%CI 0.66 to 0.77, $p < 0.05$	
Consistency in results‡	Unclear for this subgroup
Precision in results§	Precise
Directness of results‖	Direct

Gardner MJ, Thomas HJ, Erskine HE

The association between five forms of child maltreatment and depressive and anxiety disorders: A systematic review and meta-analysis

Child Abuse and Neglect 2019; 96: 104082

View review abstract online

Comparison	**PTSD following exposure to childhood abuse (<18 years) vs. no childhood abuse.**
Summary of evidence	**Moderate quality evidence (large sample, mostly inconsistent, imprecise, direct) found medium-sized effects of increased PTSD following exposure to childhood sexual or physical abuse. There were no significant effects of neglect or witnessing**

	interpersonal violence.
Childhood abuse	
19 studies, N = 91,122 *Medium-sized, significant effects of more PTSD diagnosis in people exposed to;* Any child maltreatment: 5 studies, OR = 3.35, 95%CI 1.55 to 7.22, $p < 0.01$, $I^2 = 93.49\%$ Sexual abuse: 12 studies, OR = 3.54, 95%CI 2.31 to 5.41, $p < 0.01$, $I^2 = 89.06\%$ Physical abuse: 10 studies, OR = 2.40, 95%CI 1.78 to 3.26, $p = 0.06$, $I^2 = 44.28\%$ *There were no significant effects of;* Neglect: 7 studies, OR = 1.76, 95%CI 1.46 to 2.12, $p = 0.14$, $I^2 = 37.37\%$ Witnessing interpersonal violence: 5 studies, OR = 1.16, 95%CI 0.91 to 1.47, $p = 0.83$, $I^2 = 0\%$	
Consistency in results	Mostly inconsistent
Precision in results	Imprecise
Directness of results	Direct

Nielsen MB, Tangen T, Idsoe T, Matthiesen SB, Mageroy N

Post-traumatic stress disorder as a consequence of bullying at work and at school. A literature review and meta-analysis

Aggression and Violent Behavior 2015; 21: 17-24

View review abstract online

Comparison	**PTSD following exposure to bullying.**
Summary of evidence	**Moderate to high quality evidence (large sample, inconsistent, precise, direct) found a medium-sized association between exposure to bullying and subsequent PTSD.**
Bullying	
A medium-sized association was found between exposure to bullying and PTSD; 19 studies, N = 6,378, $r = 0.42$, 95%CI 0.36 to 0.48, $p < 0.001$, $I^2 = 87\%$	
Consistency in results	Inconsistent
Precision in results	Precise
Directness of results	Direct

Paradies Y, Ben J, Denson N, Elias A, Priest N, Pieterse A, Gupta A, Kelaher M, Gee G

Racism as a Determinant of Health: A Systematic Review and Meta-Analysis

PLoS One 2015; 10: e0138511

View review abstract online

Comparison	**PTSD following exposure to racism.**
Summary of evidence	**Moderate quality evidence (unclear sample size, inconsistent, precise, direct) found a medium-sized association between exposure to racism and subsequent PTSD.**
Racism	
A medium-sized association was found between exposure to racism and PTSD; 16 studies, N = not reported, r = -0.34, 95%CI -0.40 to -0.27, $p < 0.001$, $Qp < 0.001$	
Consistency in results	Inconsistent
Precision in results	Precise
Directness of results	Direct

Spencer C, Mallory AB, Cafferky BM, Kimmes JG, Beck AR, Stith SM

Mental health factors and intimate partner violence perpetration and victimization: A meta-analysis

Psychology of Violence 2019; 9: 1-17

View review abstract online

Comparison	**PTSD following exposure to intimate partner violence.**
Summary of evidence	**Moderate quality evidence (unclear sample size, unable to assess consistency, precise, direct) found a medium-sized association between victimisation from intimate partner violence and PTSD outcome, and a small association between perpetration of intimate partner violence and PTSD outcomes.**

	These associations were similar for males and females.
Intimate partner violence	
Medium-sized association between victimisation from intimate partner violence and PTSD; 67 studies, N not reported, r = 0.34, 95%CI 0.30 to 0.37, p < 0.001 *Small association between perpetration of intimate partner violence and PTSD;* 41 studies, N not reported, r = 0.21, 95%CI 0.16 to 0.25, p < 0.001 Similar effects were found when male and female victims and perpetrators were analysed separately.	
Consistency in results	Unable to assess; no measure of consistency within studies is reported.
Precision in results	Precise.
Directness of results	Direct

Trevillion K, Oram S, Feder G, Howard LM

Experiences of domestic violence and mental disorders: a systematic review and meta-analysis

PLoS ONE 2012; 7: e51740

View review abstract online

Comparison	**Risk of domestic violence in people with PTSD vs. people without a mental disorder.**
Summary of evidence	**Moderate to low quality evidence (unclear sample size, inconsistent, imprecise, direct) found a large increased risk of partner violence in people with PTSD.**
Partner violence	
A large, increased risk of lifetime partner violence in women with PTSD; 9 studies, N not reported, OR = 7.34, 95%CI 4.50 to 11.98, p < 0.05, I^2 = 85% *A large, increased risk of lifetime partner violence in men with PTSD*; 1 study, OR = 9.66, 95%CI 6.49 to 14.25, p < 0.05	
Consistency in results	Inconsistent
Precision in results	Imprecise

Directness of results	Direct

Wilson LC

Mass shootings: a meta-analysis of the dose-response relationship

Journal of Traumatic Stress 2014; 27: 631-8

View review abstract online

Comparison	**PTSD symptoms following exposure to mass shootings (an incident occurring in a public place, during which the primary weapon is a firearm, the event involves four or more victim deaths, the victims are indiscriminately selected, and there is no identifiable socio-political motivation).**
Summary of evidence	**Moderate to high quality evidence (large sample size, inconsistent, precise, direct) found a small association between greater level of exposure to mass shootings (closer proximity, longer duration) and increased PTSD symptoms.**
Mass shootings	
A small association was found between greater level of exposure to mass shootings (proximity, duration) and more PTSD symptoms; 11 studies, N = 8,047, r = 0.19, 95%CI 0.13 to 0.25, $p < 0.001$, I^2 = 88% There were no moderating effects of sex, age, or time since shooting.	
Consistency in results	Inconsistent
Precision in results	Precise
Directness of results	Direct

Explanation of acronyms

CI = confidence interval, I^2 = the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance), N = number of participants, OR = odds ratio, p = statistical probability of obtaining that result, r = correlation coefficient, vs. = versus

Explanation of technical terms

* Bias has the potential to affect reviews of both RCT and observational studies. Forms of bias include; reporting bias – selective reporting of results; publication bias - trials that are not formally published tend to show less effect than published trials, further if there are statistically significant differences between groups in a trial, these trial results tend to get published before those of trials without significant differences; language bias – only including English language reports; funding bias - source of funding for the primary research with selective reporting of results within primary studies; outcome variable selection bias; database bias - including reports from some databases and not others; citation bias - preferential citation of authors. Trials can also be subject to bias when evaluators are not blind to treatment condition and selection bias of participants if trial samples are small[10].

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† Different effect measures are reported by different reviews.

Prevalence refers to how many existing cases there are at a particular point in time. Incidence refers to how many new cases there are per population in a specified time period. Incidence is usually reported as the number of new cases per 100,000 people per year. Alternatively some studies present the number of new cases that have accumulated over several years against a person-years denominator. This denominator is the sum of individual units of time that the persons in the population are at risk of becoming a case. It takes into account the size of the underlying population sample and its age structure over the duration of observation.

Reliability and validity refers to how accurate the instrument is. Sensitivity is the proportion of actual positives that are correctly identified (100% sensitivity = correct identification of all actual positives) and specificity is the proportion of negatives that are correctly identified (100% specificity = not identifying anyone as positive if they are truly not).

Weighted mean difference scores refer to mean differences between treatment and comparison groups after treatment (or occasionally pre to post treatment) and in a randomised trial there is an assumption that both groups are comparable on this measure prior to treatment. Standardised mean differences are divided by the pooled standard deviation (or the standard deviation of one group when groups are homogenous) that allows results from different scales to be combined and compared. Each study's mean difference is then given a weighting depending on the size of the sample and the variability in the data. Less than 0.4 represents a small effect, around 0.5 a medium effect, and over 0.8 represents a large effect[10].

Odds ratio (OR) or relative risk (RR) refers to the probability of a reduction (< 1) or an increase (> 1) in a particular outcome in a treatment group, or a group exposed to a risk factor, relative to the comparison group. For example, a RR of 0.75 translates to a reduction in risk of an outcome of 25% relative to those not receiving the treatment or not exposed to the risk factor. Conversely, a RR of 1.25 translates to an increased risk of 25% relative to those not receiving treatment or not having been exposed to a risk factor. A RR or OR of 1.00 means there is no difference between groups. A medium effect is considered if RR > 2 or < 0.5 and a large effect if RR > 5 or < 0.2[11]. lnOR stands for logarithmic OR where a lnOR of 0 shows no difference between groups. Hazard ratios measure the effect of an explanatory variable on the hazard or risk of an event.

Correlation coefficients (eg, r) indicate the strength of association or relationship

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between variables. They can provide an indirect indication of prediction, but do not confirm causality due to possible and often unforseen confounding variables. An r of 0.10 represents a weak association, 0.25 a medium association and 0.40 and over represents a strong association. Unstandardised (*b*) regression coefficients indicate the average change in the dependent variable associated with a 1 unit change in the independent variable, statistically controlling for the other independent variables. Standardised regression coefficients represent the change being in units of standard deviations to allow comparison across different scales.

‡ Inconsistency refers to differing estimates of effect across studies (i.e. heterogeneity or variability in results) that is not explained by subgroup analyses and therefore reduces confidence in the effect estimate. I^2 is the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance) - 0% to 40%: heterogeneity might not be important, 30% to 60%: may represent moderate heterogeneity, 50% to 90%: may represent considerable heterogeneity and over this is considerable heterogeneity. I^2 can be calculated from Q (chi-square) for the test of heterogeneity with the following formula[10];

$$I^2 = \left(\frac{Q - df}{Q}\right) \times 100\%$$

§ Imprecision refers to wide confidence intervals indicating a lack of confidence in the effect estimate. Based on GRADE recommendations, a result for continuous data (standardised mean differences, not weighted mean differences) is considered imprecise if the upper or lower confidence limit crosses an effect size of 0.5 in either direction, and for binary and correlation data, an effect size of 0.25. GRADE also recommends downgrading the evidence when sample size is smaller than 300 (for binary data) and 400 (for continuous data), although for some topics, these criteria should be relaxed[12].

‖ Indirectness of comparison occurs when a comparison of intervention A versus B is not available but A was compared with C and B was compared with C that allows indirect comparisons of the magnitude of effect of A versus B. Indirectness of population, comparator and/or outcome can also occur when the available evidence regarding a particular population, intervention, comparator, or outcome is not available and is therefore inferred from available evidence. These inferred treatment effect sizes are of lower quality than those gained from head-to-head comparisons of A and B.

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