TECHNICAL COMMENTARY

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POST-TRAUMATIC STRESS DISORDER LIBRARY

Prevalence in males vs. females

Introduction

This topic presents the evidence for the prevalence of PTSD in males vs. females. Prevalence represents the overall proportion of individuals in a population who have PTSD. It is different from incidence, which represents only the new cases that have developed over a particular time-period. Point prevalence is the proportion of individuals in a population who have the disorder at a given point in time (e.g., at one-month post-trauma), while period prevalence is the proportion of individuals in a population who have the disorder over specific time periods (e.g., one to two months post-trauma). Lifetime prevalence is the proportion of individuals in a population who have ever had the disorder and lifetime morbid risk also includes those who had the disorder but were deceased at the time of the survey.

Method

We have included only systematic reviews with detailed literature search, methodology, and inclusion/exclusion criteria that were published in full text, in English, from the year 2010. Reviews were identified by searching the databases MEDLINE, EMBASE, and PsycINFO. Reviews with pooled data are prioritized for inclusion. Reviews reporting fewer than 50% of items on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA[1]) checklist have been excluded from the library. The evidence was graded guided by the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group approach[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 four systematic reviews that met our inclusion criteria[3-6].

- Moderate to high quality evidence found lifetime prevalence rates of PTSD are nearly twice as high for women than for men (measured at 65 years of age).
- Moderate quality evidence found the prevalence of PTSD in adolescents in detention centres was higher in females than in males (18.2% vs. 8.6%).
- Moderate quality evidence found the prevalence of PTSD following road traffic accidents was higher in females than in males (28% vs. 20%).
- Moderate quality evidence found the prevalence of PTSD following road traffic accidents was higher in female than male children and adolescents (34% vs. 22%).

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Beaudry G, Yu R, Langstrom N, Fazel FS

An Updated Systematic Review and Meta-regression Analysis: Mental Disorders Among Adolescents in Juvenile Detention and Correctional Facilities

Journal of the American Academy of Child and Adolescent Psychiatry 2021; 60(1): 46-60

View review abstract online

Comparison	**PTSD in adolescents in juvenile detention and correctional facilities.**
Summary of evidence	**Moderate quality evidence (large sample, inconsistent, appears imprecise, direct) found the prevalence of PTSD in adolescent males in detention centres was 8.6% and 18.2% in adolescent females in detention centres.**
Juvenile detention	
Prevalence of PTSD was higher in females than males in detention; Males: 20 studies, N = 14,260, prevalence = 8.6%, 95%CI 6.4% to 10.7%, I^2 = 92% Females: 11 studies, N = 1,876, prevalence = 18.2%, 95%CI 13.1% to 23.2%, I^2 = 78%	
Consistency in results‡	Inconsistent
Precision in results§	Appears imprecise
Directness of results‖	Direct

Dai W, Liu A, Kaminga AC, Deng J, Lai Z, Wen SW

Prevalence of Posttraumatic Stress Disorder among Children and Adolescents following Road Traffic Accidents: A Meta-Analysis

Canadian Journal of Psychiatry 2018; 63: 798-808

View review abstract online

Comparison	**PTSD in children and adolescents after road traffic accidents.**
Summary of evidence	**Moderate quality evidence (large sample, imprecise, direct) found the prevalence of PTSD following road traffic accidents was higher in female than male children and adolescents (34% vs. 22%).**

Prevalence in males vs. females

Road traffic accidents	
The prevalence of PTSD following road traffic accidents was higher in female than male children and adolescents; Males: 4 studies, N = 510, prevalence = 22.21%, 95%CI 18.66% to 25.96%, I^2 not reported Females: 4 studies, N = 391, prevalence = 34.45%, 95%CI 21.94% to 48.12%, I^2 not reported	
Consistency in results	No measure of consistency was reported for this subgroup analysis.
Precision in results	Appears imprecise
Directness of results	Direct

Grenier S, Payette MC, Gunther B, Askari S, Desjardins FF, Raymond B, Berbiche D

Association of age and gender with anxiety disorders in older adults: A systematic review and meta-analysis

International Journal of Geriatric Psychiatry 2019; 34: 397-407

View review abstract online

Comparison	**PTSD in older adults (≥65 years).**
Summary of evidence	**Moderate to high quality evidence (large samples, consistent, imprecise, direct) found lifetime rates are nearly twice as high in women than in men over 65 years.**
Elderly	
Lifetime prevalence was higher in older females than males; Lifetime prevalence = 3.42% vs. 1.83%	
Consistency in results	Consistent
Precision in results	Imprecise
Directness of results	Direct

Lin W, Gong L, Xia M, Dai W

Prevalence of posttraumatic stress disorder among road traffic accident

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survivors: A PRISMA-compliant meta-analysis **Medicine 2018; 97: e9693** View review abstract online	
Comparison	**PTSD in people after road traffic accidents.**
Summary of evidence	**Moderate quality evidence (large sample, inconsistent, imprecise, direct) found the prevalence of PTSD following road traffic accidents was higher in females than males (28% vs. 20%).**
Road traffic accidents	
15 studies, N = 6,804 *The prevalence of PTSD following road traffic accidents was higher in females than males;* Males: prevalence = 20.49%, 95%CI 12.37% to 30.00%, I^2 not reported Females: prevalence = 27.61%, 95%CI 17.44% to 39.08%, I^2 not reported	
Consistency in results	Authors report data are inconsistent.
Precision in results	Appears imprecise
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, vs. = versus

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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[7].

† 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[7].

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[8]. 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 between variables. They can provide an indirect indication of prediction, but do not

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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[7];

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

§ 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[9].

‖ 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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