

# Systematic review and meta-analysis on acute stress disorder: Rates following specific types of traumatic events

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## INTRODUCTION

- Lifetime traumatic exposure rates estimated at 70.4% worldwide and up to 89.7% in the US;
- According to the DSM-5, traumatic events with no interpersonal assault lead to acute stress disorder (ASD) in less than 20% of cases;
- Empirical literature yields widely varying rates, even within the same categories of traumatic events.

## OBJECTIVES

1. To identify rates of ASD following different types of trauma (i.e., war, life-threatening illness, interpersonal violence, accidents, and disasters);
2. To assess the methodological and trauma-related factors influencing these rates.

## METHODS

- 74 samples from 71 studies identified through systematic searches of 6 databases;
- Records were included if (1) participants were 16 years old and over, (2) the assessment was completed within 30 days of the event, (3) a validated measure was used, (4) the type of traumatic event was specified, and (5) the ASD rate was reported or could be calculated.

## ANALYSES

- Meta-analysis software (CMA 3.0) was used ;
- Series of univariate meta-regressions;
- Heterogeneity measured with Q-value and potential for publication bias assessed using funnel plots.

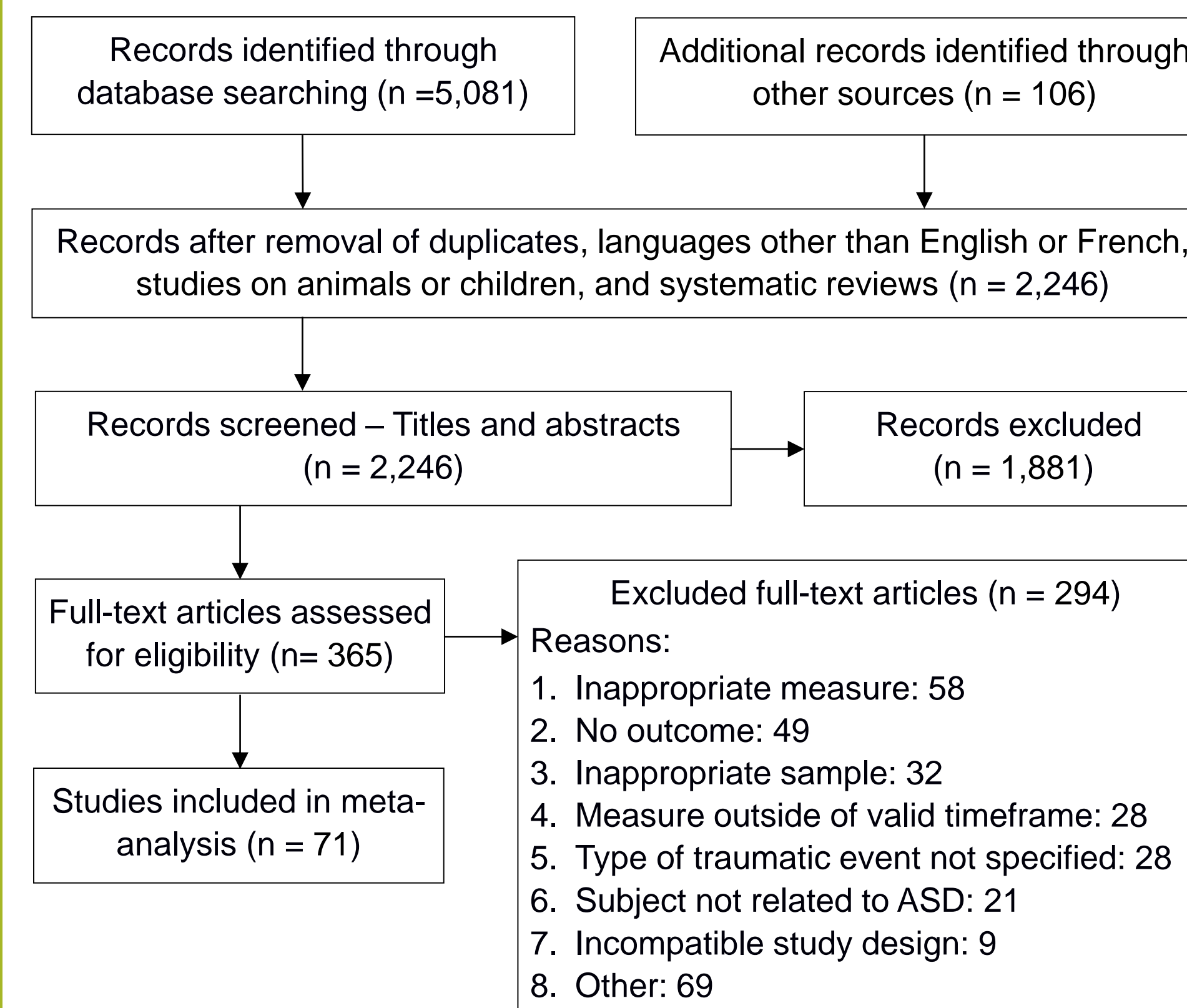
# Interpersonal trauma is more likely to lead to ASD than all other types of trauma.



## RESULTS

- ASD rates ranged from 13.7% (k=6) for war-related trauma to 36.0% (k=14) for interpersonal trauma, with accidents (15.9%; k=22), life-threatening illness (20.7%; k=28) and disasters (21.9%; k=4) in between;
- The ASD rate for interpersonal trauma was greater than rates for all other types of traumatic events;
- Differing assessment instruments, types of exposure and geographical locations, as well as the intentional nature of certain events contributed to heterogeneity in rates within each type of traumatic event.

**Figure 1.** PRISMA flow diagram



**Table 1.** Meta-regression of ASD rates according to the type of traumatic event

Covariate	k	n	Logit (risk of ASD)			Odd ratios (risk of ASD)		
			b	se	p	OR	95% Lower	95% Upper
Interpersonal	14	2740	-0.58	0.30	0.052	0.36	0.24	0.50
Accident	22	2510	-1.67	0.19	<0.001	0.16	0.12	0.22
Disaster	4	957	-1.27	0.52	0.014	0.22	0.09	0.44
Illness	28	5245	-1.34	0.16	<0.001	0.21	0.16	0.26
War	6	11010	-1.84	0.33	<0.001	0.14	0.08	0.23

## REFERENCES

1. Liu H, Petukhova MV, Sampson NA, Aguilar-Gaxiola S, Alonso J, Andrade LH, et al. Association of DSM-IV Posttraumatic Stress Disorder With Traumatic Experience Type and History in the World Health Organization World Mental Health Surveys. *JAMA Psychiatry*. 2017 Mar 1;74(3):270–81.
2. Neria Y, Nandi A, Galea S. Post-traumatic stress disorder following disasters: a systematic review. *Psychol Med*. 2008 Apr;38(4):467–80.
3. Benjet C, Bromet E, Karam EG, Kessler RC, McLaughlin KA, Ruscio AM, et al. The epidemiology of traumatic event exposure worldwide: results from the World Mental Health Survey Consortium. *Psychol Med*. 2016 Jan;46(2):327–43.
4. Kilpatrick DG, Resnick HS, Milanak ME, Miller MW, Friedman MJ. National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria. *J Trauma Stress*. 2013;26(5):537–47.
5. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 5th ed. Arlington, VA: APA; 2013.
6. McCall-Hosenfeld JS, Mukherjee S, Lehman EB. The Prevalence and Correlates of Lifetime Psychiatric Disorders and Trauma Exposures in Urban and Rural Settings: Results from the National Comorbidity Survey Replication (NCS-R). *PLOS ONE*. 2014 Nov 7;9(11):e112416.
7. Weathers FW, Blake DD, Schnurr PP, Marx BP, Keane TM. Life Events Checklist for DSM-5 (LEC-5) - PTSD: National Center for PTSD [Internet]. PTSD.va.gov. 2013 [cited 2017 Sep 6]. Available from: [https://www.ptsd.va.gov/professional/assessment/te-measures/life\\_events\\_checklist.asp](https://www.ptsd.va.gov/professional/assessment/te-measures/life_events_checklist.asp)
8. King SL. A prospective study of physiological hyperarousal and coping as correlates of symptoms of acute stress disorder and posttraumatic stress disorder in motor vehicle crash survivors [Internet] [Doctoral dissertation]. [Canada]: University of Alberta; 2007. Available from: <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=109849329&lang=fr&site=ehost-live>
9. Suliman S, Troeman Z, Stein DJ, Seedat S. Predictors of acute stress disorder severity. *J Affect Disord*. 2013;149(1–3):277–81.
10. Winston FK, Baxt C, Kassam-Adams NL, Elliott MR, Kallan MJ. Acute traumatic stress symptoms in child occupants and their parent drivers after crash involvement. *Arch Pediatr Adolesc Med*. 2005;159(11):1074–9.
11. Marchand A, Nadeau C, Beaulieu-Prévost D, Boyer R, Martin M. Predictors of posttraumatic stress disorder among police officers: A prospective study. *Psychol Trauma Theory Res Pract Policy*. 2015;7(3):212–21.
12. Mokruė K, O’Neill P, Weiden P, Friedman S, Cavaleri M. Trauma Survivors’ Emotional Distress and Barriers to Early Psychological Intervention in an Inner-City Acute Surgical Trauma Service. *J Aggress Maltreatment Trauma*. 2011;20(1):57–68.
13. Ouanes S, Bouasker A, Ghachem R. Psychiatric disorders following the Tunisian revolution. *J Ment Health*. 2014;23(6):303–6.
14. Cohen M. Acute stress disorder in older, middle-aged and younger adults in reaction to the second Lebanon war. *Int J Geriatr Psychiatry*. 2008;23(1):34–40.
15. Cohen M, Yahav R. Acute stress symptoms during the second Lebanon war in a random sample of Israeli citizens. *J Trauma Stress*. 2008;21(1):118–21.
16. Yahav R, Cohen M. Symptoms of acute stress in Jewish and Arab Israeli citizens during the second lebanon war. *Soc Psychiatry Psychiatr Epidemiol*. 2007;42(10):830–6.
17. Bryant RA, Friedman MJ, Spiegel D, Ursano R, Strain J. A review of acute stress disorder in DSM-5. *Depress Anxiety* 1091-4269. 2011;28(9):802–17.
18. Bryant RA. *Acute stress disorder. What is it and how to treat it*. New York, London: Guilford Press; 2016.
19. Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche PC, Ioannidis JPA, et al. The PRISMA Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions: Explanation and Elaboration. *PLOS Med*. 2009 Jul 21;6(7):e1000100.
20. NIH. Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies [Internet]. 2014 [cited 2017 Sep 6]. Available from: <https://www.nhlbi.nih.gov/health-pro/guidelines/in-develop/cardiovascular-risk-reduction/tools/cohort>
21. Higgins JPT, Thompson SG. Quantifying heterogeneity in a meta-analysis. *Stat Med*. 2002 Jun 15;21(11):1539–58.
22. Song F, Khan KS, Dinnes J, Sutton AJ. Asymmetric funnel plots and publication bias in meta-analyses of diagnostic accuracy. *Int J Epidemiol*. 2002 Feb 1;31(1):88–95.
23. Creamer M, Burgess P, Mcfarlane AC. Post-traumatic stress disorder: findings from the Australian National Survey of Mental Health and Well-being. *Psychol Med*. 2001 Oct;31(7):1237–47.
24. Kessler RC, Sonnega A, Bromet E. Posttraumatic Stress Disorder in the National Comorbidity Survey. *Arch Gen Psychiatry*. 1995 Dec 1;52(12):1048.
25. Benight CC, Bandura A. Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behav Res Ther*. 2004;42(10):1129–48.
26. O’Hara S. Monsters, playboys, virgins and whores: Rape myths in the news media’s coverage of sexual violence. *Lang Lit*. 2012 Aug 1;21(3):247–59.
27. Ullman SE, Peter-Hagene L. Social Reactions to Sexual Assault Disclosure, Coping, Perceived Control and PTSD Symptoms in Sexual Assault Victims. *J Community Psychol*. 2014 May 1;42(4):495–508.

28. Green DL, Roberts AR. Helping victims of violent crime: assessment, treatment, and evidence-based practice. New York: Springer Pub. Co; 2008. 256 p. (Springer series on social work).
29. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington, DC: APA; 1994.
30. Swartzman S, Booth JN, Munro A, Sani F. Posttraumatic stress disorder after cancer diagnosis in adults: A meta-analysis. *Depress Anxiety*. 2017 Apr;34(4):327–39.
31. Zhu DR, Julian J, Lee SJA, Thanataveerat A, Sumner JA. Patterns of peritraumatic threat perceptions in patients evaluated for suspected acute coronary syndrome according to prior and current posttraumatic stress symptoms [Internet]. 2018. Available from: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85047085177&doi=10.1016%2fj.genhosppsy.2018.03.003&partnerID=40&md5=bcf5dece7b1d8eb80b30919e193ec3b8>
32. McCarthy MC, Ashley DM, Lee KJ, Anderson VA. Predictors of acute and posttraumatic stress symptoms in parents following their child's cancer diagnosis. *J Trauma Stress*. 2012;25(5):558–66.
33. Bryant RA. Acute stress disorder: What it is and how to treat it. New York, NY, US: Guilford Press; 2016. x, 326. (Acute stress disorder: What it is and how to treat it).
34. Tolin DF, Foa EB. Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychol Bull*. 2006;132(6):959–92.
35. Egger M, Smith GD, Schneider M, Minder C. Bias in meta-analysis detected by a simple, graphical test. *BMJ*. 1997 Sep 13;315(7109):629–34.