

The Australian Child Maltreatment Study

Presentation to Philanthropy Australia
Out of Home Care Funders Group

Thursday 20 August 2020

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On Behalf of the ACMS team



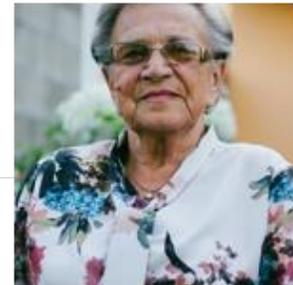
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*I acknowledge the traditional custodians of
this land on which we meet and pay
respects to community members and
elders past and present.*

Overview

- Why we need to study child maltreatment and its health outcomes
- Summary of a systematic review of global prevalence studies
- The [Australian Child Maltreatment Study](#) (ACMS): overview and progress update



Why Should We Study Child Maltreatment?

- Child maltreatment (physical, sexual, and emotional abuse, neglect, and exposure to domestic violence) is common and harmful
- Violates physical, psychological, sexual integrity
- Accompanied by psychological trauma; often endured repeatedly; sometimes involves serious criminal conduct
- Breach of fundamental human rights of vulnerable individuals
- Profound adverse effects on human development
- UN Sustainable Development Goals view child maltreatment as a serious issue of public health and child development: **Goal 16** aims to end child maltreatment and requires governments to report on their efforts
- Impact on broader social systems of care for children, including out-of-home care, and prevention efforts

Adverse Health, Behavioural and Economic Consequences through the Lifespan

- Failure to thrive; impaired development; physical injuries and fatalities
- Mental health outcomes: depression, anxiety, PTSD, self-harm, suicide
- Physical health outcomes from coping strategies, including obesity
- Academic impact and economic achievement
- Effects on adult relationships, re-victimisation, intergenerational maltreatment
- Long-term disease caused via coping mechanisms (e.g., smoking, alcohol, drug abuse) and chronic stress (e.g. coronary artery disease, inflammation).
- Impairs brain development, shortens telomeres, accelerates cellular ageing
- Produces lifelong disease burden with intergenerational effects
- Those who experience poly-victimisation / multi-type maltreatment have greatest effects

Why Should We Study Prevalence?



- Informed public health responses about **where and when prevention approaches are best targeted** require evidence about:
 - **Prevalence** of each type of abuse and neglect
 - **Characteristics of the abuse:** Child's age, gender, ethnicity, relationship to person inflicting abuse, frequency, severity, family factors
 - **Risk profiles** of children (and parent characteristics), especially for poly-victims
- Reliable prevalence data is needed for Australia to report on UN SD Goal 16

Why Should We Study Health Outcomes?

- Better evidence is needed to **inform policy and clinical responses**
- Major evidence gaps exist about health consequences and their timing, especially:
 - Effects of emotional abuse and exposure to domestic violence
 - Effects of multi-type abuse / poly-victimization
 - Specific aspects of these experiences - e.g.
 - effect of developmental timing
 - effect of emotional relationship between the child and the person inflicting the abuse
 - Effects of bullying (alone, and with maltreatment) – including:
 - effects of different types of bullying (physical; verbal; relational; ftf, cyber)
 - effects of chronicity of bullying (duration over time)
 - effects of motivation (ethnicity; sexuality)

What Data is Needed?

We need evidence to understand:

1. The prevalence in Australia of each single type of child maltreatment
2. The prevalence of multi-type maltreatment
3. Health consequences (short-term, medium-term, and long-term over lifespan) of:
 - Each single type of child maltreatment
 - Multi-type maltreatment / Poly-victimization (co-occurrence of multiple forms of maltreatment, any time in childhood)
 - Specific experiential profiles (e.g., associations between outcomes and relational pathways)

Our ACMS will generate this data – a major contribution

Systematic Review (Mathews et al, 2020)



To inform the ACMS, we did **a global systematic review of national prevalence studies**

We asked:

- What national prevalence studies have been conducted (4 or 5 types of maltreatment)?
- What approaches did they use?
- What strengths and weaknesses appear in these approaches, based on critical analysis and risk of bias assessment? (rigour, quality, practicability)

Findings from Systematic Review

- Only 30 national studies have examined all 5 or 4 types of maltreatment (22 countries)
- Only **2 studies** involved a sample of adults providing data about experiences of child abuse and neglect **over their entire childhood up to age 18**
- Wide variation in methodology
 - Use of measures (e.g. JVQ, ICAST-CH, CTQ etc)
 - Samples: adults, children, parent report
 - Modes of administration (eg., school or household studies, CATI)
- Item congruence with conceptual models is variable
- Few studies asked adequate follow up questions about contextual factors
- Ethically and methodologically feasible to gather data from youth, adults



PLOS ONE

RESEARCH ARTICLE

Improving measurement of child abuse and neglect: A systematic review and analysis of national prevalence studies

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Check for updates

Abstract

Objectives
Child maltreatment through physical abuse, sexual abuse, emotional abuse, neglect, and exposure to domestic violence, causes substantial adverse health, educational and behavioural consequences through the lifespan. The generation of reliable data on the prevalence and characteristics of child maltreatment in nationwide populations is essential to plan and evaluate public health interventions to reduce maltreatment. Measurement of child maltreatment must overcome numerous methodological challenges. Little is known to date about the extent, nature and methodological quality of these national studies. This study aimed to systematically review the most comprehensive national studies of the prevalence of child maltreatment, and critically appraise their methodologies to help inform the design of future studies.

Methods
Guided by PRISMA and following a published protocol, we searched 22 databases from inception to 31 May 2019 to identify nationwide studies of the prevalence of either all five or at least four forms of child maltreatment. We conducted a formal quality assessment and critical analysis of study design.

Results
This review identified 30 national prevalence studies of all five or at least four forms of child maltreatment, in 22 countries. While sound approaches are available for different settings, methodologies varied widely in nature and robustness. Some instruments are more reliable and obtain more detailed and useful information about the characteristics of the maltreatment, including its nature, frequency, and the relationship between the child and the person

OPEN ACCESS
Citation: Mathews B, Pacella R, Dunne MP, Simunovic M, Marston C (2020) Improving measurement of child abuse and neglect: A systematic review and analysis of national prevalence studies. PLoS ONE 15(1): e0227884. <https://doi.org/10.1371/journal.pone.0227884>

Editor: Jonathan Salazar-Mendoza, University of South Florida, UNITED STATES

Received: September 10, 2019

Accepted: December 31, 2019

Published: January 28, 2020

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Data Availability Statement: All relevant data are within the manuscript and its Supporting Information files.

Funding: The authors received no specific funding for this work.

Competing Interests: The authors have declared that no competing interests exist.

PLOS ONE | <https://doi.org/10.1371/journal.pone.0227884> January 28, 2020 1 / 22

Conclusions from the systematic review

1. Substantial evidence gaps in almost all nations about prevalence of all forms of child maltreatment
2. No studies in Australia
3. Widespread international need to invest in robust national studies
4. Different methods shown suited to different contexts (household/school/CATI)
5. Studies should use an instrument with demonstrated validity and reliability
6. Studies should capture past year incidence (youth), and childhood prevalence
7. Studies must ensure maltreatment constructs are soundly defined and operationalized
8. Information should be captured about the specific nature, severity and frequency of the maltreatment, and the relationship of the child to the person inflicting the acts

The Australian Child Maltreatment Study (ACMS)

Funded for 5 years 2019-23: National Health and Medical Research Council Project Grant 1158750 (\$2.3m)

Supplementary funding from:

- the Australian Government Department of Social Services; and
- the Australian Institute of Criminology



Why Australian prevalence data is essential

- Australia lacks fundamental evidence about:
 - the true national prevalence of each different kind of child abuse and neglect
 - the characteristics of these experiences
 - **mental and physical health effects**
 - specific high-risk profiles
 - other information including disclosure/help-seeking, receipt of services
- This impedes **informed public health approaches** to prevent and respond to child maltreatment, and reduce mental and physical health conditions, other adverse outcomes, and burden of disease
- Our comprehensive study aims to provide this evidence, add to international scientific knowledge, and inform national public health policy
- Implications for intergenerational prevention



1

First prevalence study of maltreatment in Australia

10K

10,000 people (age 16 and up) will be surveyed

5

Types of maltreatment assessed: physical, sexual, emotional abuse, neglect, and exposure to DV

2

Types of health outcomes measured: physical and mental health

\$

Identifying the burden of disease to assess the real costs

P

Informing both policy and practice

ACMS: Aims

For the first time in Australia, the ACMS will comprehensively examine:

1. The **prevalence** of each form of maltreatment (and experience of multiple forms) and the **characteristics** of these experiences (e.g., child and contextual factors, relationship to person inflicting abuse, severity, timing, etc)
2. Selected **physical and mental health** outcomes through the lifespan associated with exposure to child maltreatment
3. **Burden of disease** associated with maltreatment (and other health utilization outcomes)

Study Design

- **Nationwide cross-sectional survey** of 10,000 participants aged 16 years and over, via computer-assisted telephone interviews (CATI): optimal for cost, time, geography
- Sample size
 - approx 5000 adolescent/young adult participants aged 16-24 years
 - 1000 adults in each of the following strata: 25-34, 35-44, 45-54, 55-64, >65
- Obtains self-reported retrospective data about child maltreatment experiences
- Obtains clinically diagnostic information about mental health outcomes and information about physical health outcomes and behaviors
- Also obtains information about other adversities (confounders): bullying, ACEs
- Lays foundation for further essential studies, examining intergenerational effects

Sampling Frame

- People aged 16 years and over, accessible by mobile phones and/or living in households accessible by fixed line phones
- Nationally representative: metropolitan, regional, rural, remote
- Phone numbers selected through random digit dialing
- Likely exclusively mobile phone
 - dual frame method (mobile/landline) has proven effective
 - but very high mobile ownership, decreasing landline use
- The Social Research Centre is our partner organization: will conduct the telephone interviews – interviewers trained by ACMS team
- Note hard-to-reach subpopulations

Parameter 1: Experiences of child maltreatment (all five types)

ACMS will capture data from all participants about their experience in childhood of each type of child maltreatment:

- Physical abuse (by parent/caregiver)
- Sexual abuse (by anyone)
- Emotional abuse (parent/caregiver)
- Neglect (parent/caregiver)
- Exposure to domestic violence (family violence)
- Also other key childhood adversities (peer and sibling violence, ACEs, major illness; corporal punishment)

Will also capture evidence of past year prevalence (16-17 yr old participants)

Instrument: The JVQ-R2: Adapted Version (Australian Child Maltreatment Study)

We have adapted the best available instrument to suit the ACMS purposes

The Juvenile Victimization Questionnaire (JVQ-R2) was the best available instrument, considering:

- Proven use/psychometrics: 6 studies in original/enhanced/modified form (US, UK, Germany) with demonstrated **comprehensiveness** and **construct validity**
- Follow-up questions after screeners, to capture nuanced information on characteristics of maltreatment experiences e.g., frequency, severity, person, age)
- Captures other major childhood adversities (confounders) & key parental features
- Practicability (time and cost to administer, and minimise missing data);

We have modified the JVQ-R2 to enhance language; conceptual congruence; comprehensiveness; and to meet Study aims. We have tested in multiple stages.

Instrument: The JVQ-R2: Adapted Version (Australian Child Maltreatment Study)

20 screener questions: different manifestations of each kind of abuse/neglect (severity)

- Physical abuse: 2 (+ corporal punishment)
- Sexual abuse: 5 (+ 2 on internet victimization)
- Emotional abuse: 4
- Neglect: 3
- Exposure to domestic violence: 4

Follow-up questions:

- frequency (number of times; or duration over time)
- age of onset and cessation
- relationship with person(s) who did the acts

Conceptual congruence: extremely important – thoroughly tested

Parameter 2: Health Outcomes - Mental Health



We use the MINI (Mini International Neuropsychiatric Interview) survey instrument

Key advantage: obtains **clinical diagnoses** for key conditions

We will generate evidence about:

- Generalized anxiety disorder
- Post-traumatic stress disorder
- Alcohol use disorder
- Psychotic disorders
- Bipolar disorder
- Major depressive disorder

Also: questions on:

- Suicidal thoughts/attempts
- Self-harm
- Substance use
- Sub-clinical alcohol use

Parameter 2: Health Outcomes - Physical Health

Modules from the NSMHW and tailored items will assess health related outcomes

Physical health diagnoses

- Obesity
- Cardiovascular disease
- Diabetes
- Autoimmune disorders

Poor Health Behaviours

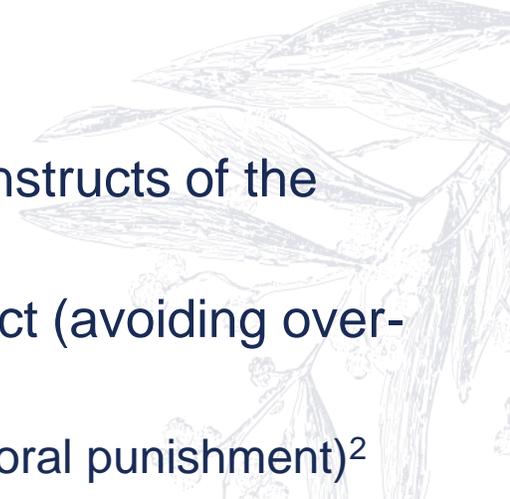
- Tobacco use
- Alcohol use
- Substance use

Parameter 3: Burden of Disease

The personal, community and national economic costs of maltreatment will be assessed via:

- **Burden of disease** - including Disability Adjusted Life Years attributable to health conditions from child maltreatment, calculated based on prevalence data to assess human impact
- **Health service utilization** - Data gathered on a range of health service utilisation aspects (e.g., hospitalisations, medical and mental health consultations, medication use, etc)

A Note on Conceptual Models



Many studies have asked questions that are not congruent with sound conceptual constructs of the forms of child abuse and neglect¹

A key strength of the ACMS is that its items robustly embody each theoretical construct (avoiding over-estimating and under-estimating maltreatment)

- **Physical Abuse:** intentional acts of physical force by a parent/caregiver (excludes lawful corporal punishment)²
- **Sexual Abuse:** contact and non-contact sexual acts by any adult or child in a position of power over the victim, to obtain sexual gratification for the person or another person whether immediately or deferred in time and space, when the child either does not have capacity to provide consent, or has capacity but does not provide consent³
- **Emotional Abuse:** parental behavior, typically repeated, that conveys to the child they are worthless, unloved, unwanted, or only of value in meeting another's needs, exemplified by acts of hostility; terrorizing; rejection; isolation; corruption; and denying emotional responsiveness⁴
- **Neglect:** parental failure to provide a child with the basic necessities of life as suited to the child's developmental stage and as recognised by the child's cultural context; categories include physical, emotional, medical, supervisory and educational neglect⁵
- **Exposure to Domestic Violence:** witnessing a parent/family member subjected to assaults, threats, or property damage by another adult/teenager who normally lives in the household; also includes other forms of inter-parental coercion⁶

Limitations and future goals

Limitations

- Not possible to assess all health/other outcomes – could be supplemented by other methods e.g., data linkage studies
- Hard-to-reach subpopulations – could be supplemented by separate dedicated study; will use weights and adjustments

Future goals and ambitions

- Repeat prevalence studies with separate youth samples to track improvements as policy and practice change is implemented
- Longitudinal study to identify mechanisms of impact over time, intergenerational trends, efficacy of interventions

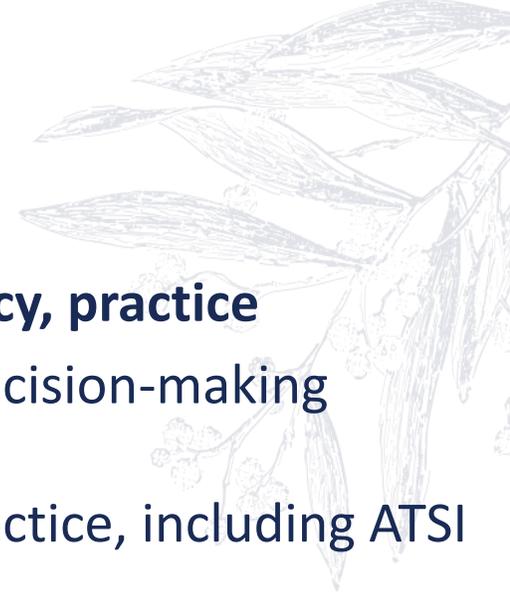
Progress to date Feb 2019 - June 2020

- Staff recruitment
- Project infrastructure
- Institutional contracts
- National media launch
- Analyses of practical & ethical issues
- **Ethical clearance obtained**
- Data management plan
- Website development (live March 2020)
- Advisory Group terms of reference & invitations
- Seeking supplementary funding
- Initial engagement with government stakeholders and community end-users including service peak bodies
- Ongoing team meetings
- Ongoing engagement with survey provider (Social Research Centre)
- Publication planning; three articles in progress
- **Draft survey instrument developed**
- Team workshop September 2019
- Draft survey instrument **external review** by international Technical Expert Panel
- **Revised instrument**
- **Interviewer training**
- **Interview software design and testing**
- **Cognitive testing of instrument (two stages, in Melbourne)**
- **Qualitative testing with abuse survivors**
- **Further instrument refinement**
- Pilot survey (n = 100) and test-retest
- **Instrument debrief with SRC interviewers**
- Analysis of pilot data: excellent results

Next steps

Year	Primary focus
2020	Analyse full pilot study data; final instrument refinement; initial publications; ongoing engagement with Advisory Board and Technical Expert Panel; prepare interviewer training
2021	Main survey: recruitment and data collection, data cleaning; ongoing engagement, publications
2021-22	Data analysis, knowledge transfer, ongoing engagement, publications
2022-23 +	Publications, policy briefs, engagement and impact focus

Points of interest: out of home care



- > 44,000 children in OOH care (30 June 2019) (18,000 Indigenous)
- 8/1000 all children (54/1000 Indigenous)
- Vic: 6/1000 - NSW: 9.5/1000
- >30,000 children in OOH care for > 2 years
- Indigenous children 10 times more likely to be in care
- 52% kinship; 39% foster care
- NSW OOH care budget >\$1b p.a
- Note: likely widespread unmet clinical need

Major issues in public health, law, policy, practice

- Adequacy of legal principles about decision-making (placement, service provision)
- Proper application of principles in practice, including ATSI child placement principle
- Quality of agency decision-making (practitioner knowledge, training, support); **differential response**
- Proper balance: preservation vs child safety
- Improving placement stability + permanency

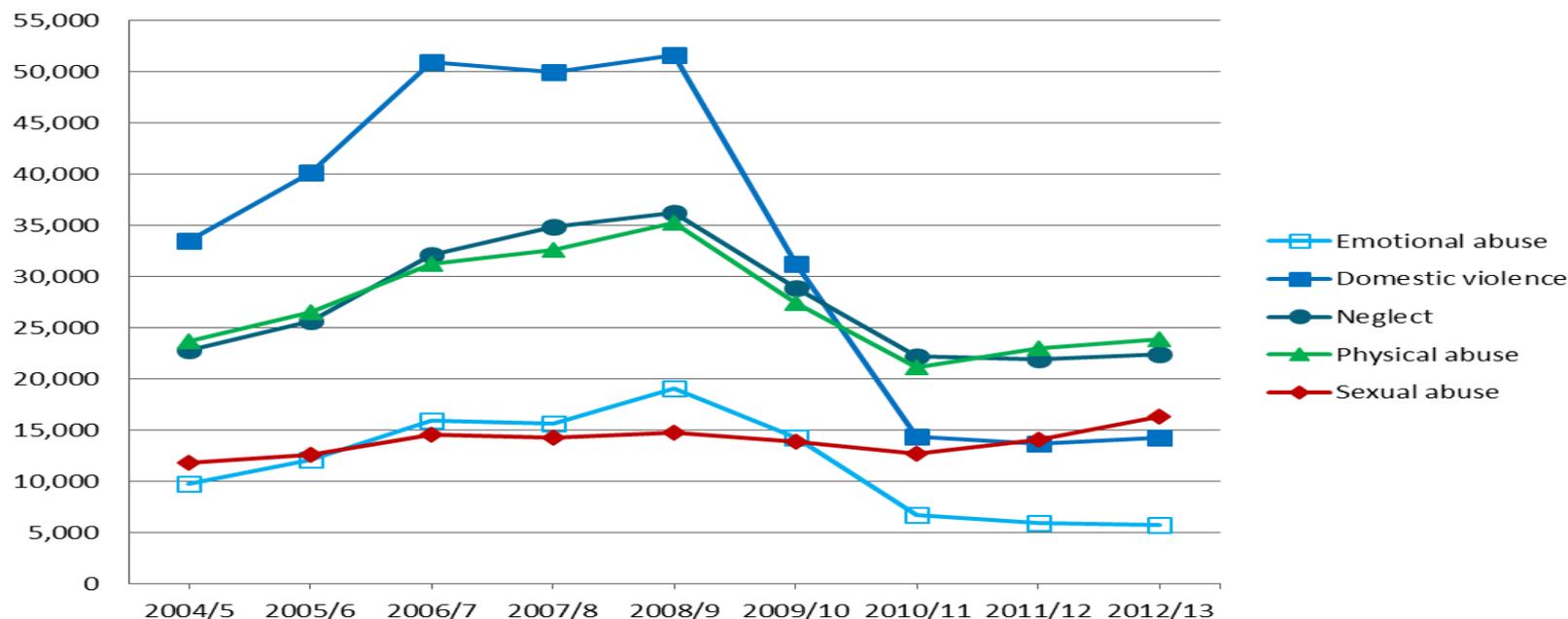
PREVENTION

Targeted service provision and supports:

- pre-natal; post-natal; home visiting
- earlier interventions (substance abuse; early trauma: PH intervention)
- Targeted interventions informed by evidence

How systemic and practical changes can happen

- NSW 2004-09: undesirable/unintended results in reporting of child maltreatment, especially for EDV (police), neglect
- Jan 2010: mandatory reporting legislation amended:
 - emphasised only “significant harm” should be reported
 - removed penalty for noncompliance
 - enabled reports of cases of family need to community agencies, not statutory child protection
- 2010-11: reporting behaviour changed, then stabilised



ACMIS

Fig. 13 Number of notifications by year, by abuse type, all reporter groups combined, 2004/05 – 2012/13

Australian
Child
Maltreatment
Study



How social factors can influence change: Victoria - increase in reports of emotional abuse/EDV, even though not a mandated category – challenges for child welfare and family support systems – noting actual clinical/social need

Fig 12. Reports of Emotional abuse/Exposure to domestic violence (not a mandated category), varying over time; influence of social factors

MR groups	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Not Investigated	2,951	2,863	3,443	3,893	2,772	4,780	7,464	10,315	13,088	17,548
Investigated	1,539	1,655	1,626	1,706	1,230	1,510	1,807	2,232	2,547	3,296
- Substantiated	1,188	1,290	1,288	1,305	861	1,036	1,145	1,484	1,780	2,241
- Not Substantiated	351	365	338	401	369	474	662	748	767	1,055
Total:	4,490	4,518	5,069	5,599	4,002	6,290	9,271	12,547	15,635	20,844
Other reporter groups										
Not Investigated	5,099	4,846	4,940	5,529	4,810	7,460	9,984	11,123	14,120	16,902
Investigated	2,160	2,254	1,896	2,084	1,868	2,331	2,504	2,670	3,248	3,734
- Substantiated	1,369	1,531	1,320	1,474	1,194	1,315	1,391	1,511	2,007	2,376
- Not Substantiated	791	723	576	610	674	1,016	1,113	1,159	1,241	1,358
Total:	7,259	7,100	6,836	7,613	6,678	9,791	12,488	13,793	17,368	20,636

Australian
Child
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Selected References

Dubowitz H, Newton RR, Litrownik AJ, Lewis T, Briggs EC, Thompson R, et al. (2005). Examination of a conceptual model of child neglect. *Child Maltreatment*, 10(2), 173-89.

Finkelhor D, et al. (2005). The Juvenile Victimization Questionnaire: Reliability, validity, and national norms. *Child Abuse & Neglect*, 29, 383-412.

Finkelhor D, et al. (2005). The victimization of children and youth: a comprehensive, national survey. *Child Maltreat* 10: 5–25. ***Finkelhor** D, et al. (2009). Violence, abuse, and crime exposure in a national sample of children and youth. *Pediatrics* 124: 1411–23.

Finkelhor D, et al. (2015). Prevalence of Childhood Exposure to Violence, Crime, and Abuse: Results From the National Survey of Children's Exposure to Violence. *JAMA Pediatrics* 169: 746–54.

Finkelhor D, et al. (2014). Child maltreatment rates assessed in a national household survey of caregivers and youth. *Child Abuse and Neglect*, 38, 1421–35.

Ford-Gilboe, M., Wathen, C. N., Varcoe, C., MacMillan, H.L., Scott-Storey, K., Mantler, T., Hegarty, K., & Perrin, N. (2016). Development of a brief measure of intimate partner violence experiences: the Composite Abuse Scale (Revised)—Short Form. *BMJ Open* 6:e012824

Gakidou E...Erskine H, Pacella R, et al. (2017). Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet*, 390(10100):1345-422.

Glaser D. (2011). How to deal with emotional abuse and neglect: further development of a conceptual framework. *Child Abuse & Neglect*, 35, 866-75

Hamby S, **Finkelhor** D, et al. (2010). The overlap of witnessing partner violence with child maltreatment and other victimizations. *Child Abuse & Neglect*, 34, 734-41.

Hughes K, et al. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *The Lancet: Public Health*, 2(8):e356-e66

Kairys, S.W., Johnson, C.F., and the Committee on Child Abuse and Neglect. (2002). The Psychological Maltreatment of Children—Technical Report. *Pediatrics*, 109, e68

Mathews B, Collin-Vézina D. (2019). Child sexual abuse: Toward a conceptual model and definition. *Trauma, Violence & Abuse*, 20(2), 131-148.

Mathews, B., Pacella, R., Dunne, M., Simunovic, M., & Marston, C. (2020). Improving measurement of child abuse and neglect: a systematic review and analysis of national prevalence studies. *PLoS ONE* 15(1): e0227884. <https://doi.org/10.1371/journal.pone.0227884>

The Australian Child Maltreatment Study Team. (2020). Australian Child Maltreatment Study Instrument Design: Conceptual mapping to configure the Juvenile Victimization Questionnaire Child Maltreatment Screeners. Brisbane. 1-50.

The Australian Child Maltreatment Study Team. (2020). The JVQ-R2: Adapted Version (Australian Child Maltreatment Study) (Draft instrument). 1-161.

Mathews B, Walsh K, Dunne, M, Higgins, D., et al. (2016). Scoping study for the first Australian national survey of the prevalence of child abuse and neglect. Sydney: Royal Commission into Institutional Responses to Child Sexual Abuse, 1-256.

Meinck F, Fry DA, Ginindza C, et al. (2017). Emotional abuse of girls in Swaziland: prevalence, perpetrators, risk and protective factors and health outcomes. *Journal of Global Health*, 7(1).

Norman RE, et al. (2012). The long-term health consequences of child physical abuse, emotional abuse, and neglect: a systematic review and meta-analysis. *PLOS Med*, 9: e1001349.

*Radford L, et al. (2013). The prevalence and impact of child maltreatment and other types of victimization in the UK: findings from a population survey of caregivers, children and young people and young adults. *Child Abuse and Neglect*, 37, 801–13.

WHO and International Society for Prevention of Child Abuse and Neglect. Preventing child maltreatment: A guide to taking action and generating evidence. Geneva: WHO; 2006.



Questions?

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See: [ACMS website](#)

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