



Global and inclusive considerations for the future of ACEs research

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ABSTRACT

Exposure to Adverse Childhood Experiences (ACEs) can increase the risk of physical, mental, behavioral, and educational difficulties across the lifespan. ACEs research to date has largely had an individualistic approach, considering experience impacting one person within their own family. In order to be more relevant across societies and cultures around the globe, there is a need to build on current ACEs research by also considering broader aspects of the social ecology including individual, societal, and cultural factors. This commentary discusses the limitations of the current ACEs research and the need to also consider social and methodological aspects of adversity. The importance of considering protective factors is also discussed.

1. Introduction

The Impact of ACEs

Research on Adverse Childhood Experiences (ACEs) has increased exponentially since the initial study nearly 30 years ago. There is now high-quality evidence that has been replicated across several studies showing that exposure to ACEs, including abuse, neglect, and household challenges, is common and increases the risk for adverse health, mental health difficulties, and risk behaviours across the lifespan (Hughes et al., 2017). ACEs have also been shown to be costly, accounting for a significant portion of a country's annual gross domestic product (Hughes et al., 2021; Struck et al., 2021). As such, preventing and addressing ACEs' consequences is an urgent public health concern worldwide.

Evidence shows that ACEs have both immediate and long-term outcomes on physical and mental health. There is a dose-response relationship between the number of ACEs and the common risk factors for early death, including smoking, severe obesity, physical inactivity, depressed mood, suicide attempts, and substance abuse (Merrick et al., 2017). The connection between ACEs and negative health outcomes is related to physiological stress responses and engagement in risky behaviours to cope with stress (Crandall et al., 2019; Elvir-Lazo et al., 2024). Taken together, the impact of ACEs on wellbeing is vast and merit public health attention.

The specific effects of different types of ACEs remains a burgeoning

area of research. Given that maltreatment and household dysfunction often co-occur, it is challenging to isolate the individual contributions of each adversity type (Dong et al., 2003; Dong et al., 2004; Dube, Williamson, Thompson, Felitti, & Anda, 2004). Compared to household dysfunction, maltreatment experiences such as sexual abuse, physical abuse, and physical neglect have been found to have more substantial effects on mental health (Brayden, Deitrich-MacLean, Dietrich, Sherrod, & Altmeier, 1995; Salokangas et al., 2020). In terms of short-term outcomes, physical abuse and sexual abuse often result in physical injuries, stress-related somatic complaints, hypervigilance, elevated levels of stress hormones, sleep disturbances, and changes in appetite (Trauma-Informed Care in Behavioral Health, 2014). Emotional abuse and sexual abuse frequently lead to heightened levels of anxiety, fear, and sadness, emotional lability, difficulties with attention and memory, challenges forming and maintaining healthy relationships with peers and adults, and an increased likelihood of displaying disruptive or risky behaviours (Trauma-Informed Care in Behavioral Health, 2014). Furthermore, physical neglect and emotional neglect are associated with elevated stress levels, difficulties forming secure attachments to caregivers and significant adults, delayed growth and development due to malnutrition or lack of adequate care, and potential consequences such as poor academic performance (Compton et al., 2023; Crandall et al., 2019; Stewart-Tufescu et al., 2022; Webb et al., 2022; Yeo et al., 2024). As such, different types of ACEs are associated with disparate as well as cumulative consequences for health and well-being.

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ACEs Measurement

The original ACEs measure (Felitti et al., 1998) included items related to childhood abuse (i.e., psychological abuse, physical abuse, and sexual abuse) as well as household dysfunction (i.e., caregiver substance abuse, parental mental illness, domestic violence, and incarceration of a caregiver). Subsequently, items related to emotional neglect, physical neglect, and parental loss/divorce were included to form the 10-item version that is most used in research today (Dube et al., 2001). As the ACEs literature has grown, the need to expand the definition of ACEs beyond the original conceptualization has emerged. Indeed, several calls to include other adversities, such as poverty, racism, placement in foster care, bullying/peer victimization, and neighbourhood violence, which are also strong predictors of adverse developmental outcomes, have been made (Finkelhor et al., 2015).

In 2018, the World Health Organization created the Adverse Childhood Experiences International Questionnaire (ACE-IQ), which expanded on the 10-item version of the ACEs to include items related to bullying, peer violence, exposure to community violence, and exposure to war or conflict (World Health Organization, 2020). Created with the intention to be more internationally relevant, the ACEs-IQ measures ACEs in countries around the world. Although the 10-item version continues to be dominant in ACEs research (Madigan et al., 2023), there is potential that this may shift as the ACEs-IQ gains momentum and is being implemented.

Based on ACEs research over the last 25 years, there are limitations to the 10-item questionnaire that need to be addressed to make it more globally applicable. First, questionnaire items need to capture adverse experiences outside those that occur in Western contexts and those in the broader social ecology, rather than focus exclusively on familial factors. Second, the ACEs questionnaire primarily uses a cumulative risk framework, which limits the consideration of the timing, type, and severity of adversity exposure and may minimize a thorough understanding of ACEs in a global context. Third, ACEs research needs to move beyond a deficit model to ask additional questions about protective factors. This broader approach enhances understanding of factors that can mitigate risk. This commentary calls for a more global perspective and understanding of ACEs.

2. Moving ACEs beyond the western context

Adverse Childhood Experiences (ACEs) have garnered considerable attention in recent years for their profound impact on individuals' health and well-being. However, much of this research has been conducted within WEIRD (Western, Educated, Industrialized, Rich, and Democratic) contexts. More than 90% of previous studies reporting on ACEs prevalence have been conducted in Europe or North America (Madigan et al., 2023). These research practices often overlook the broader social ecologies that shape childhood experiences (Amundson & Afifi, 2020).

It is important to note that sociocultural inequalities also exist within WEIRD contexts, significantly influencing outcomes across different subpopulations. Consequently, there is a substantial gap in understanding the prevalence of ACEs in low and middle-income countries and within various subpopulations of WEIRD contexts, such as marginalized and racialized groups or those facing socioeconomic inequalities. Furthermore, it remains unclear which community and social adversities may most strongly predict health and mental health outcomes in these diverse settings. A recent meta-analysis highlighted that ACE prevalences have been reported in 22 different countries, encompassing 206 studies published from 1998 to 2021 and involving a total of 546,458 adult participants. The regions represented included North America, Europe, Asia, Australia, New Zealand, South America, Africa, and the Caribbean (Madigan et al., 2023). Despite extensive research on ACEs, most data is derived from adult surveys in high-income countries, emphasizing a significant lack of research on youth and individuals in

low-to-middle-income countries (Gilbert et al., 2024).

3. Considering ACEs at the community and societal levels

Although the traditional ACEs framework provides valuable insights into the impact of early-life stressors on health and well-being, there has been a narrow focus on individual experiences and experiences within the family (Afifi et al., 2020). This perspective overlooks the broader social ecologies that shape childhood, which can lead to underreported rates of childhood adversity. Examples of community and societal adversities include war, racism, colorism, community-wide poverty and barriers to basic resources, community violence (e.g., gangs, gun shootings), and environmental hardship (e.g., pandemic, pollution, natural disasters). Considering these kinds of adversities is essential for accurately characterizing children's experiences, especially within international populations. It is also important to consider that the impact of broader ACEs is not universal, with the impact of ACEs varying based on individual factors. For example, during the COVID-19 pandemic, individuals with power and privilege continued to have greater access to resources that protected them from many of the physical, psychological, emotional, and financial consequences faced by less privileged, marginalized, and oppressed groups (McGowan & Bambra, 2022).

In addition to adversities that occur at the community level, structural factors play a pivotal role in shaping childhood adversity. Racism, colonialism, poverty, and inequality are structural determinants that disproportionately affect marginalized and racialized communities (Antwi-Boasiako et al., 2022; Petion et al., 2022). Children growing up in materially deprived neighbourhoods or facing discrimination due to their race or ethnicity are exposed to unique stressors that can have long-lasting consequences. These structural inequalities exacerbate the risk of ACEs and contribute to health disparities later in life (Bonnie et al., 2022). There is considerable overlap between the social determinants of health theory and community and societal adversities. Research stemming from the social determinants of health theory acknowledges that adversities such as racism significantly impact children's socioemotional and behavioural development (Berry et al., 2021). For example, exposure to racism is associated with birth disparities and mental health difficulties in children and adolescents (Trent et al., 2019). A more comprehensive approach must consider ACEs in concert with other structural adversities as core health-shaping experiences. Expanding the ACEs framework to include adversities like racism would integrate and reflect the research supporting these realities.

Considering broader community and societal factors within ACEs research necessitates a shift in research methodologies and intervention strategies. Longitudinal studies that capture the cumulative impact of multiple adversities across different levels of the social ecology are crucial for understanding the complex pathways through which ACEs influence health outcomes. This may include better systematic collection of vital sociodemographic information as part of administrative health data. Furthermore, interventions to prevent or mitigate ACEs must adopt a multi-level approach that addresses individual and structural determinants (Amundson & Afifi, 2020). This may involve implementing policies to reduce poverty and promote community cohesion.

4. Expanding methodological considerations of ACEs

The current 10-item ACE measure is primarily used by summing the items of the questionnaire to obtain a cumulative score. This total score has been consistently associated with poor health and mental health outcomes in a dose-response fashion (Waeherer et al., 2020). The greater the number of ACEs, the poorer the outcomes. However, this simplistic approach overlooks the individual impact of each ACE and the specific characteristics of adverse exposures, such as timing, type, or severity (LaNoue et al., 2020; McLaughlin & Sheridan, 2016; McLennan et al., 2019, 2020, 2024). For instance, research indicates that children are particularly vulnerable to adverse health effects when exposed to

stressors at a young age (Flaherty et al., 2006).

Furthermore, the type of adversity experienced can have diverse effects on brain and physiological development, leading to a wide range of implications for health outcomes (Berman et al., 2022; McLaughlin & Sheridan, 2016). In addition, the reliance on a cumulative approach overlooks the importance of exposure levels. The biological, psychological and physiological mechanisms that unfold following acute adversity differ from those triggered by chronic adversity (Anda et al., 2020). Finally, summing questionnaire items to create scores linked to negative outcomes suggests that individuals with ACEs will inevitably face poor outcomes. This perception is reinforced by much of the existing literature, which tends to focus on the harmful effects of ACEs across the lifespan. However, it is essential to note that ACEs are not deterministic. Expanding ACE measurement beyond the original 10 items to be more comprehensive will provide a more nuanced understanding of how ACEs influence future health outcomes.

Structured clinical interview or the cultural formulation interview, both developed by the American Psychiatric Association, can provide more detailed information about adversity. These tools can capture childhood experiences, cultural backgrounds, family dynamics, and other environmental factors with greater detail and nuance than the ACEs questionnaire alone. However, addressing the complexity of measuring data from these interviews is beyond the scope of this paper.

5. Consideration of protective factors, adaptation, and interventions

The evidence demonstrating the direct detrimental impact of ACEs on individual health and well-being has been extensively documented (Hughes et al., 2017). However, not all children exposed to ACEs have poor outcomes. Some children demonstrate adaptation skills despite adversity exposure, inferring that the exposure to ACEs is not deterministic (Oshri et al., 2020). There is evidence that protective factors such as social support, supportive family relationships, access to education and healthcare, positive peer relationships, and a sense of belonging within one's community can mitigate the impact of adversity (Racine et al., 2022). Given the importance of protective factors, the World Health Organization created a platform of strategies to support the response and prevention of violence against children, including several protective factors such as fostering safe environments, parent and caregiver support, economic strengthening, education, and life skills. Considering these preventative and protective factors is essential to reducing ACEs internationally and having a more globally relevant approach to ACEs research (World Health Organization, 2016).

Additionally, growing evidence suggests that for some individuals and in small amounts, ACEs may also lead to adaptive changes in an individual's behaviour, cognition, and neurobiology, particularly in response to chronic stress (Racine et al., 2023; Riggs et al., 2006; van et al., 2020). Specifically, heightened vigilance in response to perceived threats, increased empathy towards others experiencing adversity, and enhanced problem-solving skills are adaptive responses that may emerge in individuals exposed to ACEs (Ellis et al., 2017). Thus, understanding sources of protection and adaptation in addition to exposure to childhood adversity will provide a more holistic understanding of the implications for child health and inform the development of preventative approaches and interventions.

A related consideration is that research examining feasible interventions for ACEs lags far behind the literature describing their impacts. Most promising research points to mental health support, with less conclusive data on other modalities (Lorenc et al., 2020). There remains a paucity of interventions linked directly to the described or hypothesized pathophysiology underlying ACEs-associated ill health (Kirlic et al., 2020). The future of ACE research needs to support a shift in study that includes evidence-based interventions that can be implemented and applied globally to improve population health.

6. Future directions

The global health burden of ACEs necessitates public health surveillance and action to reduce exposure and mitigate poor outcomes for those affected. The field of ACE research has matured, and it is time to consider factors relevant beyond Western contexts and that occur in social spheres outside the family, including community and societal levels. Research should account for exposures relevant to children across cultural and geographic contexts. It should capture the characteristics of adversity and protective factors that enhance adaptation. In future, a focus on strategies to reduce a broad consideration of ACEs should guide international, regional, and municipal policies to enhance child well-being and health.

CRedit authorship contribution statement

Kafui Sawyer: Writing – review & editing, Writing – original draft. **Samantha Kempe:** Writing – review & editing, Writing – original draft, Project administration. **Matthew Carwana:** Writing – review & editing. **Nicole Racine:** Writing – review & editing, Writing – original draft, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- Afifi, T. O., Salmon, S., Garcés, I., Struck, S., Fortier, J., Taillieu, T., Stewart-Tufescu, A., Asmundson, G. J. G., Sareen, J., & MacMillan, H. L. (2020). Confirmatory factor analysis of adverse childhood experiences (ACEs) among a community-based sample of parents and adolescents. *BMC Pediatrics*, 20(1). <https://doi.org/10.1186/s12887-020-02063-3>, 178-178.
- Amundson, E., & Afifi, T. O. (2020). Adverse childhood experiences (ACEs) beyond the WEIRD context. *Journal of Child and Family Studies*, 29(12), 3427–3430. <https://doi.org/10.1007/s10826-020-01843-7>
- Anda, R. F., Porter, L. E., & Brown, D. W. (2020). Inside the adverse childhood experience score: Strengths, limitations, and misapplications. *American Journal of Preventive Medicine*, 59(2), 293–295. <https://doi.org/10.1016/j.amepre.2020.01.009>
- Antwi-Boasiako, K., Agyemang, C., & Boateng, D. (2022). Racism and health inequities: A systematic review of the literature. *International Journal of Environmental Research and Public Health*, 19(2), 456. <https://doi.org/10.3390/ijerph19020456>
- Berman, I. S., McLaughlin, K. A., Tottenham, N., Godfrey, K., Seeman, T., Loucks, E., Suomi, S., Danese, A., & Sheridan, M. A. (2022). Measuring early life adversity: A dimensional approach. *Developmental Psychopathology*, 34(2), 499–511. <https://doi.org/10.1017/S0954579421001826>
- Berry, O. O., Londoño Tobón, A., & Njoroge, W. F. M. (2021). Social determinants of health: The impact of racism on early childhood mental health. *Current Psychiatry Reports*, 23(5). <https://doi.org/10.1007/s11920-021-01240-0>, 23–23.
- Bonnie, N., Facey, K., King, B., Fallon, B., Joh-Carnella, N., Edwards, T., Kagan-Cassidy, M., Black, T., Patrick-Drakes, V., & Anucha, C. (2022). *Understanding the over-representation of black children in ontario child welfare services. (Ontario incidence Study of reported child Abuse and neglect-2018)*.
- Brayden, R. M., Deitrich-MacLean, G., Dietrich, M. S., Sherrod, K. B., & Altemeier, W. A. (1995). Evidence for specific effects of childhood sexual abuse on mental well-being and physical self-esteem. *Child Abuse & Neglect*, 19(10), 1255–1262. [https://doi.org/10.1016/0145-2134\(95\)00078-M](https://doi.org/10.1016/0145-2134(95)00078-M)
- Compton, A. B., Panlilio, C. C., & Humphreys, K. L. (2023). What's the matter with ACEs? Recommendations for considering early adversity in educational contexts. *Child Abuse & Neglect*, 142(Pt 1), Article 106073. <https://doi.org/10.1016/j.chiabu.2023.106073>
- Crandall, A., Miller, J. R., Cheung, A., Novilla, L. K., Glade, R., Novilla, L. B., Magnusson, B. M., Leavitt, B. L., Barnes, M. D., & Hanson, C. L. (2019). ACEs and counter-ACEs: How positive and negative childhood experiences influence adult health. *Child Abuse & Neglect*, 96, 1–9. <https://doi.org/10.1016/j.chiabu.2019.104089>
- Dong, M., Anda, R. F., Dube, S. R., Giles, W. H., & Felitti, V. J. (2003). The relationship of exposure to childhood sexual abuse to other forms of abuse, neglect, and household dysfunction during childhood. *Child Abuse & Neglect*, 27(6), 625–639. [https://doi.org/10.1016/S0145-2134\(03\)00105-4](https://doi.org/10.1016/S0145-2134(03)00105-4)
- Dong, M., Anda, R. F., Felitti, V. J., Dube, S. R., Williamson, D. F., Thompson, T. J., ... Giles, W. H. (2004). The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect*, 28(7), 771–784. <https://doi.org/10.1016/j.chiabu.2004.01.008>

- Dube, S. R., Anda, R. F., Felitti, V. J., Croft, J. B., Edwards, V. J., & Giles, W. H. (2001). Growing up with parental alcohol abuse: Exposure to childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect*, 25(12), 1627–1640. [https://doi.org/10.1016/s0145-2134\(01\)00293-9](https://doi.org/10.1016/s0145-2134(01)00293-9)
- Dube, S. R., Williamson, D. F., Thompson, T., Felitti, V. J., & Anda, R. F. (2004). Assessing the reliability of retrospective reports of adverse childhood experiences among adult HMO members attending a primary care clinic. *Child Abuse & Neglect*, 28(7), 729–737. <https://doi.org/10.1016/j.chiabu.2003.08.009>.
- Ellis, B. J., Bianchi, J., Griskevicius, V., & Frankenhuis, W. E. (2017). Beyond risk and protective factors: An adaptation-based approach to resilience. *Perspectives on Psychological Science*, 12(4), 561–587. <https://doi.org/10.1177/1745691617693054>
- Elvir-Lazo, O. L., Yoshihara, M., White, P. F., & Yumul, R. (2024). Impact of adverse childhood experiences on health-related outcomes in adults: Potential implications for perioperative anesthetic management. *Anesthesia & Analgesia*, 138(1), 210–215. <https://doi.org/10.1213/ANE.00000000000006486>
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14(4), 245–258. [https://doi.org/10.1016/s0749-3797\(98\)00017-8](https://doi.org/10.1016/s0749-3797(98)00017-8)
- Finkelhor, D., Shattuck, A., Turner, H., & Hamby, S. (2015). A revised inventory of adverse childhood experiences. *Child Abuse & Neglect*, 48, 13–21. <https://doi.org/10.1016/j.chiabu.2015.07.011>
- Flaherty, E. G., Thompson, R., Litrownik, A. J., Theodore, A., English, D. J., Black, M. M., Wike, T., Whimper, L., Runyan, D. K., & Dubowitz, H. (2006). Effect of early childhood adversity on child health. *Archives of Pediatrics and Adolescent Medicine*, 160(12), 1232–1238. <https://doi.org/10.1001/archpedi.160.12.1232>
- Gilbert, L. K., Annor, F. B., Brown, C., & Dube, S. R. (2024). Introduction to the child abuse and neglect special issue “epidemiology, risk factors, and impacts of adverse childhood experiences in low- and middle-income countries.”. *Child Abuse & Neglect*, 150, Article 106748. <https://doi.org/10.1016/j.chiabu.2024.106748>
- Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *The Lancet Public Health*, 2(8), e356–e366. [https://doi.org/10.1016/S2468-2667\(17\)30118-4](https://doi.org/10.1016/S2468-2667(17)30118-4)
- Hughes, K., Ford, K., Bellis, M. A., Glendinning, F., Harrison, E., & Passmore, J. (2021). Health and financial costs of adverse childhood experiences in 28 European countries: A systematic review and meta-analysis. *The Lancet Public Health*, 6(11), e848–e857. [https://doi.org/10.1016/S2468-2667\(21\)00232-2](https://doi.org/10.1016/S2468-2667(21)00232-2)
- Kirlic, N., Cohen, Z., & Signh, M. (2020). Is there an ace up our sleeve? A review of interventions and strategies for addressing behavioral and neurobiological effects of adverse childhood experiences in youth. *Adversity and Resilience Science*, 1, 5–28. <https://doi.org/10.1007/s42844-020-00001-x>
- LaNoue, M. D., George, B. J., Helitzer, D. L., & Keith, S. W. (2020). Contrasting cumulative risk and multiple individual risk models of the relationship between Adverse Childhood Experiences (ACEs) and adult health outcomes. *BMC Medical Research Methodology*, 20(1). <https://doi.org/10.1186/s12874-020-01120-w>, 239–239.
- Lorenc, T., Lester, S., Sutcliffe, K., Stansfield, C., & Thomas, J. (2020). Interventions to support people exposed to adverse childhood experiences: Systematic review of systematic reviews. *BMC Public Health*, 20(1), 657. <https://doi.org/10.1186/s12889-020-08789-0>
- Madigan, S., Deneault, A., Racine, N., Park, J., Thiemann, R., Zhu, J., Dimitropoulos, G., Williamson, T., Fearon, P., Cénat, J. M., McDonald, S., Devereux, C., & Neville, R. D. (2023). Adverse childhood experiences: A meta-analysis of prevalence and moderators among half a million adults in 206 studies. *World Psychiatry*, 22(3), 463–471. <https://doi.org/10.1002/wps.21122>
- McGowan, V. J., & Bambra, C. (2022). COVID-19 mortality and deprivation: pandemic, syndemic, and endemic health inequalities. *The Lancet. Public Health*, 7(11), e966–e975. [https://doi.org/10.1016/S2468-2667\(22\)00223-7](https://doi.org/10.1016/S2468-2667(22)00223-7).
- McLaughlin, K. A., & Sheridan, M. A. (2016). Beyond cumulative risk: A dimensional approach to childhood adversity. *Current Directions in Psychological Science: A Journal of the American Psychological Society*, 25(4), 239–245. <https://doi.org/10.1177/0963721416655883>
- McLennan, J. D., Gonzalez, A., MacMillan, H. L., & Afifi, T. O. (2024). Routine screening for adverse childhood experiences (ACEs) still doesn't make sense. *Child Abuse & Neglect*, 106708. <https://doi.org/10.1016/j.chiabu.2024.106708>
- McLennan, J. D., MacMillan, H. L., & Afifi, T. O. (2020). Questioning the use of adverse childhood experiences (ACEs) questionnaires. *Child Abuse & Neglect*, 101. <https://doi.org/10.1016/j.chiabu.2019.104331>, 104331–104331.
- McLennan, J. D., MacMillan, H. L., Afifi, T. O., McTavish, J., Gonzalez, A., & Waddell, C. (2019). Routine ACEs screening is NOT recommended. *Paediatrics & child health*, 24(4), 272–273.
- Merrick, M. T., Ports, K. A., Ford, D. C., Afifi, T. O., Gershoff, E. T., & Grogan-Kaylor, A. (2017). Unpacking the impact of adverse childhood experiences on adult mental health. *Child Abuse & Neglect*, 69, 10–19. <https://doi.org/10.1016/j.chiabu.2017.03.016>.
- Oshri, A., Duprey, E., Liu, S., & Gonzalez, A. (2020). ACEs and resilience: Methodological and conceptual issues. *Adverse childhood experiences: Using evidence to advance research, practice, policy, and prevention*, 287–306. <https://doi.org/10.1016/B978-0-12-816065-7.00014-8>
- Petion, J. S., Lavoie, J. G., & Bélanger, D. (2022). The relationship between poverty and child maltreatment: A scoping review. *Child Abuse & Neglect*, 124, Article 105198. <https://doi.org/10.1016/j.chiabu.2021.105198>
- Racine, N., Eirich, R., & Madigan, S. (2022). Fostering resilience in children who have been maltreated: A review and call for translational research. *Canadian Psychology / Psychologie Canadienne*, 63(2), 203–213. <https://doi.org/10.1037/cap0000312>
- Racine, N., Plamondon, A., Madigan, S., McDonald, S. W., & Tough, S. (2023). Maternal adverse childhood experiences and infant neurodevelopment: A systematic review. *Developmental Review*, 63, Article 100999. <https://doi.org/10.1016/j.dr.2021.100999>
- Riggs, N. R., Greenberg, M. T., Kusché, C. A., & Pentz, M. A. (2006). The meditational role of neurocognition in the behavioral outcomes of a social-emotional prevention program in elementary school students: Effects of the PATHS curriculum. *Prevention Science*, 7(1), 91–102. <https://doi.org/10.1007/s11121-005-0024-1>
- Salokangas, R. K. R., Schultze-Lutter, F., Schmidt, S. J., Pesonen, H., Luutonen, S., Patterson, P., ... Hietala, J. (2020). Childhood physical abuse and emotional neglect are specifically associated with adult mental disorders. *Journal of Mental Health (Abingdon, England)*, 29(4), 376–384. <https://doi.org/10.1080/09638237.2018.1521940>.
- Stewart-Tufescu, A., Struck, S., Taillieu, T., Salmon, S., Fortier, J., Brownell, M., Chartier, M., Yakubovich, A. R., & Afifi, T. O. (2022). Adverse childhood experiences and education outcomes among adolescents: Linking survey and administrative data. *International Journal of Environmental Research and Public Health*, 19(18), Article 11564. <https://doi.org/10.3390/ijerph191811564>
- Struck, S., Stewart-Tufescu, A., Asmundson, A. J. N., Asmundson, G. G. J., & Afifi, T. O. (2021). Adverse childhood experiences (ACEs) research: A bibliometric analysis of publication trends over the first 20 years. *Child Abuse & Neglect*, 112, Article 104895. <https://doi.org/10.1016/j.chiabu.2020.104895>
- Trauma-Informed Care in Behavioral Health, Services. (2014). *SAMHSA/CSAT Treatment Improvement Protocols. Substance Abuse and Mental Health Services Administration*.
- Trent, M., Dooley, D. G., Douge, J., Section On Adolescent, H., Council On Community, P., & Committee On, A. (2019). The impact of racism on child and adolescent health. *Pediatrics*, 144(2). <https://doi.org/10.1542/peds.2019-1765>
- van, I. M. H., Bakermans-Kranenburg, M. J., Coughlan, B., & Reijman, S. (2020). Annual research review: Umbrella synthesis of meta-analyses on child maltreatment antecedents and interventions: Differential susceptibility perspective on risk and resilience. *Journal of Child Psychology and Psychiatry*, 61(3), 272–290. <https://doi.org/10.1111/jcpp.13147>
- Waehrer, G. M., Miller, T. R., Silverio Marques, S. C., Oh, D. L., & Burke Harris, N. (2020). Disease burden of adverse childhood experiences across 14 states. *PLoS One*, 15(1), Article e0226134. <https://doi.org/10.1371/journal.pone.0226134>
- Webb, N. J., Miller, T. L., & Stockbridge, E. L. (2022). Potential effects of adverse childhood experiences on school engagement in youth: A dominance analysis. *BMC Public Health*, 22(1), 2096. <https://doi.org/10.1186/s12889-022-14524-8>
- World Health Organization. (2020). *Adverse childhood experiences international questionnaire (ACE-IQ)*. <https://www.who.int/publications/m/item/adverse-childhood-experiences-international-questionnaire-ace-iq>.
- World Health Organization. (2016). Inspire: Seven strategies for ending violence against children. <https://iris.who.int/bitstream/handle/10665/207717/9789241565356-eng.pdf?sequence=1>.
- Yeo, G., Lansford, J. E., Hirshberg, M. J., & Tong, E. M. W. (2024). Associations of childhood adversity with emotional well-being and educational achievement: A review and meta-analysis. *Journal of Affective Disorders*, 347, 387–398. <https://doi.org/10.1016/j.jad.2023.11.083>