

Fetal Alcohol Spectrum Disorder and Adversity

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KEY MESSAGES

Individuals with Fetal Alcohol Spectrum Disorder (FASD) have a heightened sensitivity to stress because of the brain-based impacts of prenatal alcohol exposure (PAE). There are also disproportionately high rates of chronic and complex adversity among people with FASD, which differentiates them from other disability groups. In order to address these cumulative vulnerabilities, we need to be particularly vigilant in supporting and protecting this population.

Issue:

In Canada, Fetal Alcohol Spectrum Disorder (FASD) affects an estimated 4% of the general population, making it more common than Autism Spectrum Disorder, Cerebral Palsy, Down Syndrome, and Tourette's Syndrome combined [1]. Individuals with FASD experience a range of brain- and body-based difficulties resulting from prenatal alcohol exposure (PAE), including physical, cognitive, behavioural, and social-emotional challenges. PAE also predisposes individuals to experience heightened sensitivity to stress, from early infancy across the lifespan [2-4]. This sensitivity is particularly problematic as individuals with FASD often also experience elevated rates of early and later life adversity. As a result, many people with FASD are at an increased risk for challenges across the lifespan, and the harmful impacts of chronic stress and adversity are likely to be magnified because of PAE. Therefore, individuals with FASD, their caregivers, and families, require supports to prevent and buffer against poor outcomes.

The goal of this issue paper is to review the existing literature on PAE/FASD, adversity, and stress, and to discuss the importance of addressing the compounding effects of these factors.

Background:

1. Early life and sensitivity to stress

The way we each experience and respond to stress is rooted in a brain-based stress response system that begins taking shape during the earliest stages of development [5]. Prenatal exposure to alcohol can disrupt the way this system develops and lead to lifelong harmful

impacts on how individuals experience and respond to stress [6]. Exposure to adversity in early childhood also impacts an individual's sensitivity to stress [7], which has important consequences for long-term health and behaviour [8,9]. Although both PAE and early life adversity have damaging effects, there is also evidence that sensitivity to stress can be improved through intervention, suggesting that efforts to optimize the early caregiving environment may lead to healthier outcomes [7].

2. Adverse childhood experiences and FASD

Many researchers have shown that individuals with PAE and FASD experience high rates of childhood adversity [10-15], such as exposure to substance use and family violence, death of a parent, neglect, parental mental illness and criminal sentences, and instances of physical and sexual abuse [11,13,16]. Additionally, children with FASD often experience caregiving disruptions and placement instability, including early removal from their homes [16], placement in foster care [11], and multiple living placements [17,18]. Early living circumstances can have direct impacts on healthy development for children with FASD, with adverse or unstable caregiving environments influencing later attachment and behavioural issues [16,19,20]. On the other hand, living in a stable and nurturing home has been suggested to be one of the most important protective factors against negative outcomes for individuals with FASD [15].

In the general population, adverse childhood experiences (ACEs), or potentially traumatic events experienced during the first 18 years of life, can have profound impacts on an individual's long-term health and wellbeing [21,22]. These impacts include increased rates of physical health conditions, problems with mental health and addictions, and health care utilization [21-24]. The ACEs approach has had an important impact for informing population-level health. However, for many people with FASD and other complex neurodevelopmental disabilities, this approach may underestimate the complexity of the developmental and chronic nature of adversity that they experience. Therefore, it is necessary to invest in a more comprehensive and ongoing approach to understanding and responding to adversity in FASD.

3. Interaction between PAE and early life trauma

The relationship between PAE and early adversity is complex, and these two factors likely interact [12] and compound one another [25]. For example, researchers have shown that children impacted by both PAE and other experiences of postnatal adversity/trauma had worse neurocognitive, behavioural, social, and communication impairment than children with trauma but no PAE [26,27]. The combination of PAE and early adversity may also lead to additional neurodevelopmental problems, with higher rates of adversity associated with more physical, cognitive, and mental health diagnoses in children with FASD [11]. Counter to this research, in one study, researchers recently reported that individuals with FASD, with and without a history of neglect, showed similar developmental outcomes, leading the authors to conclude that some forms of early trauma may have limited further impact above and beyond PAE alone [28]. It is important to note that this study was focused specifically on experiences of neglect, which is only one of many forms of adversity experienced by children with FASD.

Some researchers refer to the additive impacts of PAE and early adversity among people with FASD as a state of “double jeopardy,” [29] and it is difficult to tease apart the unique influences of these factors on development. However, there is strong evidence drawn from the animal literature to indicate that PAE increases sensitivity to stress *in the absence of adversity* [30]. This finding suggests that PAE increases vulnerability to stress in and of itself, and this risk is likely further exacerbated by postnatal adversity. Human research in this area is challenging and has important limitations. These limitations include the inherent challenges in controlling for the many environmental factors that may influence outcomes, as well as the reality that many FASD studies include participants with high levels of impairment and clinical needs, meaning that the results may not apply to all individuals with FASD. Nevertheless, in emerging models of childhood risk, researchers emphasize the importance of considering the co-occurrence of multiple risk factors – both pre- and postnatal – to understand how these early experiences influence child development and to best support positive outcomes [31].

4. Susceptibility to adverse outcomes

Without adequate resources and supports, many individuals with FASD are at risk of continuing to experience high rates of adversity throughout their lives [13-15,32,33]. Life adversity in FASD has at times been framed as “secondary” to the brain-based aspects of FASD, such as impairments in learning or memory. However, it is more likely that the brain-based sensitivity to adversity and stress experienced by individuals with PAE, *combined with* experiences of complex adversity, lead to a range of additional problems such as increased sensitivity to stress and less effective coping, difficulties with emotion-regulation, and related mental and physical health consequences [30]. It is also important to note that experiences of adversity fall on a spectrum for individuals with FASD, with varying levels of severity, chronicity, and complexity. Ultimately, the combined factors of PAE and adversity likely exacerbate susceptibility to negative outcomes at the individual, family, community, and larger societal levels.

5. Implications for intervention

Stable relationships and environments. The harmful effects of early adversity may be prevented or buffered for all children by promoting safe, stable, and nurturing environments, as well as caregiving relationships for children and their families. This support includes providing economic and parenting assistance for families, high-quality early childhood care and education, and interventions to lessen harms and prevent future problems [34]. These principles and findings also apply to children with FASD, as researchers have shown that early intervention to promote stable and nurturing home environments may protect against problematic experiences and outcomes commonly experienced by this group [12,15]. Holistic and interactive responses incorporating lifespan and strengths-based approaches are likely to create more meaningful opportunities for success for people with FASD and their families [35].

Trauma-informed practice. Many neighbourhoods, schools, and service systems, including child welfare, substance use, mental health, and justice/corrections, are seeing the benefits of implementing trauma-informed approaches [36-40]. Trauma-informed practice is not a counselling technique, but rather a relational approach to service delivery that considers the experiences and enduring effects of early and later life trauma. It is based on principles of

creating safety, promoting agency and collaboration, and building skills in self-regulation [41,42]. Practitioners, schools, community organizations, and systems working from a trauma-informed stance can play a key role in addressing the challenges faced by individuals with FASD.

Reducing the occurrence of PAE and early adversity. System-level strategies that promote engagement, health, and social justice are important for addressing women's use of alcohol in pregnancy and the many underlying factors such as violence, abuse, neglect, and other forms of trauma. There is a wealth of knowledge on reducing alcohol use in pregnancy (e.g., [CanFASD prevention resource](#) [43]) and supporting healthy brain development (e.g., the [Brain Story](#) [44]) that can be drawn upon to reduce the likelihood and impacts of PAE and childhood adversity.

Recommendations:

- Early intervention can improve outcomes for individuals with PAE/FASD, including those who experience childhood adversity. These interventions should focus on maternal health, parenting skills, supporting the family unit, and external support systems, as well as on addressing the contextual and societal factors that contribute to both PAE/FASD and early life adversity.
- Service providers should consider how experiences of adversity, stress, and instability can complicate the clinical picture for individuals with PAE/FASD, and employ a trauma-informed approach in their work. Researchers and clinicians working on trauma-related issues should be aware of the high co-occurrence of FASD and adversity and integrate this knowledge into their practice and research approaches.
- More research is needed on the co-occurrence and interaction of PAE/FASD and adversity. Longitudinal studies would be particularly useful to examine the cumulative impacts of these pre- and postnatal adversities, as well as their influence on long-term trajectories and outcomes for people with FASD.
- There is a need for more research to identify protective factors for individuals with FASD. Researchers are beginning to explore the resiliencies, successes, strengths, and abilities of individuals with FASD, and these studies should be leveraged to identify ways of mitigating some of the early adversities experienced by people with FASD to foster more positive outcomes.

Conclusion:

PAE is among many factors that may lead to an increased sensitivity to stress. At the same time, experiences of early life adversity are common among people with FASD. Together, these factors may lead to an increased risk for negative outcomes because of brain-based sensitivity that is exacerbated by the harmful impacts of stress and adversity for individuals with FASD. Both PAE and early life adversity have a lasting impact on an individual's health and well-being, requiring proactive, early, and appropriate responses to buffer against harmful outcomes. By acknowledging and addressing the co-occurrence of, and interaction between, PAE and ongoing adversity and stress, we are in a better position to develop helpful, targeted interventions and ultimately improve outcomes for people with FASD.

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