



How Adolescent Mothers Interpret and Prioritize Evidence About Perinatal Child Protection Involvement: Participatory Contextualization of Published Evidence

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Abstract

Pregnant and parenting adolescents are more likely than adults to live with economic and social vulnerability, contributing to a higher risk of poorer maternal and newborn health outcomes. These same factors contribute to higher rates of postpartum child protection investigations among adolescents. This study describes an innovative approach to contextualize evidence on factors contributing to perinatal child protection involvement in the perspectives of pregnant and parenting adolescents. Using Weight of Evidence, an evidence-based participatory procedure, we conducted a conventional literature review and used fuzzy cognitive maps to contextualize evidence in the experiences of young mothers exposed to child protection investigations. Published evidence was contextualized through semi-structured mapping interviews with ten pregnant and parenting youth and subsequently shared with three child protection workers specialized in pre- and post-natal risk assessment. We developed and consolidated explanatory accounts describing how factors contribute to child protection involvement in the perinatal period among adolescent parents. We collaboratively designed and prioritized interventions strategies together with six adolescent parents. Young women highlighted mental health consequences of child protection involvement, including a reluctance to disclose their own health and social needs, challenges to their identity and self-confidence as parents, and social isolation. Women prioritized reducing the stigma they experience in accessing services, strengthening supportive relationships and greater understanding of their rights in child protection investigations as actionable intervention areas. Inputs of young women and service providers precipitated a reconceptualization of risk and identified how to support greater agency and self-determination among young parents experiencing child protection investigations.

Keywords Adolescent parents · Child protection · Infant · Participatory · Contextualization of evidence

Adolescent parents, and mothers in particular, report significant stigma around their identity as parents and their perceived capacity to care for their infants (Dion et al., 2021a; Gill et al., 2016; Kaur, 2014; Peterson et al., 2007). Adding to the stigma of parenting at a young age, young parents in Canada also experience considerable social disadvantages.

They are more likely than older parents to be single and have a low income (less than \$40,000 a year) (Al-Sahab et al., 2012). Adolescent mothers are more likely than adult mothers to have a mental health diagnosis of anxiety and/or depression as well as other mental health disorders (Sekharan et al., 2015). Pregnant and/or parenting adolescents are also two to four times more likely to have experienced physical abuse than adult parents (Kingston et al., 2012). While adolescent parents experience similar rates of intimate partner violence as older parents, among adolescents exposure to intimate partner violence is more likely to lead to an unintended pregnancy (Sekharan et al., 2015). Pregnant and parenting adolescents are also more likely to be precariously housed, to be characterized as misusing substances and are less likely to attend prenatal care in the first trimester, often citing financial barriers, long waiting times, lack of privacy, fear of judgment and

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not wanting to miss school (Fleming et al., 2013; Kingston et al., 2012; Sekharan et al., 2015). All these factors place adolescents and their children at higher risk for negative outcomes in pregnancy including preterm and very preterm delivery, low birth weight, and neonatal and infant mortality (Fleming et al., 2013; Kingston et al., 2012). These factors also suggest that pregnant and parenting adolescents have unique needs during pregnancy and early parenthood that risk being left unmet by mainstream services (Fleming et al., 2013; Kingston, et al., 2012). Research has shown that when appropriate supports and resources are not accessible or available, adolescent parents are more likely to be subject to investigations of their capacity to parent (King et al., 2019). Analysis of the Ontario Incidence Study of Reported Child Abuse and Neglect (referred to as OIS) suggests that adolescents have higher rates of involvement by child protection in the perinatal period than older parents, suggesting critical perinatal supports are not yet meeting the needs of this population (Fallon et al., 2011, 2013a).

The role of child protection in prenatal care and the postpartum period is complex and emotionally charged, often having lifelong consequences for both infant and parents (Berrouard, 2017; Fallon et al., 2013a, 2013b; Filippelli et al., 2017). Given their young age, pregnant and parenting adolescents may face challenges as both the recipients of child protection services and as a caregiver for an infant identified as having experienced harm or living with risk of future maltreatment. Adolescents who have experienced child protection investigations or services, including foster care, are more than twice as likely to become a young parents (Wall-Wieler et al., 2018a). Adolescents who have experienced foster care may have a challenging transition to parenting as they are more likely to have experienced abuse and neglect, and often lack strong social supports as compared to young parents without exposure to foster care. (Wall-Wieler et al., 2018a). Children of adolescent mothers who gave birth to their first child while they themselves were receiving child protection services were 7 times more likely to have their child taken into care before the child turned two, and 11 times more likely to have their child taken into care within the first week postpartum (Wall-Weiler et al., 2018a). Given the disproportionate impact of Canada's child welfare policies on Black and Indigenous communities, these inter-generational impacts are likely to further the over-representation of families with child welfare involvement in Black and Indigenous communities (Adjei & Minka, 2018; Blackstock, 2011). While operationalized and experienced differently across communities, the dismantling of traditional systems of maternity care, parenting and family structures are important contributors to the over-representation of both Indigenous and Black children in Canada's child welfare system (Adjei & Minka, 2018; Blackstock, 2011;

Blackstock et al., 2006; Lavell-Harvard & Anderson, 2014; Smylie & Phillips-Beck, 2019).

Timely identification and intervention to prevent harm to infants is critical; infants are especially vulnerable as they are totally dependent on their caregivers. Unfortunately, there is no conclusive evidence that infant child protection interventions are effective in improving infant health and social outcomes. In Canada, infants are the age group most investigated for risk of maltreatment, where caregiver functioning is the most frequent determinant of continuing provision of services upon investigation (Fallon et al., 2013a, 2013b; Filippelli et al., 2017). Studies also suggest that infants of young caregivers may experience greater child protection involvement than those born to older parents. An analysis of the 2013 OIS suggested infant maltreatment investigations involving young caregivers (under 21 years) were more likely to be transferred for on-going services (Filippelli et al., 2017). Another Ontario study found that children of young mothers were more likely to be deemed at risk of future maltreatment, receive on-going child welfare services and be referred to services beyond child welfare (King et al., 2019).

In 2020 in Canada, over 40,000 infants were born to mothers under the age of 24, and approximately 6000 of those to mothers between the ages of 15 and 19 years, accounting for 11% and 1.6% of the number of live births across the country, respectively (Statistics Canada, 2021). In the province of Ontario, where this study takes place, as of 2016, the adolescent pregnancy rate was 17.6/1000 among 15–19 year old and 56/1000 among young people (20–24 years) (Ontario Ministry of Health & Long-term Care, 2018). Few studies describe the experience of mothers navigating child protection involvement through pregnancy and the perinatal period in Canada (Brown, 2006; Dumbrill, 2006, 2010). We did not identify any manuscripts describing the experience of adolescent parents navigating child protection involvement through pregnancy and the perinatal period. To improve our understanding of factors that shape child protection risks of infants of adolescent parents, we used a participatory approach to contextualize published evidence in the knowledge and experience of stakeholders. We focus on the lived experiences of young mothers exposed to child protection investigations and of child protection workers specialized in pre- and post-natal risk assessment at a local Children's Aid Society, organizations provincially and exclusively mandated with the legal responsibility to provide child protection services for children who have been harmed or who may be at risk of harm. Our special concern was the experience of risk reduction in pregnancy and early parenting (whether for future or current risk of maltreatment or harm) and on the early stages of investigation of potential child protection risks. We did not address whether reports or referrals were substantiated, a decision based on

a child-protection workers' assessment of the credibility and persuasiveness of the evidence gathered as part of an investigation to determine whether a child needs protection and/or any on-going services. In Ontario, substantiation is related to verification as outlined in the Ontario child protection standards (2016). Given the broader use of substantiation across the child protection literature, we chose to refer only to substantiation throughout our manuscript (Fallon et al., 2013b; Ministry of Children, Community and Social Services, 2016).

This work is informed by Featherstone's proposed social model for supporting families and protecting children that recognizes relationships between individual agency and the structural determinants that may shape people's options and opportunities to exercise that agency. This model proposes an expanded consideration including but beyond individually-focused risk factors to also incorporate the social, political and economic contexts that shape family life that are rarely explicitly measured and addressed (Featherstone et al., 2018). We apply an innovative method to contextualize available evidence in the understanding and lived experience of pregnant and parenting adolescents to broaden our understanding of factors that contribute to child protection involvement. This method was developed through a commitment to participatory research and the principle that people have a right to be involved in decisions that shape their lives (Borda, 1996; Mertens & Hesse-Biber, 2013; Smith, 2012; Wallerstein, 1992) and emphasizes meaningful engagement of groups historically excluded from contextualization and decision-making opportunities. In our previous applications of this method, evidence transferred through theoretical or statistical inferences as well as context-specific understanding from stakeholders contributed to a more robust understanding of an issue and better decision-making. (Anderson, 2018; Dion et al., 2021b; Oliver et al., 2018; Sarmiento et al., 2020).

Methods

Overview

This research was a partnership with a community-based social service organization providing health and social services to pregnant and parenting adolescents. We had the support of one peer researcher with lived experience as a young mother with housing and economic insecurity who contributed to earlier phases of this work. The peer-researcher received 10 h of training, adapted and delivered by the lead author (Access Alliance Multicultural Health and Community Services, 2011). We paid the peer researcher throughout their training and for their contributions to this research. As described in a sister publication, wherever possible, we

piloted all elements of our method with the peer researcher and adopted strategies to support meaningful engagement with adolescents. Pregnant and parenting adolescents were invited to participate through recruitment posters, discussion with staff of our partner organization and brief presentations by the lead author and peer researcher. We adapted consent forms to ensure that language was accessible to potential participants (Flicker & Guta, 2008). We also opened each meeting with a discussion of young people's rights when participating in research, using a Charter of Rights for Children and Young People. We reviewed issues relating to participants' rights to be heard, to participate in the way they prefer, to be treated well and not be hurt or discriminated against (Moore et al., 2018). Participants were given a \$30 honorarium for each interview or meeting in recognition of their contributions and childcare was provided to facilitate their participation. Given the sensitivity of the topics discussed, participants were given their honorarium at the beginning of each interview, where we reiterated that they could decide when and how they would like to participate, if at all. We also included multiple check-ins throughout mapping interviews, giving participants the opportunity to re-negotiate their consent (Moore et al., 2018). Counseling staff from our partner organization were also available and aware of this study if anyone needed additional support during or after participating in discussions. As described in our sister publication, to determine the focus of our research, 13 pregnant and parenting adolescent women collectively prioritized the experience of judgement during pregnancy and parenting, and specifically as it relates to perinatal child protection involvement, as most influential to their perinatal experience. (Dion et al., 2021a, 2021b). This current article describes how we then contextualized evidence of factors that contribute to child protection investigations, first with a group of adolescent mothers involved with child protection regarding the care of their infant and then with child protection workers.

We adapted the Weight of Evidence procedure, which we developed to contextualize evidence from peer-reviewed literature with stakeholder perspectives in relation to access to perinatal care (Dion et al., 2019, 2021b). We began with a conventional mixed methods literature review on factors contributing to infant child protection investigations, and where available, among adolescent parents, in Canada. We then contextualised the findings in the lived experiences of ten young mothers exposed to child protection investigations and shared contextualized perspectives with three child protection workers specialized in pre- and post-natal risk assessment at a local Children's Aid Society. We then built on young women's knowledge to identify priority intervention strategies.

Conventional Literature Review

A systematic mixed studies review collated evidence on factors that contribute to child protection investigations among adolescent parents in Canada. With the help of a health sciences librarian, we searched Medline, CINAHL and Web of Science for primary research describing factors that contribute to infant child protection investigations, regardless of substantiation or further referral to services, and where available among adolescent parents (under the age of 22 years) compared with adult women in Canada. We included all articles published in French or English after the year 2000 and supplemented this with forward and backward citation analysis. The lead author screened all abstracts, read, and extracted data from all eligible articles, using inductive thematic synthesis for qualitative data and descriptive statistics for quantitative data (Braun & Clarke, 2006; Pluye & Hong, 2014; Popay et al., 2001).

Following procedures described elsewhere (Dion et al., 2021b), we collated findings from the literature review as a fuzzy cognitive map (Fig. 1) to facilitate the contextualization of the evidence with stakeholders. We converted all effect estimates to a common measure (odds ratios) (Bornstein & Hedges, 2019). Map nodes represent independent variables from quantitative studies, and the thickness of the lines connecting nodes represent the strength of effect estimates (e.g., a thicker line represents a higher odds ratio). “Unattached” nodes represent themes identified by inductive thematic synthesis in qualitative studies (Giles et al., 2007, 2008; Özesmi & Özesmi, 2004).

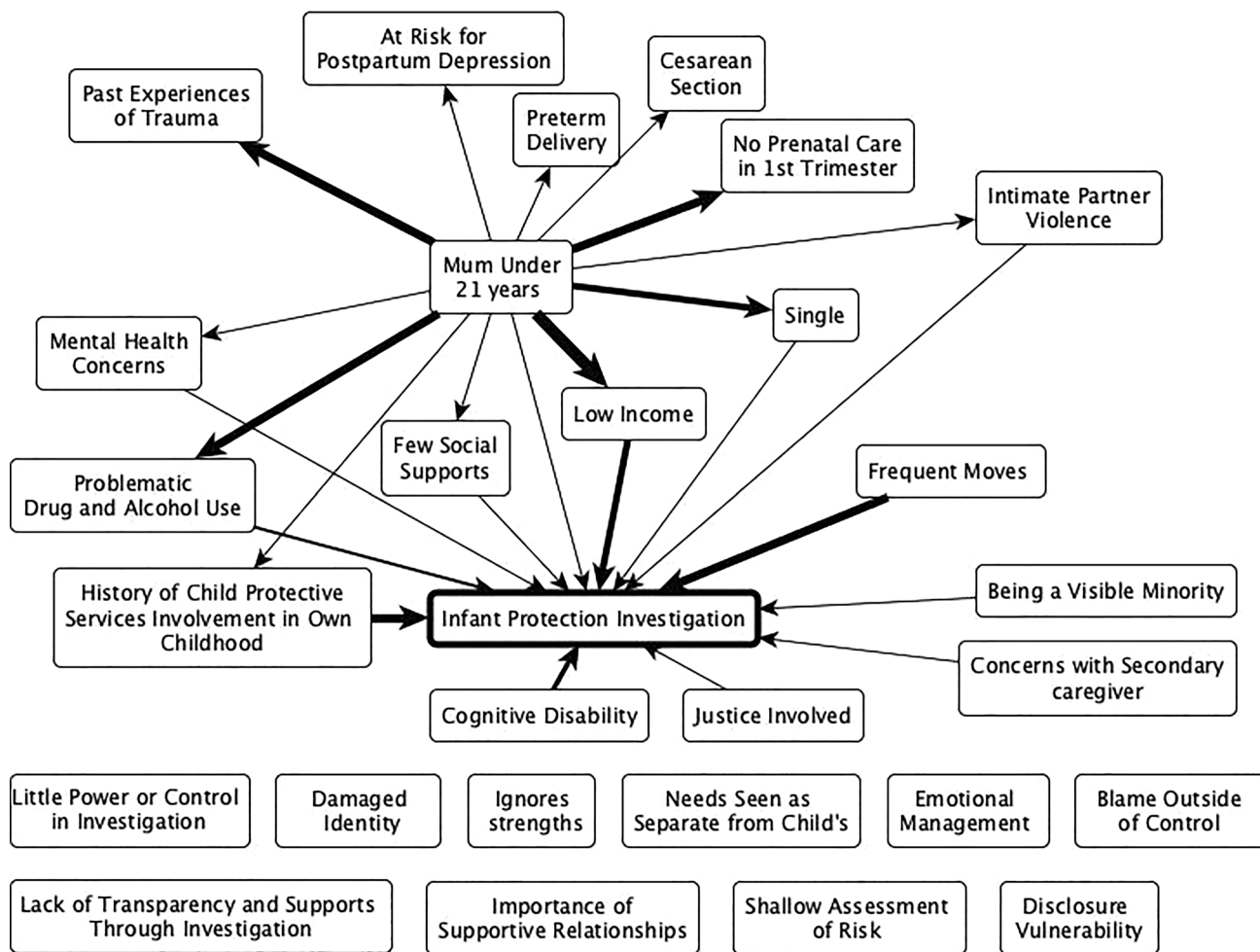


Fig. 1 Fuzzy cognitive map of factors contributing to child protection investigations from qualitative and quantitative literature. Weights of the lines represent the strength of association as reported in the quan-

titative literature and themes identified in qualitative literature are listed along the bottom, unattached

Contextualize Published Evidence in Lived Experience

How Young Mothers Conceptualize Child Protection Risk

The lead author carried out semi-structured mapping interviews with young women who experienced child protection investigation related to the care of their infant. Interviews were done individually or in pairs, beginning with a discussion of how judgment shaped their maternity care and early parenting experiences, described elsewhere (Dion et al., 2021a, 2021b). Each woman independently identified what she considered to be important factors contributing to perinatal child protection risk and involvement. As women identified factors, they summarized them in as few words as possible on small, laminated magnets. We then presented the literature-derived cognitive map (created in step 1 and shown in Fig. 1 below) on a magnetic white board and invited participants to adapt it, incorporating their own factors and removing factors they considered irrelevant. After grouping similar or synergistic factors, women assigned a weight and direction of effect (+ve or -ve, from 1 (lowest) to 5 (highest)) in assessing each factor's contribution to perceived child protection risks. Sample maps are shown in the Online Resource A. Each participant either selected their own pseudonym or created one using randomly selected words that was assigned to their maps for all analysis. Each mapping interview took approximately 2 h. The lead author followed up with participants shortly after these interviews, reminding them of the availability of counsellors if any aspects of the interview had been uncomfortable or upsetting for them.

We applied a mathematical algorithm (fuzzy transitive closure) to account for indirect relationships between factors identified in the maps (Morzaria & Šajna, 2016). This algorithm identifies indirect relationships between factors as well as the most influential pathways through a map, accounting for how factors might have a small individual influence but may also contribute to a sequence of events that have an important overall influence (Andersson et al., 2017; Giles et al., 2008). We also calculated out- and in-degree centrality using social network analysis techniques to identify the most important contributing factors and potential outcomes in maps (Özesmi & Özesmi, 2004). We averaged weights for each relationship across the women's maps to generate an average map representing adolescents' perspectives. We used an open-source software (yEd) to digitize maps and to calculate centrality measures. We then used women's maps (a) to ground available literature in priorities of adolescent mothers, and (b) as a foundation to gather child protection workers' perspectives on the evidence base and women's contextualization of the evidence.

Ground Available Literature in the Priorities and Knowledge of Adolescent Mothers

We used the weights assigned in the maps created by young mothers as Bayesian priors to update the strength of each relationship described in the literature (see Online Resource B for description of updating procedure) (Dion et al., 2021b). This calculated new weights for each relationship, increasing the weight or credibility of relationships that young women and the literature both identified as important, decreasing the weight or credibility in areas where young women did not prioritize evidence from the literature and introducing new factors not identified in the literature (Kruschke, 2015). We compared factors, weights, and pathways between the literature, from young women and from literature updated by young women's perspectives.

Contextualize Maps with Child Protection Professionals

We conducted semi-structured interviews with three child protection workers who at the time led a pre- and post-natal risk assessment unit at local Children's Aid Societies. We shared the average map of young women's perspectives of factors contributing to child protection investigations and asked child protection workers to adjust, comment on or add any factors that they felt relevant. We also asked about organizational supports and where they would prioritize interventions to prevent or reduce child protection investigations among pregnant and parenting adolescents. Detailed notes from each of the interviews were subsequently analyzed for recurring and salient themes.

Leveraging Stakeholder Knowledge to Identify Intervention Strategies

Consistent with a realist analytical approach, and following that outlined by Pearson and colleagues, the lead author drew on published literature, cognitive maps created by adolescent parents, and narrative accounts from both adolescents and child protection workers to generate explanatory accounts describing how factors and relationships between them may contribute to perceived perinatal child protection risks (Mingers, 2005; Pearson, 2015). The weighting of relationships in the maps helped to identify priority relationships (Özesmi & Özesmi, 2004). Wherever possible, explanatory accounts were described using "If....then...." statements, describing what led to outcomes and factors identified in the literature and stakeholder maps (Pearson, 2015). We also drew on notes from mapping interviews where stakeholders often verbally rationalized their selection and weighting of relationships while making the maps. When women identified factors not identified in the original literature review, we

returned to the literature to identify any additional studies addressing these specific factors. Explanatory accounts were subsequently added or adapted based on these findings. We consolidated explanatory accounts following the questions outlined by Pearson et al. and grouped them by overall theme (Pearson, 2015). We organized the consolidated themes into an explanatory framework. We shared the explanatory framework with the women that participated in the mapping interviews in individual or small group meetings, presenting each theme and the consolidated accounts that contributed to them. We asked women to (a) adapt any of the themes and consolidated accounts, including their placement within the framework, to better represent their own experiences and understanding; and (b) to identify themes (or parts within the framework) that would make the greatest positive difference in their perinatal and early parenting experience.

Ethics approval was received from the McGill Faculty of Medicine Ethics Review Board (A09-B51-17A). An Advisory Board made of senior staff of our partner organization also refined and approved this research.

Results

Conventional Literature Review

We identified 53 publications and the lead author assessed all abstracts to determine eligibility. We extracted data from 14 relevant articles (8 quantitative, 6 qualitative). A summary table of included studies is included in Online Resource C. Our findings suggest that mothers under 22 years of age are more likely than older mothers to be investigated for a future or potential infant child protection risk, despite experiencing the same rate of substantiated claims as older parents investigated for infant child protection risks (Filippelli et al., 2017; Hovdestad et al., 2018). According to an analysis of the 2003 and 2008 OIS, adolescent parents are most commonly investigated for neglect, often associated with poverty and exposure to intimate partner violence (Hovdestad et al., 2018; Trocmé et al., 2004). This same analysis suggests that adolescent mothers experience similar levels of intimate partner violence and mental health concerns as older parents investigated for infant child protection risk (Hovdestad et al., 2018). Consistent with the literature around adolescent pregnancy, evidence suggests adolescent mothers investigated for child protection concerns have fewer social supports, they are more likely to have a history of foster care in their own childhood and to experience more housing instability than older parents (described as ‘frequent moves’ if moved 3 or more times in past year) (Fleming et al., 2013; Hovdestad et al., 2018; Kingston et al., 2012).

Among infant child protection investigations in Ontario in 2008, 24.7% of mothers were under 21 years old and

41.7% were between 22 and 30 years old (Fallon et al., 2013a, 2013b). Secondary analysis of the 2013 OIS indicates that concerns around caregiver functioning were the most common reasons for investigations among infants, along with exposure to intimate partner violence, low social support, mental health concerns and drug and alcohol use (Filippelli, et al., 2017). Families investigated for infant child protection concerns were more likely to be lone caregivers, were more likely to report that the household consistently ran out of money and moved at least once in the last 6 months (Hovdestad et al., 2018). The same risk factors (lone caregiver, short of money and frequent moves) were more likely among First Nations families investigated for child welfare concerns, although this analysis did not break down rates by age of caregiver or child (Sinha et al., 2013). In an analysis of investigation rates by ethnicity across Canada, Indigenous, Black, and Asian families were over-represented among investigations for children aged 0–5 years old (Lavergne et al., 2008).

We did not identify any published qualitative studies describing the experience of adolescent parents navigating child protection investigations. We drew instead on available literature describing parents of all ages navigating child protection investigations in Canada. Several themes were incorporated from our previous work with the same group of adolescents, contextualizing factors related to judgement in pregnancy, specifically factors that might contribute to child protection risks (Dion et al., 2021a). Those themes were compared with and elaborated upon based on available literature.

Our review suggests that women felt that their identity as parents was undermined by a lack of recognition of their strengths and parenting efforts (Dumbrill, 2006, 2010). Parents felt this was further exacerbated when their health and social needs were perceived to be separate from the best interests of their child (Brown, 2006). Parents reported that once flagged as having child protection involvement, this label accompanied and continued to undermine their parental identity as they accessed other health and social services. These experiences were reported in the literature and further validated by participants in our study (Berrouard, 2017; Brown, 2006; Dumbrill, 2006, 2010). These themes were captured as ‘damaged identity’, ‘ignores strengths’ and ‘needs seen as separate from child’s’ in the fuzzy cognitive maps. Parents also highlighted the double bind of disclosing needs around mental health, substance use or other stigmatized needs when services may not be available. Without access to appropriate care, parents feared that disclosure may actually contribute to increasing the likelihood of child protection involvement (Berrouard, 2017; Brown, 2006). This theme was labelled as ‘disclosure vulnerability’ in fuzzy cognitive maps.

In the literature and confirmed by participants in our research, parents reported feeling judged for circumstances outside of their control or that some concerns were inappropriately escalated. Berrouard reported that young and/or Indigenous mothers were often reported by medical staff for concerns that hospital social workers did not consider to be protection concerns, particularly in cases where women pushed back against practices that they saw as unhelpful. Berrouard also highlighted how perceptions of risk were shaped by poverty, as accessing pre- and post-natal care was often difficult for low-income families (Berrouard, 2017; Brown, 2006). These themes were included as ‘shallow perception of risk’ and ‘blame outside of control’ in fuzzy cognitive maps.

Our review also highlighted parents’ investment in preserving positive identities and relationships, particularly with child protection workers and health and social service professionals. Parents described frustration with a lack of transparency and support around the investigation process (Berrouard, 2017; Brown, 2006; Dumbrill, 2006; Hughes et al., 2017). The challenge of maintaining positive relationships with professionals while feeling unsupported through the investigation process is captured as ‘emotional management’ in fuzzy cognitive maps, while ‘lack of transparency and support through the investigation process’ is captured as a separate theme. As a corollary, women in our study and in the literature emphasized the importance of supportive relationships with professionals and women’s social support networks. The literature described the extent to which parents sought to maintain supportive relationships and how much they were appreciated throughout their investigation experiences (Brown, 2006; Dumbrill, 2006, 2010; Hughes et al., 2017). This is captured as ‘importance of supportive relationships’ in fuzzy cognitive maps.

Figure 1 shows the fuzzy cognitive map of the factors contributing to child protection investigations among adolescent parents as described in our literature review. We included evidence from literature on factors that affect perinatal health outcomes and experiences of adolescent mothers in Canada, completed in an earlier phase of this research (Dion et al., 2021a).

Contextualizing Evidence in Lived Experience

How Young Mothers Conceptualize Child Protection Risk

Cognitive Maps

We conducted mapping interviews with 10 women (between the ages of 18–26) individually or in pairs. Most participants

had custody of their youngest child ($n=9$), though some no longer had custody of their older children ($n=3$). Most participants had experienced intimate partner violence while pregnant or parenting ($n=8$) and had had child protection involvement in their own childhood ($n=6$). Almost all participants received public income assistance ($n=8$), had accessed mental health supports during pregnancy ($n=8$) and a minority had completed high school ($n=3$). Discussions distilled ideas, issues, or themes from women’s experiences of navigating child protection risks. Fuzzy cognitive maps generated by women (Fig. 2) re-weighted factors in the quantitative literature and incorporated qualitative themes according to their relative importance to other factors in the map. Most women named factors in categories already identified in the literature and changed the weighting (or influence) of factors. Some women identified factors not in the literature.

Participants attributed greater influence than did the literature to their young age, intimate partner violence, low social support, substance use and mental health. Many risk factors (such as low income, low social supports) disproportionately affect young mothers, (Fleming et al., 2013) and participants identified their young age itself as contributing to how they may be perceived from a child protection perspective. Out-degree centrality pointed to the most influential factors for exposure to child protection investigations. After age, the most important factors were mental health concerns and risk of post-partum depression. In-degree centrality pointed to outcomes beyond a child protection investigation itself, including the vulnerability women felt upon disclosing their needs without being assured access to appropriate services or treatment, the stigma that accompanied them in navigating perinatal services, and the effort they invested in maintaining their composure through a stressful and uncertain process. Transitive closure also identified relationships between stigma, the vulnerability women felt in disclosing their needs and their efforts to maintain their composure and identity as exacerbating anxiety and other mental health concerns, and how these interdependent factors may together limit their ability to effectively mitigate child protection risks.

Narrative Accounts

The findings from the analysis of fuzzy cognitive maps resonated with participants’ narrative accounts.

I received great care for anything that directly affected my baby’s health, but my mental health didn’t fall into that. I also had to balance not saying too much -- I couldn’t say what I really feel, because admitting feeling suicidal would be seen as a risk to my child and

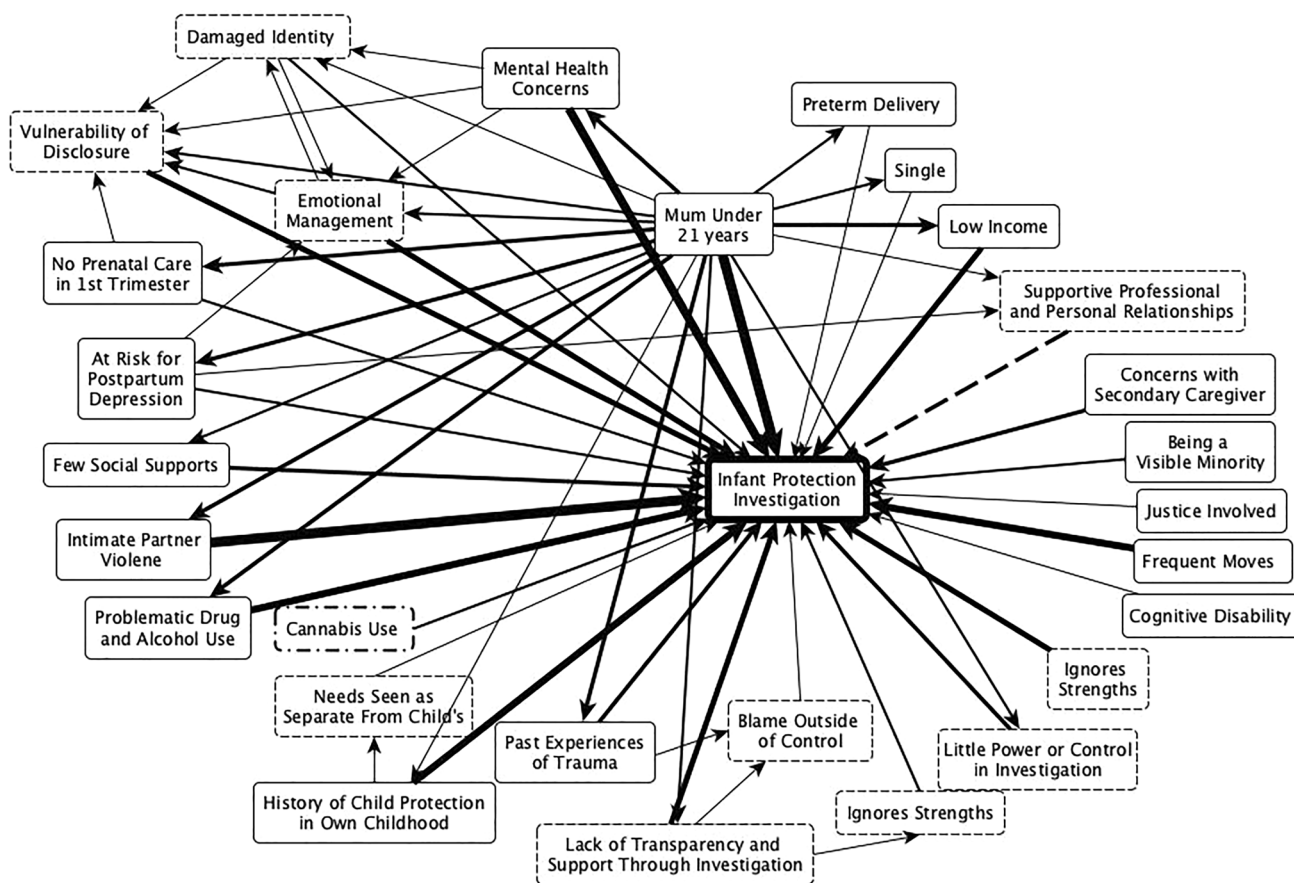


Fig. 2 Fuzzy cognitive map of factors contributing to child protection investigations from young women’s perspectives. For readability, the map only includes factors weighted 0.1 or above. Factors selected by women from the qualitative literature have a dashed outline while

those spontaneously identified by women have a dash-dot-dash outline. Reinforcing relationships are identified by a solid line between factors and inverse relationships are identified by a dashed line

would be reason to justify her removal or removal of my rights.

The experience of stigma was interwoven with mothers’ identities, sparse support networks, and multiple health and social needs. Women described repeated experiences of stigma as contributing to stress and anxiety, often without meaningful support. Women reported that, over time, the vulnerability of disclosing their needs eroded their self-esteem and that earlier access to supports more aligned with their needs was important to avoid future risk.

No one cares what we say if there isn’t an authority figure to back it up. People are falling into a system where youth don’t matter. When people look at me, nobody sees my future plans, just my present problems. We aren’t terrible or scary people or that have no idea what we are doing. Some of us are in bad situations, or made some poor choices along the way, but it doesn’t mean we don’t know anything or how to do anything.

Past experiences of trauma also contributed to less trusting relationships with health and social service providers and perceptions that parents were investigated for experiences outside of their control. One participant reacted to the evidence in the fuzzy cognitive map suggesting that mothers with child protection involvement in their youth are more likely to experience child protection investigations as parents:

I was involved with [the children’s aid society] when I was 15, so with my first child, I was automatically flagged to CAS. That in itself is messed up - there is an assumption that kids that were in CAS care as kids are less capable of being parents. All of the people that I have known in group homes are actually really motivated to be great parents because they know what it is like to not be with your own parents.

During mapping interviews, women prioritized controlling their emotions for fear of being perceived as angry or aggressive. This also translated to women hiding their own

health needs for fear of being seen as unable to care for their children. Women related this to feeling powerless or being seen as dangerous if they expressed strong opinions or did not follow a pre-defined plan set out by professional staff (captured as 'little power or control in investigation'). Some provided examples of refusing support that did not meet their needs or examples of pushing back against investigation when they felt mischaracterized. Women also spoke of the emotional and administrative effort to navigate child protection investigations, particularly when feeling they did not have the information necessary for informed decision-making (captured as 'lack of transparency and supports through investigation').

I pushed back against the rules because I didn't feel they were helpful or what I needed. Emotion management takes up a lot of time and energy.... that in itself isn't seen as cause for investigation, but sometimes it is seen as aggression- and that they will see as a need for investigation. They also do not see a mum's sacrifices, which also influences

how you manage emotions. I pushed back and did all the things they tell you not to do- I yelled at my CAS worker and called her superior because she wasn't listening. Sometimes we do need help, but the type of experience and extent of investigation shouldn't depend on the luck of the type of worker you get. My CAS worker tried to get me to sign over custody to my mother but encouraged me not to read the whole document and didn't explain to me what signing the document would mean for me.

Women also highlighted supportive relationships with friends, family, and professionals as protective against child protection risks. Many women recognized the challenges faced by professionals, including heavy workloads that may limit time available to work with clients. Participants pointed to the need to better align supports to parents' needs, including to address underlying issues and help them advocate for themselves.

It is judgment from the people that have meant something to me that hurts the most

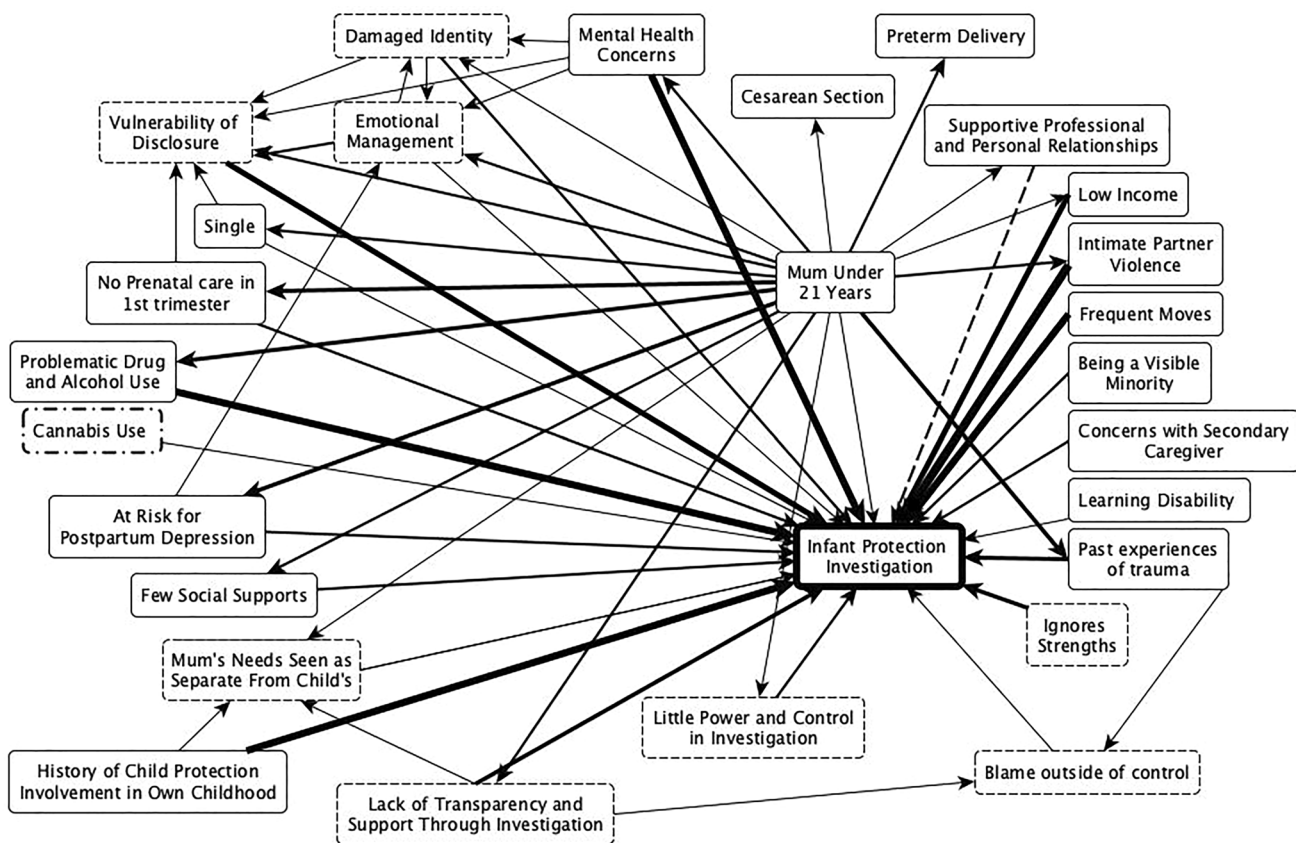


Fig. 3 Fuzzy cognitive map of factors contributing to child protection investigations from the literature updated by young women's perspectives. For readability, the map only includes factors weighted 0.1 or above. Factors selected by women from the qualitative literature have

a dashed outline while those spontaneously identified by women have a dash-dot-dash outline. Reinforcing relationships are identified by a solid line between factors and inverse relationships are identified by a dashed line

Table 1 Factors contributing to infant child protection investigations among adolescents as identified through a conventional quantitative synthesis and by contextualizing both qualitative and quantitative evidence in lived experience of adolescent mothers

Contributing factors identified in conventional evidence synthesis	Contributing factors identified by contextualizing evidence
Mother's young age (<21)	Mother's young age (<21)
Frequent moves	Mental health concerns
Low Income	Few supports through investigation*
History of child protection in own childhood	Emotional management *
Problematic drug and substance use	Damaged identity*
Intimate partner violence	At risk for post-partum depression
Single parent	Lack of parent-specific supports*
Mental health concerns	History of child protection in own childhood
Few social supports	No prenatal care
	Single parent
	Past experience of trauma
	Frequent moves
	Low Income
	Problematic drug and substance use
	Intimate partner violence
	Few social supports

Factors are listed in decreasing importance (determined by out-degree centrality) according to each knowledge source. An asterisk indicates factors from qualitative evidence prioritized by adolescent mothers

Having a supportive relationship doesn't mean they say nice things to you, but they will tell you what you need to hear... they will tell you the truth.

Updating Available Literature with the Priorities and Knowledge of Adolescent Mothers

Updating the literature with young women's perspectives expanded the breadth of factors considered relevant and shifted priorities based on evidence considered most important by women as shown in Fig. 3. Table 1 shows factors prioritized by women compared to factors captured in the conventional evidence synthesis of elements that contribute to infant protection investigations, identified by out-degree centrality for each of the maps. Some factors from the quantitative literature were upweighted by adolescent mothers while others were contextualized (e.g., re-weighted and placed in new relationships) within the overall map according to the perspectives of adolescent mothers.

Contextualize Maps with Additional Stakeholders

We interviewed three child protection workers (two of them combining more than 75 years of experience as child protection workers) and a supervisor within Ontario-based child protection agencies. The lead author reviewed the maps of published evidence, as well as how young women adapted these maps, and invited child protection staff to further adapt or contextualize the maps according to their perspectives. We identified four main themes raised in reaction to women's cognitive maps: risk in context, isolation from

community and social supports, voice and power, and institutional pressures. Each of these is explored in detail below.

Risk in Context

While child protection staff were not surprised by the evidence maps or those adapted by women, they were uncomfortable assigning weights to individual factors without considering their influence as part of a broader context. They suggested that risk be assessed based on how factors may interact to influence one's ability to parent. They also emphasized that what constitutes child protection risks are shaped by broader social norms about what behaviours are harmful to children, recognizing that these standards may be flawed and change over time. They saw their dual role of connecting families to necessary supports, while also protecting children who may be at risk, as playing an important, though often difficult, role in society.

If you see a child being neglected, wouldn't you want someone who is trained to do a proper assessment? Leaving people and families isolated in that context doesn't help kids or families.

Child protection workers described more recent efforts to 'soften' child protection interventions, citing published reports describing strengths-based, family focused models that emphasize keeping children in extended family arrangements, particularly for families that have been disproportionately affected by child protection (Clarke et al., 2018; Lwin et al., 2014; Turnell & Murphy, 2014). They also recognized the slow pace of change within institutions and that,

despite policy or institutional directives, implementing these changes required focused resources to shift practice.

While child protection workers reported having positive relationships with professionals in the community, they believed that some community service organizations may delay reporting infant child protection concerns, seeing child protection as a last resort. Child protection workers understood the reasoning behind this approach, however felt it limited the opportunity to mitigate concerns before they may require more intensive interventions. They recognized that community service organizations may also be hesitant to report risks for fear of discouraging participation in their programming, particularly when funding models are dependent on participation. Child protection workers highlighted differences in understanding about what constitutes a risk between parents and child protection workers, often referring to inter-generational impacts of poverty and trauma that influence how young parents were parented and how this may translate to current child protection risks.

Isolation from Community and Social Supports

Child protection professionals emphasized their role in connecting families to community and social supports to help mitigate risks, a gap also identified in women's maps. While protection staff emphasized building on parents' natural support structures, they also pointed to insufficient community services as challenging the mitigation of child protection risks, leading to more complex case management and limited capacity to address protection concerns. This was amplified for young mothers, who often do not meet eligibility criteria due to age and/or their parenting status. Finally, child protection workers highlighted the role of poverty in shaping access to community supports and a reduction in outreach programs that had previously facilitated the engagement of the most disadvantaged families with needed services.

Identity and Power

Child protection workers recognized the uneven power between themselves and parents facing a child protection investigation as inherent to their role within an organization charged with protecting children. As involvement with child protection in the prenatal period is voluntary, child protection workers emphasized the importance of relationship building and early engagement with families. They highlighted the specialized skills needed to engage this population and described the positive outcomes of developing mitigation strategies throughout pregnancy rather than addressing accumulated risk once an infant is born. Child protection professionals emphasized the importance that

parents understand their rights as well as their accompanying parental responsibilities and described explicit efforts to ensure parents' voices were heard throughout investigations, to use accessible language and to encourage support people to accompany parents to meetings related to child protection concerns.

Institutional Pressures

Child protection staff highlighted an increasingly heavy burden of administrative requirements and focus on accountability, with performance measured by the opening and closing cases rather than facilitating supports for families. They recognized the importance of regular and accurate reporting, however suggested professional success was increasingly based on process-related statistics rather than on outcomes for families.

Leveraging Stakeholder Knowledge to Identify Intervention Strategies

We returned to the literature review, young women's narrative accounts, and interviews with child protection workers to develop explanatory accounts of how factors shape the identification of child protection risks among young parents. Where young women identified factors or relationships not addressed in our initial literature review (as indicated in Table 1), we returned to the literature to identify studies addressing these relationships and included them in the development of explanatory accounts. We consolidated 212 explanatory accounts, derived from the literature and our mapping interviews with young women, into 10 explanatory accounts (see Online Resource D) and organized them as an explanatory framework.

Six young women helped to refine explanatory accounts and the explanatory framework, shown in Table 2 and Fig. 4, respectively. They prioritized three possible intervention areas: (1) to reduce the stigma experienced by young mothers (by addressing explanatory account A); (2) to strengthen the role of supportive relationships (explanatory account D), both among professionals and among young women's social support networks; and (3) to raise awareness, particularly among young parents, about parental rights, responsibilities and how to advocate for oneself in the context of child protection investigations (explanatory account G). These priorities informed our approach to knowledge translation. We used PhotoVoice, a participatory qualitative method that puts cameras into the hands of participants to help them document, reflect upon and communicate their concerns, to address the first two priorities, and is described in a forthcoming publication (PhotoVoice, 2019).

Table 2 Consolidated explanatory accounts

	IF	THEN	Literature
A. Difficult circumstances and tough choices	IF women have a partner or secondary caregiver that is seen as a risk; or have a physical or learning disability and professionals are not properly informed, or educated on how disability may (or may not) affect pregnancy, labour, and parenting; or uses substances while pregnant or parenting; or have had CAS involvement as a child; or are not able to find stable and secure housing.	THEN women may need additional or tailored support that require additional coordination and/or feel that they are judged as less capable and perceived as living with greater risk of harm	Brown (2006), Gill et al. (2016) and Kenny et al. (2015)
B. Disconnection from social support	IF women feel they have lost their social support network because of social stigma; or do not have access to community support and trauma-informed services before or during a child protection investigation.	THEN they may feel they have no one to rely on, be unsure of where to seek help, and feel isolated and/or they are being blamed for things outside of their control	Brown (2006), Gill et al. (2016), Kenny et al. (2015) and McKegney (2003)
C. Social expectations	IF women do not fit with dominant norms around motherhood,	THEN women may be perceived to be incapable or risky	Berrouard (2017, Krane and Davies (2000) and Sykes (2011)
D. Supportive relationships	IF women have relationships with people they trust and that believe in them; or IF women receive trauma-informed support in early pregnancy and/or parenthood,	THEN they may be more likely to feel supported and that they can get through difficult moments THEN they may be able to identify and understand how past trauma may affect their parenting and work to mitigate negative consequences	Dumbrill (2010), Gill et al. (2016) and Hughes et al. (2017)
E. Barriers faced by professionals	IF health providers and child protection workers do not have a structure, compensation model and time to build trusting relationship and understand clients' underlying challenges and lived experiences; or IF they do not recognize the influence of their own values in their judgments about someone else's parenting,	THEN they may misinterpret risk, families may not be offered services that address their true needs and women may feel unsupported or that they cannot express their needs	Berrouard (2017), Brown (2006), Dumbrill (2010), Hughes et al. (2017), McKegney (2003) and Terplan et al. (2016)
F. Risk and compliance focused	IF risk assessments do not account for the time, thought and effort required by parents to engage and keep open and accurate lines of communication and comply with child protection requirements, or have little flexibility	THEN professionals may have limited ability to offer client-centered/tailored support, families may not be offered services that address their true needs and/or women may be seen as uncooperative	Brown (2006), Krane and Davies (2000), McKegney (2003) and Sykes (2011)
G. Not knowing rights	IF parents do not feel they understand their rights surrounding child protection investigations; or are not given clear and full information about the child protection investigation; or feel like they do not have emotional, financial or structural support in navigating a child protection investigation,	THEN they may experience a sense of powerlessness and be less able to advocate for themselves and their families and/or may feel that they cannot safely voice their concerns and/or have a choice in professional support	Brown (2006) Dumbrill (2006, 2010), McKegney (2003) and Sykes (2011)

Table 2 (continued)

	IF	THEN	Literature
H. Feeling powerless, without a voice	<p>IF women feel that decisions have been made without, or despite their input, or that they continually need to fight to be heard or believed; or</p> <p>IF professionals voice negative opinions about a woman's choices</p>	<p>THEN this may limit open communication, and/or women may feel misunderstood, powerless and lose trust in professionals to support their needs and may be less likely to seek out support</p>	<p>Brown (2006), Dumbrill (2006) Krane and Davies (2000), McKegney (2003) and Sykes (2011)</p>
I. Blame	<p>IF parents feel they are being made responsible for issues that are outside of their control, or are unable to access support for their own needs and achieve the requirements placed on them by child protection investigations</p>	<p>THEN risk reduction strategies may place unrealistic goals for parents, mis-characterize family's needs, and responses, and/or parents may be labeled as 'non-compliant' and may feel powerless and perceive child protection workers as unsupportive</p>	<p>McKegney (2003) and Sykes (2011)</p>
J. Judged and labelled	<p>IF people are perceived to be uncooperative or non-compliant during pregnancy, labour, and delivery; or</p> <p>IF people are flagged for as having child protection risks,</p>	<p>THEN people may feel that they cannot openly express their needs, they may hide their emotions for fear of appearing aggressive or angry or may learn to bury their emotions; or</p> <p>THEN they may feel that their identity as a parent is discounted</p>	<p>Berrouard (2017), Brown (2006) Dumbrill (2006) and McKegney (2003)</p>

Discussion

By contextualizing published evidence with client priorities, these findings emphasize relationship-building to support the prevention of child protection risks. This is particularly urgent for populations who are disproportionately identified as living with child protection risks, yet whose perspectives are rarely included in the evidence-base to address these inequities (Serrant-Green, 2011). The insights shared in this article illustrate how investigations are experienced by adolescent mothers and point to implications for both the evidence base and interventions to reduce the number of families living with child protection risks in the first year after birth. Our research contextualizes qualitative and quantitative published evidence in the perspectives of parenting adolescents and child protection workers. Participants identified factors beyond those identified in the original literature review, prompting a re-examination of what contributes to child protection risks and consequently, appropriate interventions. Making epidemiological data accessible using fuzzy cognitive maps helps stakeholders engage on equal terms with the full scope of evidence. This is an important mechanism to prevent the dismissal of community or informal knowledge on the grounds of not having full understanding of an issue (Dumbrill, 2010; Hall, 1981; Popay & Williams, 1996; Wallerstein, 1992). Young women's maps demonstrate how they assigned priorities in consideration of, not in isolation of, all available evidence. Recognizing that we understand and prioritize issues differently depending on our institutional and social positions is central to contextualizing published evidence. By inviting and holding space for multiple ways of understanding the same issue, this work demonstrates the feasibility and value of meaningfully engaging with evidence from stakeholders with different perspectives around a particularly high-stakes concern. It also presents an opportunity to explore how policy and interventions align with stakeholder needs to better understand why some interventions succeed, while others fail (Harding, 2003; Keller, 1992; Maxwell, 2012).

There are practical implications from these findings. The profound and positive influence of supportive relationships points to the importance of collaborating with parents in their own context. Recognizing difficult or oppositional reactions as distress related to the threat of child removal plays an important role in humanizing and contextualizing parents' responses (Featherstone et al., 2014). This includes recognizing that a reluctance to disclose a need for services may be a parents' instinct to protect their children. While child protection concerns need to be acted upon, building relationships and risk mitigation strategies throughout pregnancy allows for a better understanding and leveraging of parents' strengths and social context, as suggested by child protection

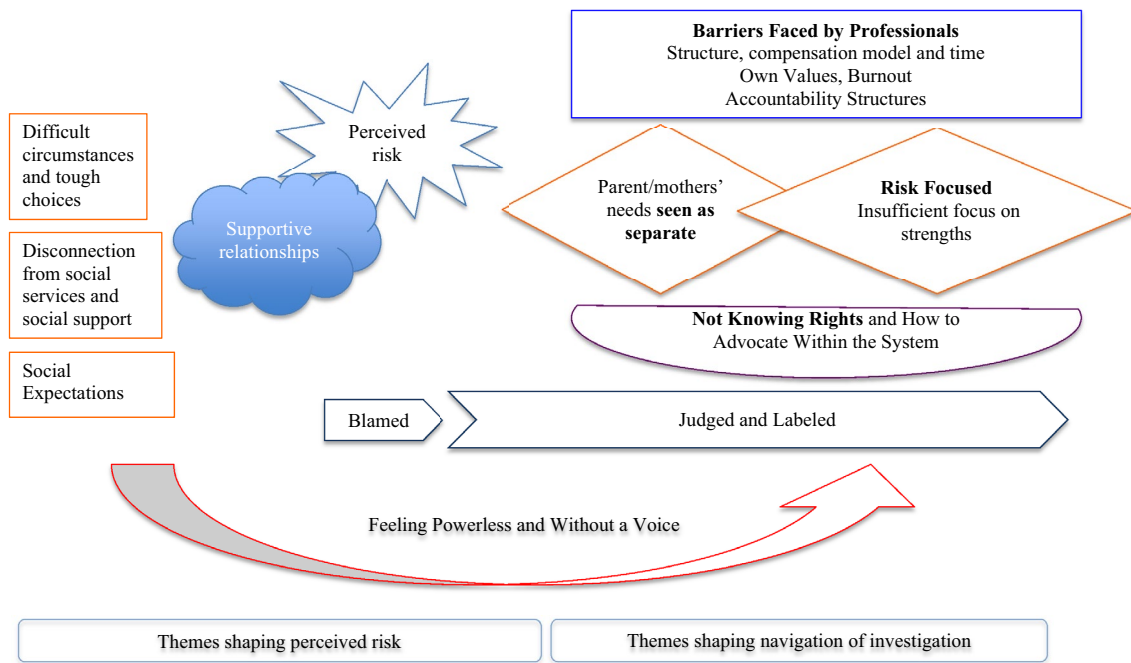


Fig. 4 Explanatory framework developed in collaboration with pregnant and parenting adolescents, informed by published evidence and fuzzy cognitive maps created by participants

workers in this study. Women's efforts to maintain positive relationships with professionals, meet their own health and social needs while also protect against the negative impacts of stigma, demonstrate their resourcefulness and strategic thinking in the interest of maintaining their parenting roles and identities.

This study also points to the effect child protection investigations themselves may have on the immediate and long-term well-being of young mothers (Kenny et al., 2015; Wall-Wieler et al., 2018a). Recent studies have shown that mothers whose children have been taken into care have higher mortality rates due to avoidable deaths, including higher rates of suicide (Wall-Wieler et al., 2018b, 2018c, 2018d). Mothers whose children have been taken into care also showed significantly higher rates of anxiety and substance use disorder two years after custody loss than matched sisters who maintained custody of their children (Wall-Wieler et al., 2018e, 2018f). A recent study in British Columbia found that separating mothers who use substances from their children were 50% more likely to experience an unintentional overdose. The effects of removal were compounded for Indigenous mothers, reflective of Canada's colonial child welfare policies and the over-representation of Indigenous children in the child welfare system (Blackstock, 2011; Thumath et al., 2020; Trocmé et al., 2004).

While not all mothers in our study lost custody of their children, our study suggests the investigation itself is not without risk of harm. Women spoke of the mental health

consequences of living with the stigma of having child protection involvement. In the absence of comprehensive trauma-informed services, perinatal child protection surveillance is more likely to lead to removal than address the underlying factors that are most likely to contribute to child protection risks for a newborn (Tsantesfki et al., 2014). Women in this study highlighted how the threat of child protection involvement carried secondary effects related to care-seeking for their own needs, challenged their identity and self-confidence as parents, and reflected a loss of connectedness with formal and informal support networks.

Multiple studies confirm what mothers in our study highlighted as shouldering individual blame for risks that are often outside the sphere of parental control (Berrouard, 2017; Blackstock, 2009; Brown, 2006). A lack of accessible community supports was highlighted by child protection workers as a factor complicating efforts to address the root causes of child protection risks, often leaving mothers feeling alienated from an unsupportive system rather than integrated into a community response (Brown, 2006). Despite the prominent role of poverty, mental health concerns and social isolation in future maltreatment determinations, child protection mandates are rarely designed to address these social determinants of risk (King et al., 2019). The individualization of risks that are more squarely due to unequal social and economic contexts points to the need for a recalibration towards a shared focus on both agency and structure and how these influence choices and opportunities

(Featherstone et al., 2018). This recalibration is especially critical in addressing the longstanding inequitable funding gap for health and social services, including child welfare services, for First Nations children on reserve, where Indigenous families are deprived of the same access to services as non-Indigenous families (Blackstock, 2011). It is estimated that First Nations children on reserve receive 22% less per capita in child welfare funding than non-First Nation children, where this shortfall is most extreme with respect to services intended to keep children at home (Loxley et al., 2005; McDonald & Ladd, 2000). Gaps in community-specific family support services are also highlighted as critical resources to better meet the needs of African Canadian families (Clarke et al., 2018).

Given well documented concerns about the effectiveness of child protection services, as well as findings from this study suggesting that the investigation process itself is not without risk of harm, greater investments in upstream risk prevention are needed to address young parents' needs before they become protection concerns. Just as health and social care providers have a 'duty to report' when the risk of harm is both clear and imminent, greater focus and capacity is needed to ensure an equal, if not larger focus on a 'duty to respond' to the social determinants of risk. This requires a re-examination of our collective response to risk and a re-orientation of child protection services to where it has both the expertise and capacity to deliver on its mandate. This is of particular relevance as, following long-standing advocacy efforts by Indigenous and Black communities across Canada, Ontario recently committed to ending 'birth alerts', a practice where a healthcare provider or social worker notifies hospital staff pre-emptively if they have a concern for the safety of a newborn. The province's end to birth alerts was accompanied by calls for greater coordination between hospitals and community-organizations for the proactive prevention of child protection risks throughout pregnancy and early childhood (Government of Ontario, 2020). However, without an evidence-based, community-led approach to re-orienting health and social supports through pregnancy and early childhood, some families may become even more vulnerable (King et al., 2019; Tsantefski et al., 2014).

Across Canada, there is increasing attention given to family-centered, trauma-informed approaches to perinatal care. Interventions that focus on caregiver needs, such as poverty and limited social supports, substance misuse, mental illness and domestic abuse decrease costs and have a positive effect on family preservation (Fleming et al., 2012; Nathoo et al., 2015; Ordean et al., 2013). Research shows that support services that explicitly recognize the interconnectedness of maternal, fetal and infant health have a more profound effect on health outcomes and the maintenance of family integrity than those that focus on parenting skills alone (Fleming et al., 2012; Tsantefski, et al., 2014). Increasing

evidence also suggests the importance of cultural continuity and community leadership in shaping perinatal care and child services in re-framing, developing, implementing and evaluating prenatal, reproductive and child health services (Blackstock et al., 2006; Clarke et al., 2018; Smylie et al., 2016). Other initiatives aim to influence perinatal health by addressing more upstream determinants. A study by Brownell et al. showed higher birth weights and less pre-term births in a cohort of low-income women who received a small monthly income supplement in the prenatal period (Brownell et al., 2016). These results underscore the role that poverty plays in shaping reproductive health and the potential for intersectoral public policy to improve perinatal outcomes. Despite evidence of these promising approaches, many challenges remain at institutional levels, as highlighted by child protection workers in this study, as well as at funding and administrative levels (Blackstock, 2011). Participatory research has a significant role to play in strengthening community-led solutions to better align services with community needs. The procedure we describe here offers a way to support community-led decision-making, informed by the best available evidence, and adapted according to what might work best for a particular community context.

This work has recognizable limitations. It engaged a small group of young women accessing services at a community-based social service organization. Several of the women had lost custody of earlier children, and almost all had custody of their youngest child at the time of this study and therefore might be a special segment of this sub-population. While illustrating a more generalizable method to support client-led and evidence-informed priority setting and evaluation, the specific results of participant contextualizing and prioritizing may not be the same for other adolescent mothers in other places. Additional mapping and prioritizing with a broader and more diverse group of adolescent parents, as well as service providers, would contribute to greater representation. This would be most important among, and to be led by, communities over-represented in Ontario's child welfare system. This study did not determine whether child protection concerns were substantiated or the factors contributing to the implementation of child protection plans but focused on the identification of child protection risks.

The slim body of evidence describing the experience of adolescent parents and infant child protection investigations meant that much of the evidence contributing to the fuzzy cognitive maps was sourced from cohort studies and qualitative studies in the child protection and perinatal health fields. While this makes the contextualizing of evidence that much more important, it also means that some relationships described in the maps were informed by a single study. This highlights the need for greater research examining risk factors for child protection risks among this population. We examined factors contributing to child protection

investigation, regardless of type of risk. While adolescent parents in Ontario are most frequently investigated for future risk of maltreatment, we did not differentiate on types of risk nor their substantiation (King et al., 2019).

This study does not describe how to translate client-identified priorities into action. This was the focus of a separate knowledge translation strategy and the focus of forthcoming publications.

Conclusions

This work illustrates a formal and reproducible way to contextualize published literature in the lived experience of young women with perinatal child protection involvement. The young women in this study chose and prioritized different factors to those identified in the literature. They highlighted important levels of stress and anxiety brought on by child protection investigation, particularly when not accompanied by adequate support services, accompanied by challenges to their parental identity and self-confidence as parents and a lack of connectedness to community resources. Child protection workers highlighted the need to examine risk in context and the challenge of supporting young families isolated from kin and community support networks. The inputs of young women and service providers precipitated a reconceptualization of risk and how to support greater agency and self-determination among young parents experiencing child protection investigations. Together with young mothers, we identified priority areas to mitigate child protection risks and better support young parents.

This research demonstrates the value of contextualizing published evidence in the experience and wisdom of those with most at stake in the outcome. It combines context-specific stakeholder knowledge with quantitative and qualitative evidence from published studies, reconciling several perspectives and translating these into actionable results.

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Declarations

Competing interest The authors declare that they have no competing interests.

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References

- Access Alliance Multicultural Health and Community Services. (2011). *Community-based research toolkit: resource for doing research with community for social change*. Access Alliance Multicultural Health and Community Services.
- Adjei, P. B., & Minka, E. (2018). Black parents ask for a second look: Parenting under “White” Child Protection rules in Canada. *Children and Youth Services Review*, *94*, 511–524. <https://doi.org/10.1016/j.childyouth.2018.08.030>
- Al-Sahab, B., Heifetz, M., Tamim, H., Bohr, Y., & Connolly, J. (2012). Prevalence and characteristics of teen motherhood in Canada. *Maternal and Child Health Journal*, *16*(1), 228–234.
- Andersson, N. (2018). Participatory research: A modernizing science for primary health care. *Journal of General and Family Medicine*, *19*, 154–159. <https://doi.org/10.1002/jgf2.187>
- Andersson, N., Beauchamp, M., Nava-Aguilera, E., Paredes-Solís, S., & Šajna, M. (2017). The women made it work: Fuzzy transitive closure of the results chain in a dengue prevention trial in Mexico. *BMC Public Health*, *17*(S1), h3267–h3277. <https://doi.org/10.1186/s12889-017-4301-0>
- Berrouard, M. (2017). Medicine, monitoring and mothering: An exploration of the interplay between stigma and paradox in the child welfare and healthcare systems, pp. 1–105.
- Blackstock, C. (2009). The occasional evil of angels: Learning from the experiences of aboriginal peoples and social work. *First Peoples Child & Family Review*, *4*(1), 28–37. <https://doi.org/10.7202/1069347ar>
- Blackstock, C. (2011). The Canadian human rights tribunal on first nations child welfare: Why if Canada wins, equality and justice lose. *Children and Youth Services Review*, *33*, 187–194. <https://doi.org/10.1016/j.childyouth.2010.09.002>
- Blackstock, C., Cross, T., George, J., Brown, I., & Formsma, J. (2006). *Reconciliation in child welfare: Touchstones of hope for indigenous children, youth, and families* (pp. 1–15). First Nations Child Family Caring Society of Canada.
- Borda, O. F. (1996). Power/knowledge and emancipation. *Systems Practice*, *9*(2), 1–5.
- Bornstein, M., & Hedges, L. (2019). *Handbook of research synthesis and meta-analysis* (3rd ed.). Sage Foundation.

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Brown, D. (2006). Working the system: Re-Thinking the institutionally organized role of mothers and the reduction of “risk” in child protection work. *Social Problems*, 53(3), 352–370.
- Brownell, M., Chartier, M., Nickel, N., Chateau, D., Martens, P., Sarkar, J., et al. (2016). Unconditional prenatal income supplement and birth outcomes. *Pediatrics*, 137(6), 1–13.
- Clarke, J., Hasford, J., Gudge, L., & Mills-Minster, S. (2018). Issue 2: Imagining a community-led, multi-service delivery model for Ontario child welfare: A framework for collaboration among African Canadian community partners. *Journal of Law and Social Policy*, 28(1 and 2), 14.
- Dion, A., Joseph, L., Jimenez, V., Gutierrez, A. C., Ben Ameer, A., Robert, E., & Andersson, N. (2019). Grounding evidence in experience to support people-centered health services. *International Journal of Public Health*, 64, 797–802. <https://doi.org/10.1007/s00038-018-1180-9>
- Dion, A., Klevor, A., Nakajima, A., & Andersson, N. (2021a). Evidence-based priorities of under-served pregnant and parenting adolescents: Addressing inequities through a participatory approach to contextualizing evidence syntheses. *International Journal for Equity in Health*. <https://doi.org/10.1186/s12939-021-01458-7>
- Dion, A., Robert, E., Gutierrez, A., Jimenez, V., Ben Ameer, A., Joseph, L., & Andersson, N. (2021b). Weight of Evidence: Incorporating stakeholder knowledge in evidence synthesis to advance mixed methods research. *Journal of Mixed Methods Research*, 2021, 1–26. <https://doi.org/10.1177/15586898211037412>
- Dumbrill, G. C. (2006). Parental experience of child protection intervention: A qualitative study. *Child Abuse & Neglect*, 30(1), 27–37. <https://doi.org/10.1016/j.chiabu.2005.08.012>
- Dumbrill, G. C. (2010). Power and child protection: The need for a child welfare service users’ union or association. *Australian Social Work*, 63(2), 194–206. <https://doi.org/10.1080/03124071003717655>
- Fallon, B., Ma, J., Allen, K., Trocmé, N., & Jud, A. (2013a). Child maltreatment-related investigations involving infants: Opportunities for resilience? *International Journal of Child and Adolescent Resilience*, 1(1), 35–47.
- Fallon, B., Ma, J., Black, T., & Wekerle, C. (2011). Characteristics of young parents investigated and opened for ongoing services in child welfare. *International Journal of Mental Health and Addiction*, 9(4), 365–381. <https://doi.org/10.1007/s11469-011-9342-5>
- Fallon, B., Trocmé, N., MacLaurin, B., Sinha, V., Hélie, S., Turcotte, D., Daciuk, J., Chabot, M., & Black, T. (2013b). Canadian incidence study of reported child abuse and neglect – 2008: Study Methods. Retrieved from https://cwrp.ca/sites/default/files/publications/en/CIS_2008_Methods_March_2013a_0.pdf
- Featherstone, B., Gupta, A., Morris, K., & Warner, J. (2018). Let’s stop feeding the risk monster: Towards a social model of ‘child protection.’ *Families, Relationships and Societies*, 7(1), 7–22.
- Featherstone, B., Morris, K., & White, S. (2014). A marriage made in hell: Early intervention meets child protection. *British Journal of Social Work*, 44(7), 1735–1749. <https://doi.org/10.1093/bjsw/bct052>
- Filippelli, J., Fallon, B., Trocmé, N., Fuller-Thomson, E., & Black, T. (2017). Infants and the decision to provide ongoing child welfare services. *Child and Adolescent Psychiatry and Mental Health*. <https://doi.org/10.1186/s13034-017-0162-7>
- Fleming, N., Ng, N., Osborne, C., Biederman, S., Yasseen, A. S., et al. (2013). Adolescent pregnancy outcomes in the province of Ontario: A cohort study. *Journal of Obstetrics and Gynaecology Canada*, 35(3), 234–245.
- Fleming, N., Tu, X., & Black, A. (2012). Improved obstetrical outcomes for adolescents in a community-based outreach program: A matched cohort study. *Journal of Obstetrics and Gynecology of Canada*, 34, 1134–1141.
- Flicker, S., & Guta, A. (2008). Ethical approaches to adolescent participation in sexual health research. *Journal of Adolescent Health*, 42(1), 3–10.
- Giles, B. G., Findlay, C. S., Haas, G., LaFrance, B., Laughing, W., & Pembleton, S. (2007). Integrating conventional science and aboriginal perspectives on diabetes using fuzzy cognitive maps. *Social Science & Medicine*, 64(3), 562–576. <https://doi.org/10.1016/j.socscimed.2006.09.007>
- Giles, B., Haas, H., Sajna, M., & Findlay, C. S. (2008). Exploring aboriginal views of health using fuzzy cognitive maps and transitive closure. *Canadian Journal of Public Health*, 2008, 411.
- Gill, R., Black, A. M., Dumont, T. M., & Fleming, N. M. (2016). Photovoice: a strategy to better understand the reproductive and sexual health needs of young mothers. *Journal of Pediatric and Adolescent Gynecology*, 29(5), 467–475. <https://doi.org/10.1016/j.jpag.2016.03.001>
- Government of Ontario. (2020, June). Ontario eliminating the practice of birth alerts. Retrieved from <https://news.ontario.ca/en/release/57580/ontario-eliminating-the-practice-of-birth-alerts>
- Hall, B. (1981). Participatory research, popular knowledge and power: A personal reflection. *Convergence*, 14(3), 6.
- Harding, S. (2003). A socially relevant philosophy of science? Resources from standpoint theory’s controversiality. *Hypatia*, 19, 25–47.
- Hovdestad, W., Shields, M., Williams, G., & Tonmyr, L. (2018). Vulnerability within families headed by teen and young adult mothers investigated by child welfare services in Canada. *Health Promotion and Chronic Disease Prevention*, 35(8/9), 143–150.
- Hughes, J., Chau, S., & Rocke, C. (2017). “Act like my friend”: Mothers’ recommendations to improve relationships with their Canadian child welfare workers. *Canadian Social Work Review*, 33(2), 161–177. <https://doi.org/10.7202/1038697ar>
- Kaur, J. (2014, November 4). “Being Stuck”: Understanding the health-related and everyday lived experiences of young mothers in Rexdale, Ontario through a social determinants framework. (J. Polzer, Ed.). University of Western Ontario- Electronic Thesis and Dissertation Repository.
- Keller, E. F. (1992). Gender and science: An update. *Secrets of life secrets of death* (pp. 1–13). Routledge.
- Kenny, K. S., Barrington, C., & Green, S. L. (2015). ‘I felt for a long time like everything beautiful in me had been taken out’: Women’s suffering, remembering, and survival following the loss of child custody. *International Journal of Drug Policy*, 26, 1–9. <https://doi.org/10.1016/j.drugpo.2015.05.024>
- King, B., Fallon, B., Goulden, A., O’Connor, C., & Filippelli, J. (2019). What constitutes risk of future maltreatment among young mothers? An examination of child protection investigations in Ontario, Canada. *Families in Society: The Journal of Contemporary Social Services*, 100(4), 409–442.
- Kingston, D., Heaman, M., Fell, D., Chalmers, B., on behalf of the Maternity Experiences Study Group of the Canadian Perinatal Surveillance System, Public Health Agency of Canada. (2012). Comparison of adolescent, young adult, and adult women’s maternity experiences and practices. *Pediatrics*, 129(5), e1228–e1237. <https://doi.org/10.1542/peds.2011-1447>
- Krane, J., & Davies, L. (2000). Mothering and child protection practice: Rethinking risk assessment. *Child & Family Social Work*, 5, 35–45.
- Kruschke, J. K. (2015). *Chapter 5: Bayes’ rule. Doing Bayesian data analysis* (2nd ed., pp. 99–120). Elsevier Inc.

- Lavell-Harvard, D. M., & Anderson, K. (2014). *Mothers of the nations*. Demeter Press.
- Lavergne, C., Dufour, S., Trocmé, N., & Larrivee, M.-C. (2008). Visible minority, aboriginal, and caucasian children investigated by Canadian protective services. *Child Welfare*, 87(2), 59–76.
- Loxley, J., De Riviere, L., Prakash, T., Blackstock, C., Wein, F., & Prokop, S. T. (2005). *Wen:de: The journey continues*.
- Lwin, K., Versanov, A., Cheung, C., Goodman, D., & Andrews, N. (2014). The use of mapping in child welfare investigations: A strength-based hybrid intervention. *Child Care in Practice*, 20(1), 81–97.
- Maxwell, J. A. (2012). Diversity is real. *A realist approach for qualitative research* (pp. 49–67). Sage.
- McDonald, R., & Ladd, P. (2000). Joint national policy review of First Nations child and family services joint national policy review.
- McKegney, S. (2003). *Silenced suffering: The disenfranchised grief of birthmothers compulsorily separated from their children*. Unpublished masters dissertation. McGill University, Montreal, Canada
- Mertens, D., & Hesse-Biber, S. (2013). Mixed methods and credibility of evidence in evaluation. *New Directions for Evaluation*, 138, 5–13.
- Mingers, J. (2005). A critique of statistical modelling in management science from a critical realist perspective: Its role within multimethodology. *Journal of the Operational Research Society*, 57(2), 202–219. <https://doi.org/10.1057/palgrave.jors.2601980>
- Ministry of Children, Community and Social Services. (2016). *Ontario child protection standards*. Ministry of Children, Community and Social Services.
- Moore, T., McArthur, M., & Noble-Carr, D. (2018). More a marathon than a hurdle: towards children's informed consent in a study on safety. *Qualitative Research*, 18(1), 88–107.
- Morzaria, J., & Sajna, M. (2016). *User manual for ProBT* (pp. 1–8).
- Nathoo, T., Marcellus, T., Bryans, M., Clifford, D., Louie, S., Penaloza, D., et al. (2015). *Harm reduction and pregnancy: Community-based approaches to prenatal substance use in Western Canada*. Vancouver and Victoria.
- Oliver, S., Roche, C., Stewart, R., Bangpan, M., Dickson, K., Pells, K., et al. (2018). *Stakeholder engagement for development impact evaluation and evidence synthesis* (Vol. 3). CEDIL.
- Ontario Ministry of Health and Long-Term Care. (2018). *IntelliHEALTH Ontario*, May 11.
- Ordean, A., Kahan, M., Graves, L., Abrahams, R., & Boyajian, T. (2013). Integrated care for pregnant women on methadone maintenance treatment. *Canadian Family Physician*, 59, e462.
- Özesmi, U., & Özesmi, S. L. (2004). Ecological models based on people's knowledge: A multi-step fuzzy cognitive mapping approach. *Ecological Modelling*, 176(1–2), 43–64. <https://doi.org/10.1016/j.ecolmodel.2003.10.027>
- Pearson, M. (2015). Using realist review to inform intervention development: Methodological illustration and conceptual platform for collaborative care in offender mental health. *Implementation Science*. <https://doi.org/10.1186/s13012-015-0321-2>
- Peterson, W. E., Sword, W., Charles, C., & DiCenso, A. (2007). Adolescents' perceptions of inpatient postpartum nursing care. *Qualitative Health Research*, 17(2), 201–212.
- PhotoVoice Manual for Participatory Photography - Ethical photography for social change | PhotoVoice. (2019). PhotoVoice Manual for Participatory Photography - Ethical photography for social change | PhotoVoice. Retrieved from <https://photovoice.org/photovoice-manual-for-participatory-photography/>
- Pluye, P., & Hong, Q. N. (2014). Combining the power of stories and the power of numbers: Mixed methods research and mixed methods reviews. *Annual Review of Public Health*, 35, 29–45.
- Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., et al. (2001). *Guidance on the conduct of narrative synthesis in systematic reviews* (1st ed.).
- Popay, J., & Williams, G. (1996). Public health research and lay knowledge. *Social Science & Medicine*, 42(5), 759–768.
- Sarmiento, I., Paredes-Solis, S., Loutfi, D., Dion, A., Cockcroft, A., & Andersson, N. (2020). Fuzzy cognitive mapping and soft models of indigenous knowledge on maternal health in Guerrero, Mexico. *BMC Medical Research Methodology*, 20, 125. <https://doi.org/10.1186/s12874-020-00998-w>
- Sekharan, V. S., Kim, T. H. M., Oulman, E., & Tamim, H. (2015). Prevalence and characteristics of intended adolescent pregnancy: An analysis of the Canadian maternity experiences survey. *Reproductive Health*, 12(1), 368. <https://doi.org/10.1186/s12978-015-0093-9>
- Serrant-Green, L. (2011). The sound of “silence”: A framework for researching sensitive issues or marginalised perspectives in health. *Journal of Research in Nursing*, 16(4), 347–360. <https://doi.org/10.1177/1744987110387741>
- Sinha, V., Trocmé, N., Fallon, B., & MacLaurin, B. (2013). Understanding the investigation-stage overrepresentation of First Nations children in the child welfare system: An analysis of the First Nations component of the Canadian incidence study of reported child abuse and neglect 2008. *Child Abuse & Neglect*, 37(10), 821–831. <https://doi.org/10.1016/j.chiabu.2012.11.010>
- Smith, L. T. (2012). *Decolonizing methodologies*. Zed Books.
- Smylie, J., Kirst, M., McShane, K., Firestone, M., Wolfe, S., & O'Campo, P. (2016). Understanding the role of Indigenous community participation in Indigenous prenatal and infant-toddler health promotion programs in Canada: A realist review. *Social Science & Medicine*, 150, 128–143. <https://doi.org/10.1016/j.socscimed.2015.12.019>
- Smylie, J., & Phillips-Beck, W. (2019). Truth, respect and recognition: Addressing barriers to Indigenous maternity care. *Canadian Medical Association Journal*, 191(8), E207–E208. <https://doi.org/10.1503/cmaj.190183>
- Statistics Canada. (2021). Live births, by age of mother Table 13-10-0416-01. Retrieved May 5, 2022 from <https://doi.org/10.25318/1310041601-eng>
- Sykes, J. (2011). Negotiating stigma: Understanding mothers' responses to accusations of child neglect. *Children and Youth Services Review*, 33(3), 448–456. <https://doi.org/10.1016/j.childyouth.2010.06.015>
- Terplan, M., Kennedy-Hendricks, A., & Chisolm, M. S. (2016). Article commentary: Prenatal substance use: Exploring assumptions of maternal unfitness. *Substance Abuse Research and Treatment*, 9s2, SART.S23328-4. <https://doi.org/10.4137/SART.S23328>
- Thumath, M., Humphreys, D., Barlow, J., Duff, P., Braschel, M., Bingham, B., et al. (2020). Overdose among mothers: The association between child removal and unintentional drug overdose in a longitudinal cohort of marginalised women in Canada. *International Journal of Drug Policy*. <https://doi.org/10.1016/j.drugpo.2020.102977>
- Trocmé, N., Knoke, D., & Blackstock, C. (2004). Pathways to the overrepresentation of aboriginal children in Canada's child welfare system. *Social Service Review*, 78(4), 577–600. <https://doi.org/10.1086/424545>
- Tsantefski, M., Humphreys, C., & Jackson, A. (2014). Infant risk and safety in the context of maternal substance use. *Children and Youth Services Review*, 47(1), 10–17.
- Turnell, A., & Murphy, T. (2014). Signs of safety comprehensive briefing paper, pp. 1–68.
- Wallerstein, N. (1992). Powerlessness, empowerment, and health: Implications for health promotion programs. *American Journal of Health Promotion*, 6(3), 197–205.
- Wall-Wieler, E., Brownell, M., Singal, D., Nickel, N., & Roos, L. L. (2018a). The cycle of child protection services involvement: A cohort study of adolescent mothers. *Pediatrics*, 141(6), e20173119–e20173210. <https://doi.org/10.1542/peds.2017-3119>

- Wall-Wieler, E., Roos, L. L., Bolton, J., Brownell, M., Nickel, N., & Chateau, D. (2018b). Maternal mental health after custody loss and death of a child: A retrospective cohort study using linkable administrative data. *The Canadian Journal of Psychiatry*, 63(5), 322–328. <https://doi.org/10.1177/0706743717738494>
- Wall-Wieler, E., Roos, L. L., Brownell, M., Nickel, N. C., & Chateau, D. (2018c). Predictors of having a first child taken into care at birth: A population-based retrospective cohort study. *Child Abuse & Neglect*, 76, 1–9. <https://doi.org/10.1016/j.chiabu.2017.09.033>
- Wall-Wieler, E., Roos, L. L., Brownell, M., Nickel, N., Chateau, D., & Nixon, K. (2018d). Postpartum depression and anxiety among mothers whose child was placed in care of child protection services at birth: A retrospective cohort study using linkable administrative data. *Maternal & Child Health Journal*. <https://doi.org/10.1007/s10995-018-2607-x>
- Wall-Wieler, E., Roos, L. L., Brownell, M., Nickel, N., Chateau, D., & Singal, D. (2018e). Suicide attempts and completions among mothers whose children were taken into care by child protection services: A cohort study using linkable administrative data. *The Canadian Journal of Psychiatry*, 62(3), 170–177. <https://doi.org/10.1177/0706743717741058>
- Wall-Wieler, E., Roos, L. L., Nickel, N. C., Chateau, D., & Brownell, M. (2018f). Mortality among mothers whose children were taken into care by child protection services: A discordant sibling analysis. *American Journal of Epidemiology*, 187(6), 1182–1188. <https://doi.org/10.1093/aje/kwy062>

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